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DEPARTMENT OF
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July 12, 2005

via FedEx Mail

Diana R. Delaney, Chief Deputy Clerk
Snake River Basin Adjudication
DISTRICT COURT
253 Third Ave., North
Twin Falls, Idaho 83303-2707

Re: SRBA Case No. 39576
Subcase Nos. 51-02002, *et al.*

Dear Ms. Delaney:

Enclosed for filing are the following original document and 23 copies in the above mentioned subcases:

1. NOTICE OF SERVICE OF THE UNITED STATES' EXPERT WITNESS
REPORT IN SUPPORT OF THE UNITED STATES' OBJECTIONS TO THE
CLAIMS OF RIDDLE RANCHES / NANCY & PETER JACKSON

Thank you for your time and attention in this matter.

Sincerely,

David A. Jarvis
Paralegal

Enclosures

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WATER RESOURCES

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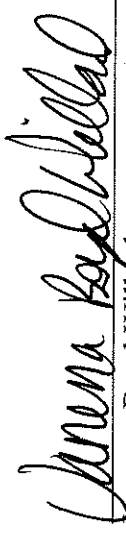
COUNSEL FOR THE UNITED STATES OF AMERICA

**IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS**

In Re SRBA	)	Subcase Nos. 51-02002, <i>et al.</i> [Exhibit A]
	)	
Case No. 39576	)	NOTICE OF SERVICE OF UNITED STATES'
	)	EXPERT WITNESS REPORT IN SUPPORT
	)	OF THE UNITED STATES' OBJECTIONS
	)	TO THE CLAIMS OF RIDDLE RANCHES /
	)	NANCY & PETER JACKSON
	)	

COMES NOW the United States by and through its counsel of record, Peter C. Monson and Vanessa Boyd Willard, and pursuant to the 3rd *Amended Trial Schedule Order*, dated April 22, 2005, hereby gives notice that on the 12th day of July 2005, United States' Expert Witness Report in Support of the United States' Objections to the Claims of Riddle Ranches / Nancy & Peter Jackson was served upon the attorney for Riddle Ranches and the Jacksons.

Dated this 12th day of July 2005.


Vanessa Boyd Willard
Indian Resources Section

CERTIFICATE OF MAILING

I hereby certify that on this 12th day of July 2005, I caused to be served true and correct copies of the attached **Notice of Service of United States' Expert Witness Report in Support of the United States' Objections to the Claims of Riddle Ranches / Nancy & Peter Jackson** as follows:

By FedEx mail:

DISTRICT COURT (original + 23 copies)
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By first-class U.S. mail:

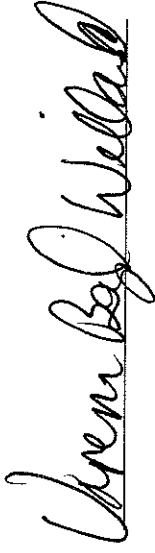
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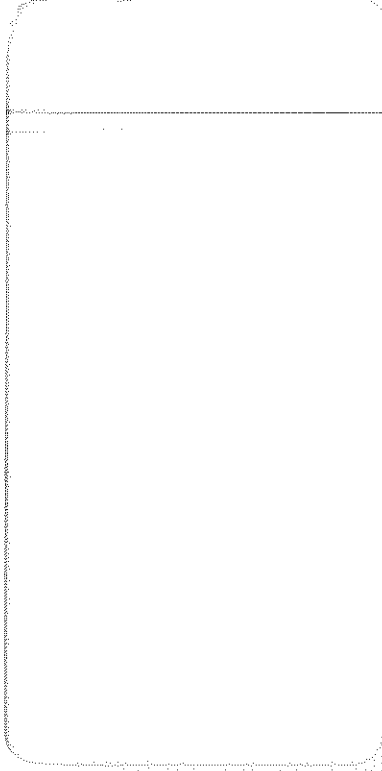
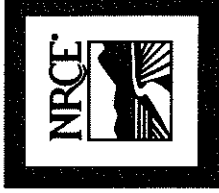
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NATURAL RESOURCES CONSULTING ENGINEERS, INC.[®]
Civil, Environmental, and Water Resources Consultants



**United States' Investigation of
Idaho Department of Water Resources'
Recommended Irrigated Lands
on Riddle Ranches**

Prepared for:

**The Bureau of Indian Affairs, Pacific Regional Office and
The United States Department of Justice**

Prepared by:

Niel Allen, Ph.D., P.E.

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INTRODUCTION

This report describes an investigation of the Idaho Department of Water Resources' (IDWR) recommended irrigated acreage for Riddle Ranches, Inc. in the Blue Creek Drainage Basin upstream of the Duck Valley Indian Reservation. The Blue Creek Basin includes water supplied from Blue, Shoofly, Payne, and Squaw Creek, along with a trans-basin diversion from Marys Creek. The objective of the study was to compare IDWR's recommended irrigated acreage with the land identified as irrigated by Dr. L. Niel Allen, P.E. (resume attached, Appendix D) of Natural Resources Consulting Engineers, Inc. (NRCE). The investigation of IDWR's recommended irrigated acreage by NRCE and Entrix, Inc. (mapping and GIS) was for the U.S. Department of Justice and the U.S. Bureau of Indian Affairs (United States' investigation). The determination of irrigated and non-irrigated lands was based on aerial photos and field verification. The results presented are the United States' determination of irrigated lands within IDWR's recommended irrigated acreage delineation. The investigation identified areas outside of IDWR's recommended irrigated acreage that are irrigated by Riddle Ranches, which are not discussed in this report.

DEFINITION OF IRRIGATED LANDS

For purposes of this report, irrigation is defined as the application of water by man to land for beneficial uses, such as the production of food and forage. Irrigated lands are cropped or grazed, cleared of sagebrush, and have a conveyance and/or distribution system(s) to convey water to the land. Another important criteria used to identify irrigated land is the evidence of irrigation during the recent five-year period. Areas that have not been irrigated for 5 years or more are considered non-irrigated.

Examples of Irrigated Lands

The irrigation on the Riddle Ranches is primarily flood irrigation of forage crops harvested for hay and/or pastured. Riddle Ranches does have some sprinkler irrigation equipment consisting of a pump, portable aluminum mainline, and aluminum sprinkler handline. Sprinkler irrigation has been used to establish alfalfa and grasses, and for other limited irrigation. The following descriptions are of Riddle Ranches irrigated lands in the Blue Creek Basin.

Irrigated Pasture - Irrigated pasture includes both native grasses and established grasses. These areas are grazed and not harvested as hay.

Irrigated Alfalfa - During field verification, two alfalfa fields were visited; one was entirely irrigated by surface irrigation, with the other being a combination of surface irrigation and dry

land.

Irrigated Tame Hay - Tame hay consists of grasses that have been planted for production of hay and pasture. The tame hay areas are generally in the areas that have adequate drainage to prevent the ponding of water.

Irrigated Meadow or Wild Hay - Meadow or wild hay is the native grasses, sedges, and rushes that grow in wet areas. These areas are irrigated by flooding with the water sometimes being ponded several inches deep for extended periods of time. These areas are dried and then harvested by cutting and baling the hay. Any re-growth is often pastured in fall.

Examples of Non-Irrigated Areas

Based on analysis of aerial photographs and field visits, there are areas within IDWR recommended water claims that are non-irrigated. The following descriptions concern these areas.

Non-Irrigated Riparian Areas - Lands that naturally receive water in addition to precipitation due to their location and are not irrigated by diversions are non-irrigated lands. These lands include meadows in riparian areas, swells, and seep areas that are wet due to natural drainage. Areas that are not directly irrigated (i.e. water is not diverted to the area) that receive water resulting from irrigation of upstream or adjacent lands are not considered irrigated. Examples of these are wet seepage areas below a canal and wet drainage areas below an irrigated field.

Forfeiture Areas - Areas for which a water right has been filed or claimed that have not been irrigated during a period of at least five consecutive years are assumed to be non-irrigated because of forfeiture of water rights. Determination of the period of non-irrigation is based on (1) statement of landowner, (2) vegetation on field such as the return of sagebrush to the field, and (3) condition of irrigation conveyance and delivery system(s). In the case of Riddle Ranches it is assumed that non-irrigation for extended periods is not caused by wrongful interference of other water users, because Riddle Ranches are the only water users in the Blue Creek Basin upstream of the Reservation. If land was recently (prior to field visit) irrigated after a period of more than 5 years of non-irrigation, it was not considered a forfeiture. Based on National Weather Service records, the period of time from 1994 through 1998 had above average precipitation and resulting water supply.

Dry-Land Cropped Areas - The precipitation on the Riddle Ranches is adequate to produce alfalfa or improved pasture without irrigation. Riddle Ranches have established stands of alfalfa which have been cropped without irrigation (Jackson, 1999).

Non-Irrigated Cattle Feeding Areas - A category for these areas is described because differences in vegetation from cattle feeding during the winter can make these areas appear to be irrigated when looking at aerial photographs. There are several areas where cattle are fed during the winter that have no sagebrush and during the summer grow grasses. These areas have been cleared of most of the sagebrush either by the rancher or by cattle damage.

Reservoirs, Ditches, and Impoundments - Areas occupied by reservoirs, ditches, and water impoundments are not considered as irrigated lands.

METHODOLOGY

For the United States' investigation of irrigated lands in the Blue Creek Basin two basic processes were used. First, the interpretation of aerial photos taken during the irrigation season, and second, the field verification of irrigated and non-irrigated areas. Geographic Information System (GIS) mapping and databases were used as a tool in both processes to determine the area and locations of irrigated and non-irrigated land.

Aerial Photography Interpretation

Aerial photography, a form of remote sensing, has been used to derive information about land and water for well over a century. IDWR uses aerial photos and other forms of remote sensing in the Snake River Basin adjudication. The aerial photographs used to identify irrigated and non-irrigated land in the Blue Creek Basin are near infrared photos taken by the National Aerial Photography Program (NAPP) in 1987 and provided by IDWR in digital and hard copy formats. The photos were taken on either July 12 or August 1, 1987. The near infrared spectrum is close to the visible spectrum and behaves in a similar manner. Therefore, remote sensing in the near infrared can use films, filters, and cameras similar to remote sensing in the visible spectrum. Near infrared is primarily reflectance of solar radiation, as is the visible reflectance. The reflectance of near infrared is very high for vigorously growing vegetation, even higher than the reflectance of green. For this reason, near infrared reflectance is a good spectrum to determine irrigated and non-irrigated areas. However, a knowledge of the study area and field verification are important because of different vegetation types, vegetation stress from soil moisture deficits, vegetation density, harvest status, and soil characteristics.

To create a true map with aerial photographs, the photographs need to be rectified or spatially corrected to remove the distortion caused by the camera lenses. This process can be accomplished in several ways, with a common method being to create a digital copy of the photographs and then use a background map such as a USGS quad map to provide reference points visible on the photo and maps to rubber-sheet or adjust the photos so that they correspond

to the map. The photos are pieced together spatially to form a full coverage. This process was completed prior to the distribution of the coverages by IDWR.

The initial assessment of irrigated lands was based on the near infrared aerial photos plotted to 1:24,000 scale. IDWR's delineation of recommended water rights was not considered in United States' initial photo interpretation and delineation of irrigated lands. The interpretation provided areas that were irrigated and other "gray areas" or areas that could be irrigated but require field verification to confirm the irrigation status. The balance of the areas is the non-irrigated areas. This assessment reduced the required field assessment and established boundaries between the irrigated, non-irrigated, and "gray areas."

There are limitations to interpretation of aerial photos and field verification is required to confirm the interpretation. One limitation is the timing and number of photographs used in the interpretation. Examination of numerous aerial photos from different months and different years increases the confidence in the interpretation. For example, during a dry year there may be some areas that are not irrigated due to irrigation shortages. Another limitation is the distinguishing of irrigated areas from naturally wet and vegetated areas. Also, pictures taken at different times results in different sun angles and reflectance responses.

NRCE's delineation was included as a layer on the digitized quad maps, along with IDWR's recommended acreage. The features on the quad maps combined with the initial delineation made it possible to locate the "gray areas" for field verification. The GPS units were used to verify the locations in the field.

Field Verification

Field verification is the most accurate method of identifying irrigated and non-irrigated areas. The field assessment and verification was to classify the "gray areas" as either irrigated or non-irrigated and to confirm the irrigated and non-irrigated interpretations. The field verification occurred over a 4-day period from June 8 to June 11, 1999. Those present during some of the field verification included: Messes. Lora McKusick (Entrix), Jan Shurte (IDWR), and Susan Hamlin Nygard, Esq. (IDWR); Drs. Assad Safadi (NRCE), Niel Allen (NRCE and report author), and Michael Taylor (Entrix); and Messrs. Joe DeMaggio (Stetson Engineers), Jeff Peppersack (IDWR), Q. Brown (BIA), Peter Jackson (Riddle Ranches), and Peter Jackson, Jr. (Riddle Ranches). The majority of the field verification by Dr. Allen was done in the company of Ms. McKusick, Dr. Taylor, and Mr. Jackson. During the field visits, information concerning the ranching operation was obtained from Mr. Jackson. Color photographs of the vegetation in both irrigated and non-irrigated lands were obtained and some of the irrigation conveyance and distribution facilities were viewed.

Mr. Jackson's knowledge of the ranch was also very helpful in locating the "gray areas." Additionally, two Global Position Systems (GPS) were used to establish reference locations and to obtain boundaries between irrigated and non-irrigated areas. The GPS systems include a Corvallis Micro Technology Model MC-GPS and a 12-channel Trimble GPS Pathfinder Pro XL. The Corvallis Model was operated by Dr. Allen. The Trimble Unit was operated by Ms. Lora McKusick of Northwest Economic Associates, a Division of ENTRIX, Inc. located in Vancouver, Washington. The Trimble is capable of providing real-time position data. GPS data taken in the field was corrected in the office and used as an aid in mapping irrigated and non-irrigated areas. The corrected GPS data has a resolution of 3 to 15 feet.

During the field visits pictures of the "gray areas" were taken along with notes concerning the areas visited. Field visits of IDWR's recommended areas that were delineated as non-irrigated were also made to verify if irrigated or non-irrigated.

RESULTS

The results of the United States' investigation of irrigated land are listed in Appendix A and shown in Appendix B, on Plates 1-5 which are accompanied by an index map. Appendix A lists the irrigated area by township, range, section, and $\frac{1}{4}$ section. Plates 1-5 show the townships, ranges, sections, IDWR recommend water claims, and the United States' determination of irrigated or non-irrigated areas. The total recommended irrigated area based on IDWR's coverage is 7,028 acres. The irrigated area based on the United States' assessment of irrigated land is 5,862.7 acres.

IDWR Recommended Irrigated Area

The following are descriptions of field visits made to the "gray areas." The order of the descriptions is the order that they were visited in the field.

T13S, R1E, S25, 26 and 36

Pictures taken at this area are contained in Appendix C, Figures C-1 through C-7. The delineation of the area is shown in Appendix B, Plate 4. The area was determined to be non-irrigated based on forfeiture. Old ditches indicate historical irrigation, but the vegetation and the statement of Mr. Jackson indicate that the land has not been irrigated during the recent 5 years. The diversion to this area washed out years ago (prior to April 1969) when the old Shoofly Dam (upstream of West Fork Shoofly Reservoir) failed, which has not been reconstructed since that time.

T14S, R2E, S6 and 7, and T14S, R1E, S1 and 12

Pictures taken at this area are contained in Appendix C, Figures C-8 and C-9. This area was determined to be irrigated, except for a portion of the area outside the irrigation delivery ditches. The delineation of the irrigated area is shown in Appendix B, Plate 4. This area is irrigated from Shoofly Creek with releases from Bybee Reservoir. In 1999, the area had not been irrigated prior to being visited on June 8. Mr. Jackson said that the area would begin to be irrigated the following week. Generally the area is grazed rather than harvested for hay.

T13S, R2E, S21 and 28

Pictures taken at this area are contained in Appendix C, Figures C-10 and C-11. The delineation of the area is shown in Appendix B, Plate 3. This area was determined to be non-irrigated. The vegetation indicates that there has not been irrigation during the recent 5 years. Mr. Jackson also confirmed that the area has not been irrigated for some time and that it is a low priority area due to its location and small size. The area is below Fromm Reservoir; the spillway of Fromm Reservoir washed out some time ago and the reservoir is now used for stock watering.

T13S, R3E, S30

The picture taken at this area is contained in Appendix C, Figure C-12. This is the small area near the center of Section 30 (See Appendix B, Plate 3). The area was determined to be irrigated by flooding resulting from a check dam in Blue Creek for downstream diversions. The area is quite small and is considered 'incidental irrigation,' meaning that the irrigation results from the flooding of Blue Creek rather than from a diversion.

T13S, R3E, S18

The picture taken at this area is contained in Appendix C, Figure C-13. The delineation of the area is shown in Appendix B, Plate 3. The area was determined to be non-irrigated. The vegetation indicates that there has not been irrigation during the recent 5 years. Mr. Jackson confirmed it had been sometime since it was irrigated, but did not state the number of years.

T13S, R3E, S19

The picture taken at this area is contained in Appendix C, Figure C-14. The delineation of the area is shown in Appendix B, Plate 3. The area was determined to be non-irrigated. The area had been cleared of sagebrush with very little re-growth, but the condition of the irrigation delivery system indicates that the area had not been irrigated during the recent 5 years.

T13S, R3E, S32

The pictures taken at this area are contained in Appendix C, Figure C-15 through C-19. The area (consisting of the lower and western portion of Section 32 - see Appendix B, Plate 2) was determined to be non-irrigated. A lot of sagebrush is growing, indicating that there has not been irrigation during the recent 5 years.

T14S, R3E, S7

The picture taken at this area is contained in Appendix C, Figure C-20. The area was determined to include both non-irrigated and irrigated areas as shown in Appendix B, Plate 2. The division boundary between the non-irrigated and irrigated area was established with the GPS equipment. The division between the areas was based on vegetation and irrigation facilities.

T14S, R3E, S6-NE

The picture taken at this area is contained in Appendix C, Figure C-21. The area was determined to be an irrigated area as shown in Appendix B, Plate 2. The area is an alfalfa field. The picture (Figure C-21) shows the division between the non-irrigated and irrigated area. The division boundary was obtained with the GPS equipment by walking along the edge of the irrigated area.

T14S, R2E, S14 and 23

The pictures taken of the west edge of the south half of Section 14 are contained in Appendix C (Pictures Taken During United States' Field Investigation of Riddle Ranches Reservoirs and IDWR Recommended Irrigated Areas), Figures C-22 through C-26. This area was determined to be non-irrigated as shown in Appendix B, Plate 1. The area was once cleared of sagebrush, but now a lot of sagebrush has returned. There is no evidence of recent (during the last 5 years) irrigation and this portion of the area was determined to be non-irrigated.

IDWR recommended irrigated area extend south into Section 23. Most of IDWR recommended area in Section 23 is currently irrigated. The delineated boundary between the non-irrigated and irrigated area was obtained by the GPS equipment. The division between the areas is based on vegetation and irrigation facilities. The irrigated area in Section 23 extends beyond IDWR's boundary. It is understood that the area south of IDWR's recommended irrigated area is BLM land.

T14S, R2E, S35

The pictures taken at this area are contained in Appendix C, Figures C-27 and C-28. The area was determined to include both non-irrigated and irrigated areas as shown in Appendix B, Plate 1. The boundary between the non-irrigated and irrigated areas is a distinct dike and channel that is visible on the aerial near infrared photography and maps. The division between the areas is based on vegetation and irrigation facilities. The areas on the south end of the Riddle Ranches occasionally may not be irrigated during a year because of inadequate water supply.

T143S, R2E, S36

The pictures taken at this area are contained in Appendix C, Figures C-29 and C-30. The area was determined to be irrigated areas as shown in Appendix B, Plate 1. As the area is on the end of the Payne and Squaw Creek areas, occasionally it may not be irrigated during a year because of a lack of adequate water supply. A dike on the south edge of Section 36 results in flooding of the area north of the dike, as shown in Figure C-29. Although the area is classified as irrigated, there are small areas north of the dike that are high and do not get irrigated. These areas have sagebrush growing on them (see Figure C-30).

T14S, R3E, S33

The picture taken at this area is contained in Appendix C, Figure C-31. This area, known as the Indian Meadow Field, was determined to be irrigated as shown in Appendix B, Plate 1. The irrigation water is supplied from Indian Creek Reservoir.

T14S, R3E, S29

The picture taken at this area is contained in Appendix C, Figure C-32. IDWR delineated area within Section 29 was determined to be irrigated as shown in Appendix B, Plate 1. However, there are areas of sagebrush within IDWR's recommended irrigated areas that are not irrigated (see Figure C-32). These areas were not delineated and appear to be only a couple of acres.

T14S, R3E, S20

The pictures taken at this area are contained in Appendix C, Figures C-33 through C-38. The "gray area" was determined to include both non-irrigated and irrigated areas as shown in Appendix B, Plate 1. The non-irrigated areas are areas above the irrigation ditches that have sagebrush on them. There is also a small irrigation pond that is considered an irrigation facility rather than irrigated land (see Figure C-33). The boundaries between the non-irrigated and irrigated areas were obtained using a GPS instrument (see Figure C-38).

T14S, R3E, S8

The pictures taken at this area are contained in Appendix C, Figures C-39 and C-40. The “gray area” was determined to be irrigated areas as shown in Appendix B, Plate 2. However, there are small areas of high sagebrush that are not irrigated. These non-irrigated areas are estimated to be about one acre and were not subtracted from the total irrigated area.

T14S, R3E, S19

The pictures taken at this area are contained in Appendix C, Figures C-41 and C-42. The “gray area” was determined to be irrigated areas as shown in Appendix B, Plate 1. However, the vegetation indicates that part of the area has not been irrigated during some of the recent years. The area has some sagebrush in it, which would not survive hay harvesting and continual surface irrigation (see Figure C-42). The irrigation ditch that provides water to this area had recently (during 1999) been cleaned to increase its capacity and function.

T14S, R2E, S25 NE ¼ Section

The pictures taken at this area are contained in Appendix C, Figures C-43 and C-44. The delineation of the area is shown in Appendix B, Plate 1. Based on the 1987 aerial photographs, most of Section 25 appeared non-irrigated. At the time of the field visit almost all of Section 25 was cropped, including the portion of the area that is outside of IDWR’s recommended irrigated area. The portion of the area that is outside of IDWR’s recommended irrigated area is producing dry-land alfalfa. The year that the area was cleared of sagebrush and planted to alfalfa and grass is not known. The irrigation ditch that provides water to this area had recently (during 1999) been cleaned to increase its capacity and function. The ditch was dry and there was no indication that irrigation had recently occurred. Based on the fact that an irrigation ditch was in place and the area was cropped it was determined irrigated. However, based on the 1987 aerial photo, some the area could be non-irrigated based on forfeiture. More information would be needed to determine if the area has not been irrigated for 5 consecutive years. •

APPENDIX A

TABLE 1 SUMMARY OF IRRIGATED LANDS RESULTING FROM THE UNITED STATES' INVESTIGATION OF IDWR'S RECOMMENDED RIDDLE RANCHES' WATER RIGHTS PLACE OF USE BOUNDARIES (BY PUBLIC AND LAND SURVEY DESCRIPTION)

Table 1 - Summary of Irrigated' Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T11 R02 S32 NWSE	6.8	6.8	0.0
T11 R02 S32 SWNE	3.0	3.0	0.0
T11 R02 S32 SWSE	11.3	10.3	1.0
T12 R02 S5 NESE	2.1	0.0	2.1
T12 R02 S5 NWNE	4.6	0.4	4.2
T12 R02 S5 NWSE	10.7	0.1	10.6
T12 R02 S5 SESE	6.5	1.6	4.9
T12 R02 S5 SWNE	5.9	0.0	5.9
T12 R02 S5 SWSE	1.4	0.7	0.7
T13 R01 S25 NESW	7.0	7.0	0.0
T13 R01 S25 NWSE	1.6	1.6	0.0
T13 R01 S25 NWSW	1.1	1.1	0.0
T13 R01 S25 SESW	33.2	33.2	0.0
T13 R01 S25 SWSE	20.9	20.9	0.0
T13 R01 S25 SWSW	31.3	31.3	0.0
T13 R01 S26 SESE	10.3	10.3	0.0
T13 R01 S36 NENW	4.2	4.2	0.0
T13 R01 S36 NWNE	17.8	17.8	0.0
T13 R01 S36 NWNW	8.9	8.9	0.0
T13 R01 S36 SENW	0.0	0.0	0.0
T13 R01 S36 SWNE	5.7	5.7	0.0
T13 R02 S13 NESE	0.0	0.0	0.0
T13 R02 S13 SESE	0.0	0.0	0.0
T13 R02 S21 SESE	5.1	5.1	0.0
T13 R02 S21 SWSE	0.0	0.0	0.0
T13 R02 S28 NENE	13.6	13.6	0.0
T13 R02 S28 NWNE	0.0	0.0	0.0
T13 R02 S28 SENE	11.0	11.0	0.0
T13 R03 S18 NWSW	19.1	19.1	0.0
T13 R03 S18 SESW	0.0	0.0	0.0
T13 R03 S18 SWNW	0.0	0.0	0.0
T13 R03 S18 SWSW	30.1	30.1	0.0
T13 R03 S19 NENW	6.6	6.6	0.0
T13 R03 S19 NESE	2.8	0.5	2.3
T13 R03 S19 NESW	20.5	4.5	16.0
T13 R03 S19 NWNW	0.0	0.0	0.0
T13 R03 S19 NWSE	19.6	0.6	19.0
T13 R03 S19 SENW	15.3	11.9	3.4
T13 R03 S19 SESE	6.3	0.5	5.8
T13 R03 S19 SESW	5.8	0.0	5.8
T13 R03 S19 SWNW	0.0	0.0	0.0
T13 R03 S19 SWSE	16.9	0.0	16.9
T13 R03 S29 SESW	3.7	0.8	2.9

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T13 R03 S29 SWSW	30.1	1.0	29.1
T13 R03 S30 NESW	4.4	0.0	4.4
T13 R03 S30 NWSE	4.3	0.0	4.3
T13 R03 S30 NWSW	3.7	0.0	3.7
T13 R03 S30 SENW	0.0	0.0	0.0
T13 R03 S30 SESE	24.6	1.1	23.5
T13 R03 S30 SWNW	8.7	0.0	8.7
T13 R03 S30 SWSE	6.5	0.5	6.0
T13 R03 S31 NENE	25.7	0.7	25.0
T13 R03 S31 NESE	40.5	0.0	40.5
T13 R03 S31 NESW	21.5	1.3	20.2
T13 R03 S31 NWNE	11.8	0.0	11.8
T13 R03 S31 NWSE	40.4	0.0	40.4
T13 R03 S31 SENE	40.5	3.7	36.8
T13 R03 S31 SENW	6.3	1.3	5.0
T13 R03 S31 SESE	40.4	0.1	40.3
T13 R03 S31 SESW	35.2	1.5	33.7
T13 R03 S31 SWNE	38.1	0.0	38.1
T13 R03 S31 SWSE	40.4	0.0	40.4
T13 R03 S31 SWSW	8.9	1.4	7.5
T13 R03 S32 NENW	15.1	0.8	14.3
T13 R03 S32 NESW	33.3	33.3	0.0
T13 R03 S32 NWNW	40.4	3.6	36.8
T13 R03 S32 NWSW	40.4	33.0	7.4
T13 R03 S32 SENW	22.7	16.9	5.8
T13 R03 S32 SESW	34.3	34.3	0.0
T13 R03 S32 SWNW	40.4	29.7	10.7
T13 R03 S32 SWSW	40.3	29.5	10.8
T14 R01 S1 NESE	20.0	9.3	10.7
T14 R01 S1 SENE	0.0	0.0	0.0
T14 R01 S1 SESE	34.5	4.6	29.9
T14 R01 S1 SWSE	0.0	0.0	0.0
T14 R01 S12 NENE	34.3	0.0	34.3
T14 R01 S12 SENE	17.5	0.0	17.5
T14 R02 S1 SESE	0.0	0.0	0.0
T14 R02 S12 NENE	36.7	1.5	35.2
T14 R02 S12 NESE	39.1	4.1	35.0
T14 R02 S12 NESW	16.8	0.7	16.1
T14 R02 S12 NWNE	0.0	0.0	0.0
T14 R02 S12 NWSE	40.4	0.8	39.6
T14 R02 S12 SENE	40.5	3.7	36.8
T14 R02 S12 SENW	0.0	0.0	0.0
T14 R02 S12 SESE	14.9	1.9	13.0

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T14 R02 S12 SESW	35.5	1.9	33.6
T14 R02 S12 SWNE	0.0	0.0	0.0
T14 R02 S12 SWSE	40.4	1.3	39.1
T14 R02 S12 SWSW	0.0	0.0	0.0
T14 R02 S13 NENW	40.3	3.3	37.0
T14 R02 S13 NESW	25.5	0.0	25.5
T14 R02 S13 NWNE	31.1	3.9	27.2
T14 R02 S13 NWNW	0.0	0.0	0.0
T14 R02 S13 NWSW	40.3	1.4	38.9
T14 R02 S13 SENW	40.2	0.0	40.2
T14 R02 S13 SESW	1.8	0.0	1.8
T14 R02 S13 SWNE	7.7	0.5	7.2
T14 R02 S13 SWNW	40.3	1.9	38.4
T14 R02 S13 SWSW	40.0	1.3	38.7
T14 R02 S14 NENE	0.0	0.0	0.0
T14 R02 S14 NESE	35.0	1.8	33.2
T14 R02 S14 NWSE	0.0	0.0	0.0
T14 R02 S14 NWSW	19.6	19.6	0.0
T14 R02 S14 SENE	13.2	2.2	11.0
T14 R02 S14 SESE	40.3	0.9	39.4
T14 R02 S14 SWNW	0.0	0.0	0.0
T14 R02 S14 SWSE	18.6	1.2	17.4
T14 R02 S14 SWSW	20.0	20.0	0.0
T14 R02 S15 NESE	0.0	0.0	0.0
T14 R02 S15 SESE	0.0	0.0	0.0
T14 R02 S22 NENE	0.0	0.0	0.0
T14 R02 S23 NENE	40.2	0.0	40.2
T14 R02 S23 NENW	13.1	1.2	11.9
T14 R02 S23 NESE	40.4	1.4	39.0
T14 R02 S23 NESW	0.0	0.0	0.0
T14 R02 S23 NWNE	29.7	0.2	29.5
T14 R02 S23 NWNW	29.0	18.0	11.0
T14 R02 S23 NWSE	40.4	0.0	40.4
T14 R02 S23 NWSW	0.0	0.0	0.0
T14 R02 S23 SENE	40.3	0.8	39.5
T14 R02 S23 SENW	36.2	0.0	36.2
T14 R02 S23 SESE	37.8	2.0	35.8
T14 R02 S23 SESW	0.0	0.0	0.0
T14 R02 S23 SWNE	27.9	0.0	27.9
T14 R02 S23 SWNW	33.1	7.4	25.7
T14 R02 S23 SWSE	40.4	0.0	40.4
T14 R02 S24 NWNW	20.9	1.1	19.8
T14 R02 S24 NWSW	12.8	0.2	12.6

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T14 R02 S24 SESE	0.0	0.0	0.0
T14 R02 S24 SWNW	17.4	0.7	16.7
T14 R02 S24 SWSW	1.0	0.1	0.9
T14 R02 S25 NENE	36.8	0.0	36.8
T14 R02 S25 NESE	40.5	0.0	40.5
T14 R02 S25 NESW	33.4	0.0	33.4
T14 R02 S25 NWNW	22.2	0.0	22.2
T14 R02 S25 NWSE	40.4	0.0	40.4
T14 R02 S25 NWSW	0.0	0.0	0.0
T14 R02 S25 SENE	40.4	0.0	40.4
T14 R02 S25 SENW	3.0	0.0	3.0
T14 R02 S25 SESE	33.7	0.0	33.7
T14 R02 S25 SESW	40.5	0.0	40.5
T14 R02 S25 SWNE	33.1	0.0	33.1
T14 R02 S25 SWSE	40.5	0.0	40.5
T14 R02 S25 SWSW	40.4	0.0	40.4
T14 R02 S26 NENE	29.1	1.5	27.6
T14 R02 S26 NENW	15.2	10.3	4.9
T14 R02 S26 NESE	33.8	2.1	31.7
T14 R02 S26 NESW	27.7	15.4	12.3
T14 R02 S26 NWNW	40.4	0.5	39.9
T14 R02 S26 NWSE	40.3	0.0	40.3
T14 R02 S26 SENE	24.1	0.9	23.2
T14 R02 S26 SENW	24.2	7.6	16.6
T14 R02 S26 SESE	0.0	0.0	0.0
T14 R02 S26 SESW	31.5	19.4	12.1
T14 R02 S26 SWNE	40.4	1.2	39.2
T14 R02 S26 SWSE	40.4	1.2	39.2
T14 R02 S35 NENE	0.0	0.0	0.0
T14 R02 S35 NENW	34.4	11.8	22.6
T14 R02 S35 NESW	39.5	0.0	39.5
T14 R02 S35 NWNE	40.3	6.7	33.6
T14 R02 S35 NWSE	40.4	26.7	13.7
T14 R02 S35 NWSW	0.0	0.0	0.0
T14 R02 S35 SENE	0.0	0.0	0.0
T14 R02 S35 SENW	33.9	0.9	33.0
T14 R02 S35 SESW	40.4	0.0	40.4
T14 R02 S35 SWNE	40.4	15.9	24.5
T14 R02 S35 SWSE	25.2	20.1	5.1
T14 R02 S35 SWSW	0.0	0.0	0.0
T14 R02 S36 NENE	2.6	0.0	2.6
T14 R02 S36 NENW	40.4	0.0	40.4
T14 R02 S36 NESE	0.1	0.0	0.1

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T14 R02 S36 NESW	28.6	0.0	28.6
T14 R02 S36 NWNE	36.1	0.0	36.1
T14 R02 S36 NWNW	4.5	0.0	4.5
T14 R02 S36 NWSE	27.7	0.0	27.7
T14 R02 S36 NWSW	3.2	0.0	3.2
T14 R02 S36 SENE	0.1	0.0	0.1
T14 R02 S36 SENW	30.6	0.0	30.6
T14 R02 S36 SESW	40.5	0.0	40.5
T14 R02 S36 SWNE	32.0	0.0	32.0
T14 R02 S36 SWNW	2.5	0.0	2.5
T14 R02 S36 SWSE	27.6	0.0	27.6
T14 R02 S36 SWSW	19.3	0.0	19.3
T14 R02 S6 NWSW	41.3	6.3	35.0
T14 R02 S6 SESW	0.0	0.0	0.0
T14 R02 S6 SWNW	11.4	10.0	1.4
T14 R02 S6 SWSW	32.1	0.0	32.1
T14 R02 S7 NWNW	18.2	0.0	18.2
T14 R03 S16 NESW	35.3	0.3	35.0
T14 R03 S16 NWSE	0.0	0.0	0.0
T14 R03 S16 NWSW	25.1	0.0	25.1
T14 R03 S16 SENW	0.0	0.0	0.0
T14 R03 S16 SESW	40.6	0.7	39.9
T14 R03 S16 SWSE	0.0	0.0	0.0
T14 R03 S16 SWSW	39.2	1.4	37.8
T14 R03 S17 NENE	27.3	2.9	24.4
T14 R03 S17 NENW	38.5	0.0	38.5
T14 R03 S17 NESE	5.2	0.1	5.1
T14 R03 S17 NESW	40.4	0.0	40.4
T14 R03 S17 NWNE	40.4	0.0	40.4
T14 R03 S17 NWNW	7.7	0.0	7.7
T14 R03 S17 NWSE	39.2	0.0	39.2
T14 R03 S17 NWSW	5.4	0.0	5.4
T14 R03 S17 SENE	18.6	1.0	17.6
T14 R03 S17 SENW	40.4	0.0	40.4
T14 R03 S17 SESE	9.3	2.1	7.2
T14 R03 S17 SESW	40.4	1.1	39.3
T14 R03 S17 SWNE	40.4	0.0	40.4
T14 R03 S17 SWNW	24.6	0.0	24.6
T14 R03 S17 SWSE	20.7	0.6	20.1
T14 R03 S17 SWSW	35.3	1.3	34.0
T14 R03 S18 SESE	11.2	3.4	7.8
T14 R03 S19 NENE	39.9	10.2	29.7
T14 R03 S19 NESE	40.4	0.2	40.2

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T14 R03 S19 NESW	20.8	0.2	20.6
T14 R03 S19 NWNE	13.0	10.0	3.0
T14 R03 S19 NWSE	40.4	0.0	40.4
T14 R03 S19 SENE	40.4	0.7	39.7
T14 R03 S19 SENW	0.3	0.0	0.3
T14 R03 S19 SESE	32.4	5.5	26.9
T14 R03 S19 SESW	38.4	0.0	38.4
T14 R03 S19 SWNE	34.2	0.1	34.1
T14 R03 S19 SWSE	40.3	0.0	40.3
T14 R03 S19 SWSW	10.4	0.0	10.4
T14 R03 S20 NENE	40.5	29.7	10.8
T14 R03 S20 NENW	40.5	7.8	32.7
T14 R03 S20 NESE	40.4	0.0	40.4
T14 R03 S20 NESW	40.4	0.0	40.4
T14 R03 S20 NWNE	40.5	6.2	34.3
T14 R03 S20 NWNW	40.5	0.0	40.5
T14 R03 S20 NWSE	40.4	0.0	40.4
T14 R03 S20 NWSW	40.4	6.3	34.1
T14 R03 S20 SENE	40.4	1.3	39.1
T14 R03 S20 SENW	40.4	4.7	35.7
T14 R03 S20 SESE	40.4	0.0	40.4
T14 R03 S20 SESW	40.4	0.0	40.4
T14 R03 S20 SWNE	40.4	0.1	40.3
T14 R03 S20 SWNW	40.4	8.3	32.1
T14 R03 S20 SWSE	40.4	0.0	40.4
T14 R03 S20 SWSW	40.3	2.6	37.7
T14 R03 S21 NENW	38.1	0.2	37.9
T14 R03 S21 NESW	40.1	0.0	40.1
T14 R03 S21 NWNW	40.2	6.5	33.7
T14 R03 S21 NWSE	10.5	2.7	7.8
T14 R03 S21 NWSW	40.2	0.0	40.2
T14 R03 S21 SENE	17.1	1.1	16.0
T14 R03 S21 SENW	35.6	1.2	34.4
T14 R03 S21 SESW	36.9	0.9	36.0
T14 R03 S21 SWNE	35.0	3.4	31.6
T14 R03 S21 SWNW	40.2	1.5	38.7
T14 R03 S21 SWSE	0.6	0.1	0.5
T14 R03 S21 SWSW	40.2	0.5	39.7
T14 R03 S28 NENW	0.0	0.0	0.0
T14 R03 S28 NWNW	0.0	0.0	0.0
T14 R03 S28 SWSW	0.0	0.0	0.0
T14 R03 S29 NENE	27.5	0.6	26.9
T14 R03 S29 NENW	35.0	0.3	34.7

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T14 R03 S29 NWNE	38.7	0.5	38.2
T14 R03 S29 NWNW	18.5	1.2	17.3
T14 R03 S29 SENW	7.1	0.0	7.1
T14 R03 S29 SESE	0.0	0.0	0.0
T14 R03 S29 SWNE	0.5	0.2	0.3
T14 R03 S30 NENE	4.8	0.2	4.6
T14 R03 S30 NENW	40.3	0.0	40.3
T14 R03 S30 NWNE	31.3	0.2	31.1
T14 R03 S30 NWNW	40.4	0.0	40.4
T14 R03 S30 NWSW	0.0	0.0	0.0
T14 R03 S30 SENW	6.7	1.3	5.4
T14 R03 S30 SWNE	2.4	0.5	1.9
T14 R03 S30 SWNW	21.7	0.7	21.0
T14 R03 S30 SWSW	0.0	0.0	0.0
T14 R03 S32 NENE	26.1	1.8	24.3
T14 R03 S32 NWNE	0.0	0.0	0.0
T14 R03 S32 NWSE	0.0	0.0	0.0
T14 R03 S32 SENE	27.4	0.0	27.4
T14 R03 S32 SWNE	19.2	0.0	19.2
T14 R03 S33 NENW	0.0	0.0	0.0
T14 R03 S33 NWNW	26.8	0.1	26.7
T14 R03 S33 SWNW	0.9	0.0	0.9
T14 R03 S5 NENW	26.8	26.8	0.0
T14 R03 S5 NWNW	41.1	21.8	19.3
T14 R03 S5 NWSW	8.6	8.6	0.0
T14 R03 S5 SENW	2.5	2.5	0.0
T14 R03 S5 SESE	16.8	0.0	16.8
T14 R03 S5 SWNW	38.2	21.7	16.5
T14 R03 S5 SWSE	11.5	0.1	11.4
T14 R03 S6 NENE	41.0	2.2	38.8
T14 R03 S6 NENW	40.8	0.0	40.8
T14 R03 S6 NESE	36.2	36.2	0.0
T14 R03 S6 NESW	40.3	14.6	25.7
T14 R03 S6 NWNE	41.0	0.0	41.0
T14 R03 S6 NWNW	0.0	0.0	0.0
T14 R03 S6 NWSE	40.3	37.9	2.4
T14 R03 S6 NWSW	22.8	0.7	22.1
T14 R03 S6 SENE	40.2	0.3	39.9
T14 R03 S6 SENW	40.0	0.0	40.0
T14 R03 S6 SESE	3.2	3.2	0.0
T14 R03 S6 SESW	40.3	35.0	5.3
T14 R03 S6 SWNE	40.0	1.7	38.3
T14 R03 S6 SWNW	0.0	0.0	0.0

Table 1 - Summary of Irrigated Lands Resulting from the United States' Investigation of IDWR's Recommended Riddle Ranches' Water Right Place of Use Boundaries (by public land survey description).

Location T(S),R(E),S,1/4of1/4	IDWR's Recommended Place of Use (acres)	Results of United States Investigation of IDWR's Recommended Place of Use	
		Non-Irrigated (acres)	Irrigated (acres)
T14 R03 S6 SWSE	30.6	30.6	0.0
T14 R03 S6 SWSW	31.2	1.5	29.7
T14 R03 S7 NENW	27.7	27.7	0.0
T14 R03 S7 NWNE	3.0	3.0	0.0
T14 R03 S7 NWNW	36.6	4.7	31.9
T14 R03 S7 NWSW	9.6	0.2	9.4
T14 R03 S7 SWNW	27.2	0.1	27.1
T14 R03 S8 NENE	22.1	0.1	22.0
T14 R03 S8 NESE	7.2	0.9	6.3
T14 R03 S8 NWNE	30.7	0.7	30.0
T14 R03 S8 NWSE	34.0	2.4	31.6
T14 R03 S8 SENE	6.3	0.0	6.3
T14 R03 S8 SESE	16.5	0.1	16.4
T14 R03 S8 SESW	8.8	1.7	7.1
T14 R03 S8 SWNE	31.8	1.5	30.3
T14 R03 S8 SWSE	40.4	0.1	40.3
TOTAL	7,028.1	1,165.4	5,862.7

APPENDIX B

PLATES: DELINEATION OF IRRIGATED LANDS ACCORDING TO THE UNITED STATES' INVESTIGATION OF IDWR'S RECOMMENDED RIDDLE RANCHES' WATER RIGHTS PLACE OF USE BOUNDARIES



Source of Aerial Photo Interpretation and Field Verification: NRCE, 1999



R1E R2E

Shoofly Creek

BYBEE RESERVOIR

Legend

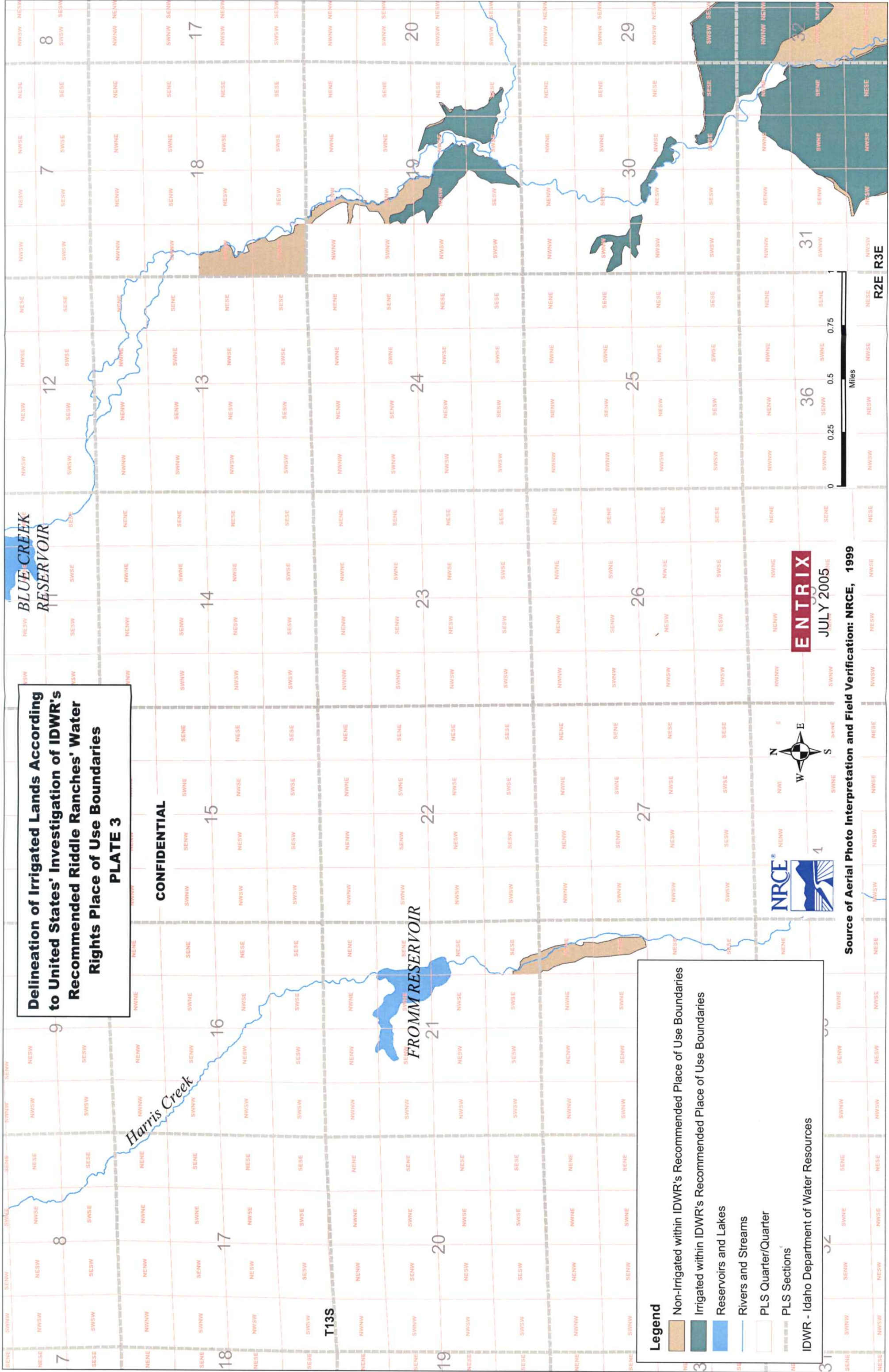
- Non-Irrigated within IDWR's Recommended Place of Use Boundaries
- Irrigated within IDWR's Recommended Place of Use Boundaries
- Reservoirs and Lakes
- Rivers and Streams
- PLS Quarter/Quarter
- PLS Sections
- IDWR - Idaho Department of Water Resources

Delineation of Irrigated Lands According to United States' Investigation of IDWR's Recommended Riddle Ranches' Water Rights Place of Use Boundaries
PLATE 4

CONFIDENTIAL

Delineation of Irrigated Lands According to United States' Investigation of IDWR's Recommended Riddle Ranches' Water Rights Place of Use Boundaries
PLATE 3

CONFIDENTIAL



- Legend**
- Non-Irrigated within IDWR's Recommended Place of Use Boundaries
 - Irrigated within IDWR's Recommended Place of Use Boundaries
 - Reservoirs and Lakes
 - Rivers and Streams
 - PLS Quarter/Quarter
 - PLS Sections

IDWR - Idaho Department of Water Resources



ENTRIX
JULY 2005

Source of Aerial Photo Interpretation and Field Verification: NRCE, 1999

Legend

- Non-Irrigated within IDWR's Recommended Place of Use Boundaries
- Irrigated within IDWR's Recommended Place of Use Boundaries
- Reservoirs and Lakes
- Rivers and Streams
- PLS Quarter/Quarter
- PLS Sections

IDWR - Idaho Department of Water Resources

T13S
T14S

Harris Creek

Payne Creek

29

25

26

27

32

33

35

34

34

2

3

4

5

1

2

3

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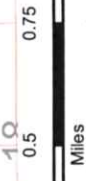


ENTRIX

JULY 2005

Source of Aerial Photo Interpretation and Field Verification: NRCE, 1999

R2E R3E



Delineation of Irrigated Lands According to United States' Investigation of IDWR's Recommended Riddle Ranches' Water Rights Place of Use Boundaries

PLATE 2

CONFIDENTIAL

PAYNE CREEK RESERVOIR

**Delineation of Irrigated Lands According
to United States' Investigation of IDWR's
Recommended Riddle Ranches' Water
Rights Place of Use Boundaries**

PLATE 1

CONFIDENTIAL

Legend

- Non-Irrigated within IDWR's Recommended Place of Use Boundaries
- Irrigated within IDWR's Recommended Place of Use Boundaries
- Reservoirs and Lakes
- Rivers and Streams
- PLS Quarter/Quarter
- PLS Sections

IDWR - Idaho Department of Water Resources



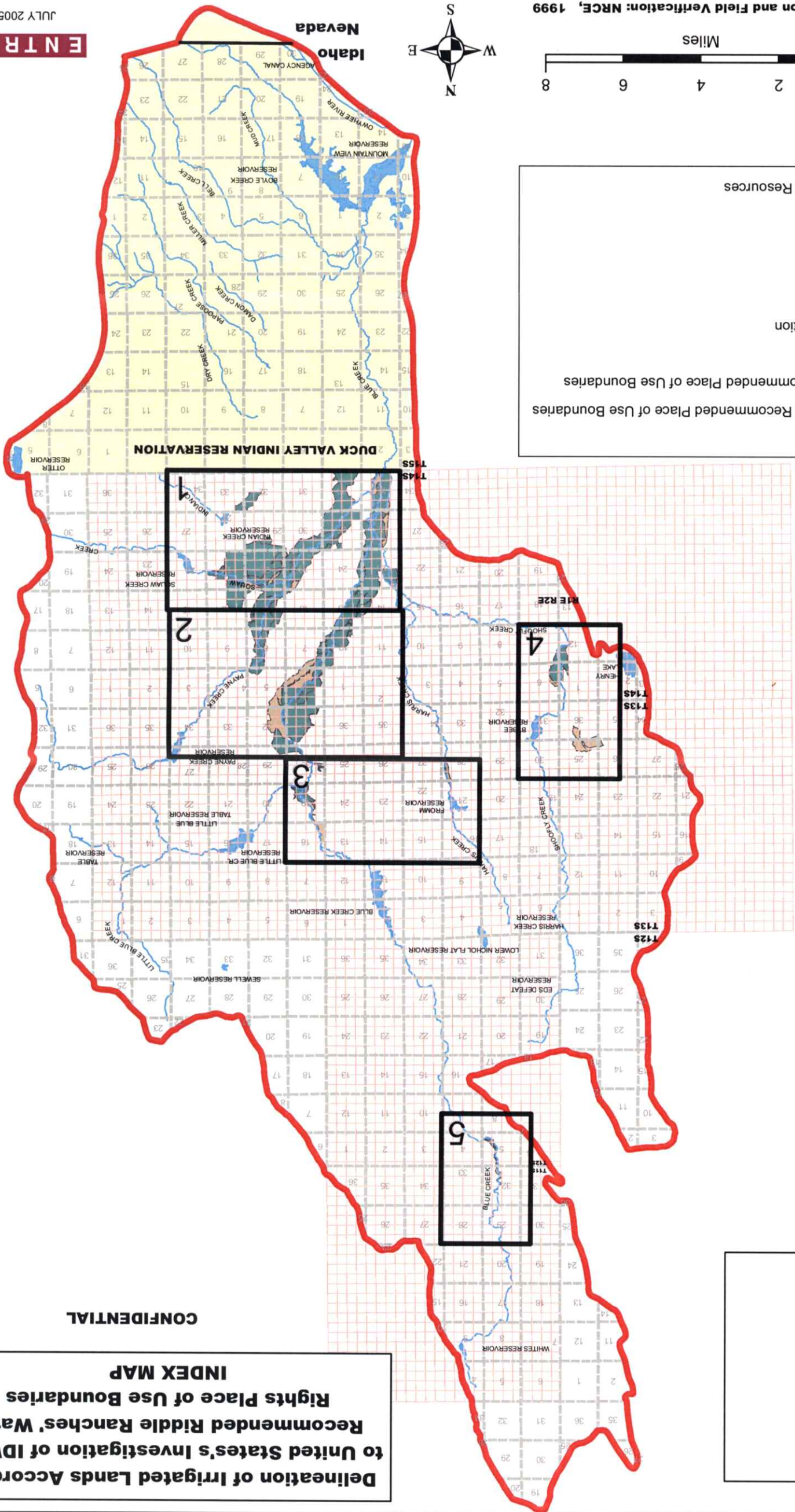
ENTRIX

JULY 2005

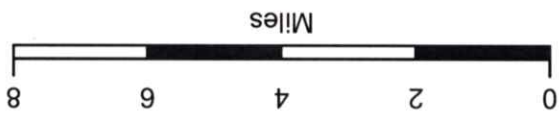
Source of Aerial Photo Interpretation and Field Verification: NRCE, 1999

Delineation of Irrigated Lands According to United States's Investigation of IDWR's Recommended Riddle Ranches' Water Rights Place of Use Boundaries
INDEX MAP

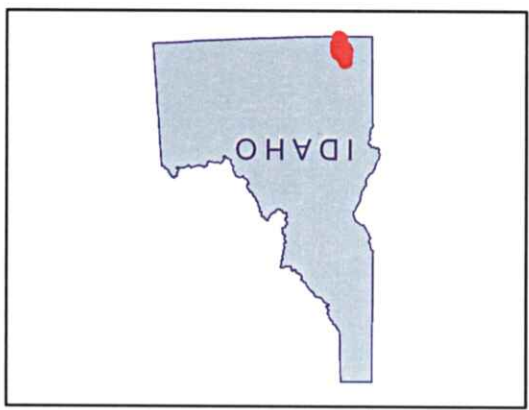
CONFIDENTIAL

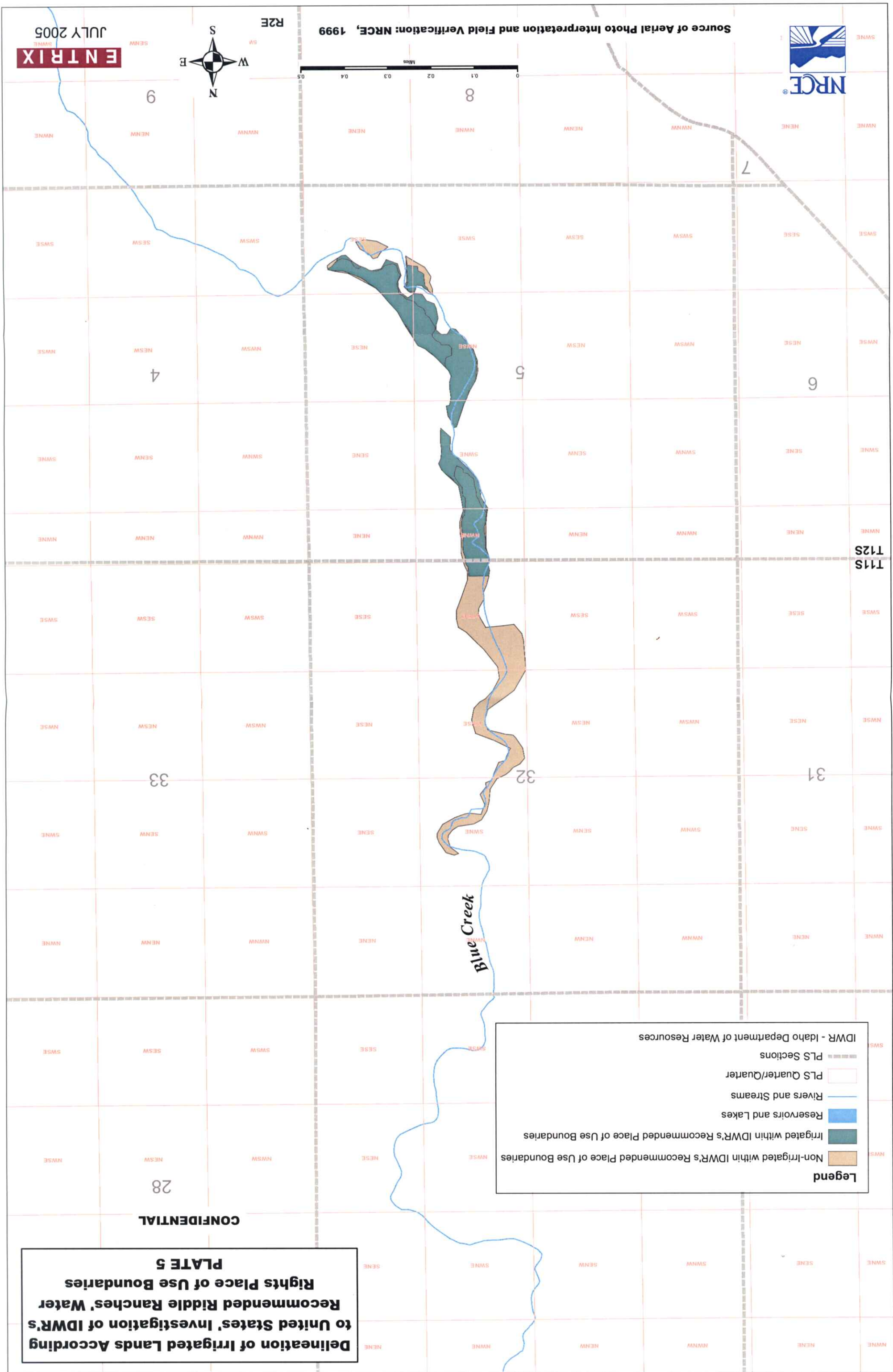


Source of Aerial Photo Interpretation and Field Verification: NRCE, 1999



- Legend**
- Non-irrigated within IDWR's Recommended Place of Use Boundaries
 - Irrigated within IDWR's Recommended Place of Use Boundaries
 - Blue Creek Basin
 - Duck Valley Indian Reservation
 - Reservoirs and Lakes
 - Rivers and Streams
 - PLS Quarter/Quarter
 - PLS Sections
 - IDWR - Idaho Department of Water Resources





**Delineation of Irrigated Lands According
to United States' Investigation of IDWR's
Recommended Riddle Ranches' Water
Rights Place of Use Boundaries**
PLATE 5

APPENDIX C

PICTURES TAKEN DURING UNITED STATES' FIELD INVESTIGATION OF RIDDLE RANCHES RESERVOIRS AND IDWR RECOMMENDED IRRIGATED AREAS

Pictures taken June 7-10, 1999

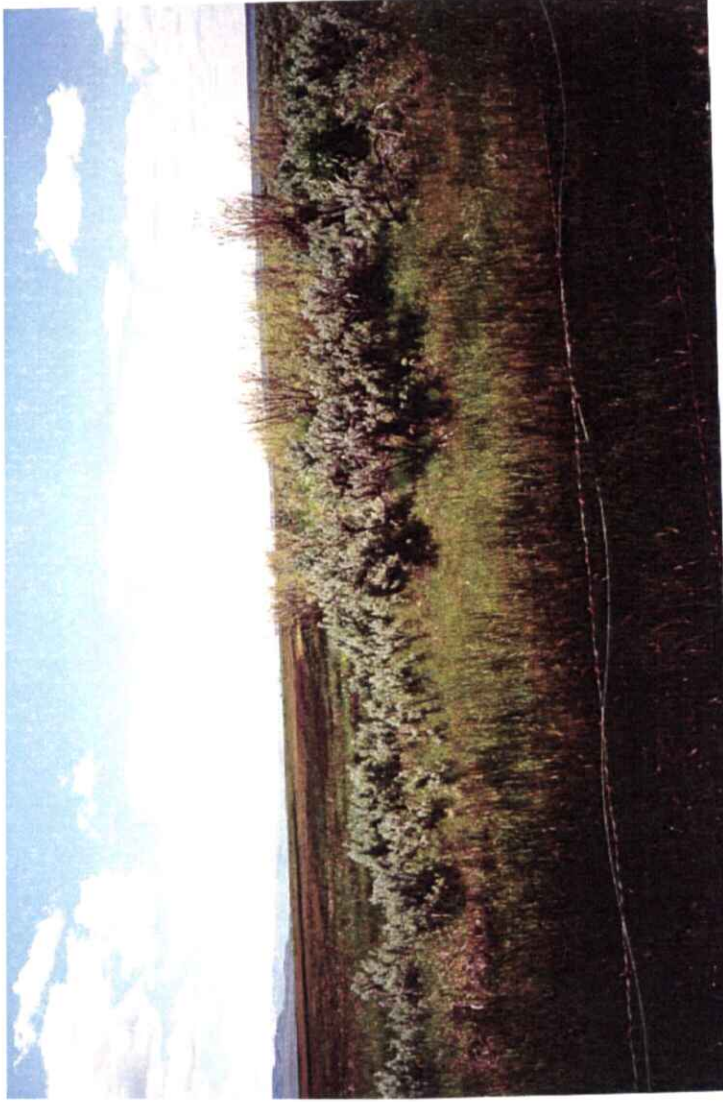


Figure C-41. Picture 4-6. IDWR recommended irrigated area -- T14S, R3E, S19 (June 10, 1999).



Figure C-42. Picture 4-7. IDWR recommended irrigated area -- T14S, R3E, S19 (June 10, 1999).



Figure C-39. Picture 4-4. IDWR recommended irrigated area -- T14S, R3E, S8 (June 10, 1999).



Figure C-40. Picture 4-5. IDWR recommended irrigated area -- T14S, R3E, S8 (June 10, 1999).



Figure C-37. Picture 4-2. IDWR recommended irrigated area -- T14S, R3E, S20 (June 10, 1999).

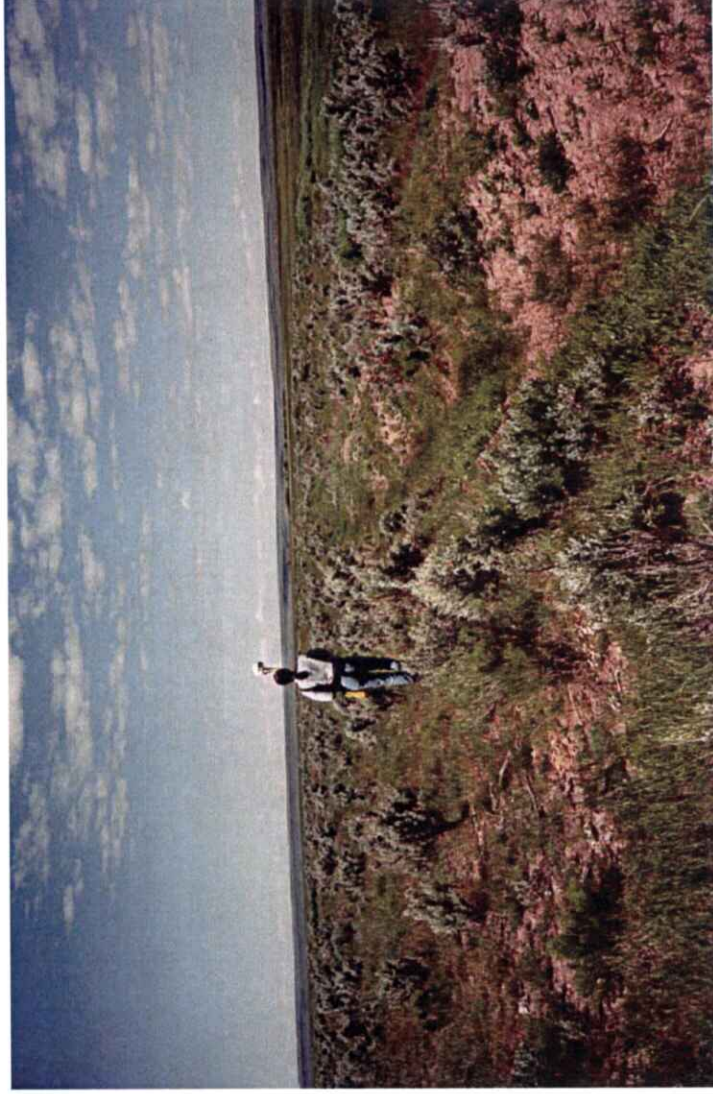


Figure C-38. Picture 4-3. IDWR recommended irrigated area -- T14S, R3E, S20 (June 10, 1999).



Figure C-35. Picture 3-25. IDWR recommended irrigated area -- T14S, R3E, S20 (June 10, 1999).



Figure C-36. Picture 4-1. IDWR recommended irrigated area -- T14S, R3E, S20 (June 10, 1999).



Figure C-33. Picture 3-23. IDWR recommended irrigated area -- T14S, R3E, S20 (June 10, 1999).

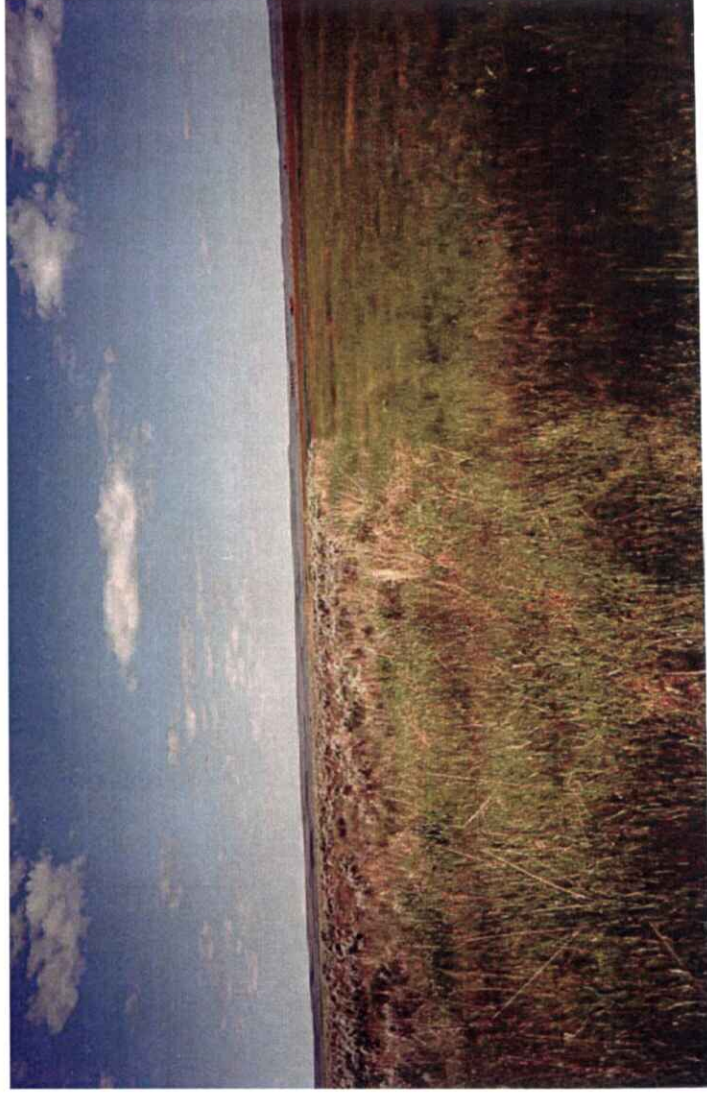


Figure C-34. Picture 3-24. IDWR recommended irrigated area -- T14S, R3E, S20 (June 10, 1999).

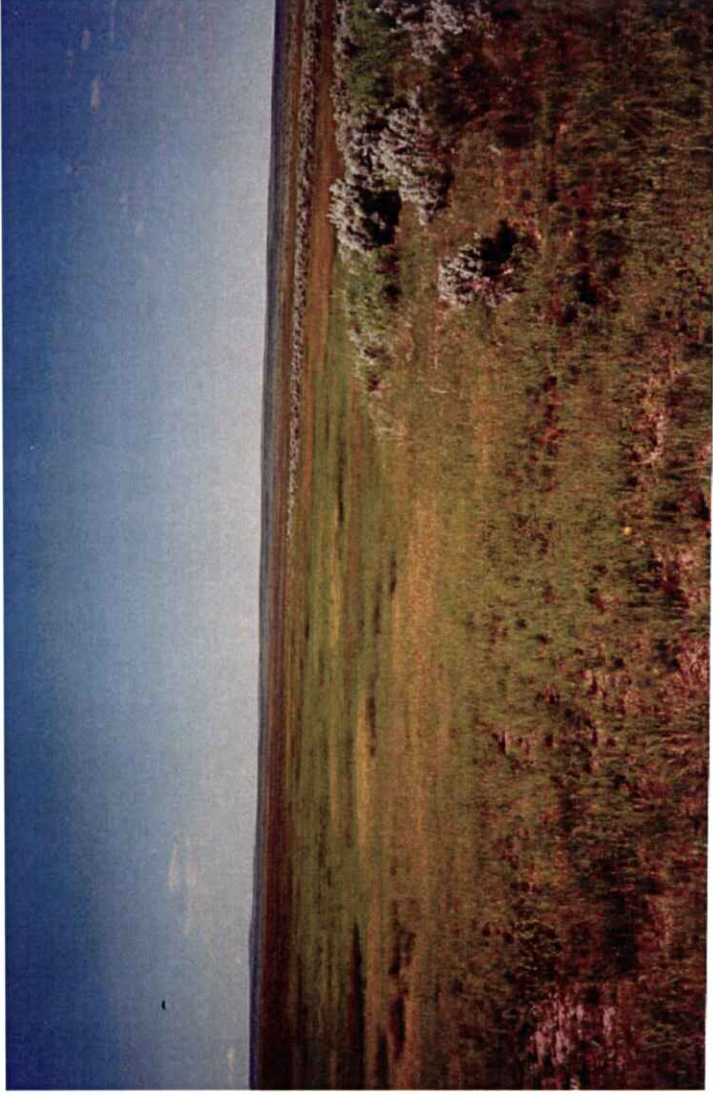


Figure C-31. Picture 3-21. IDWR recommended irrigated area -- T14S, R3E, S33 --Indian Meadow Field (June 10, 1999).



Figure C-32. Picture 3-22. IDWR recommended irrigated area -- T14S, R3E, S29 (June 10, 1999).



Figure C-29. Picture 3-19. IDWR recommended irrigated area -- T14S, R2E, S36 (June 10, 1999).

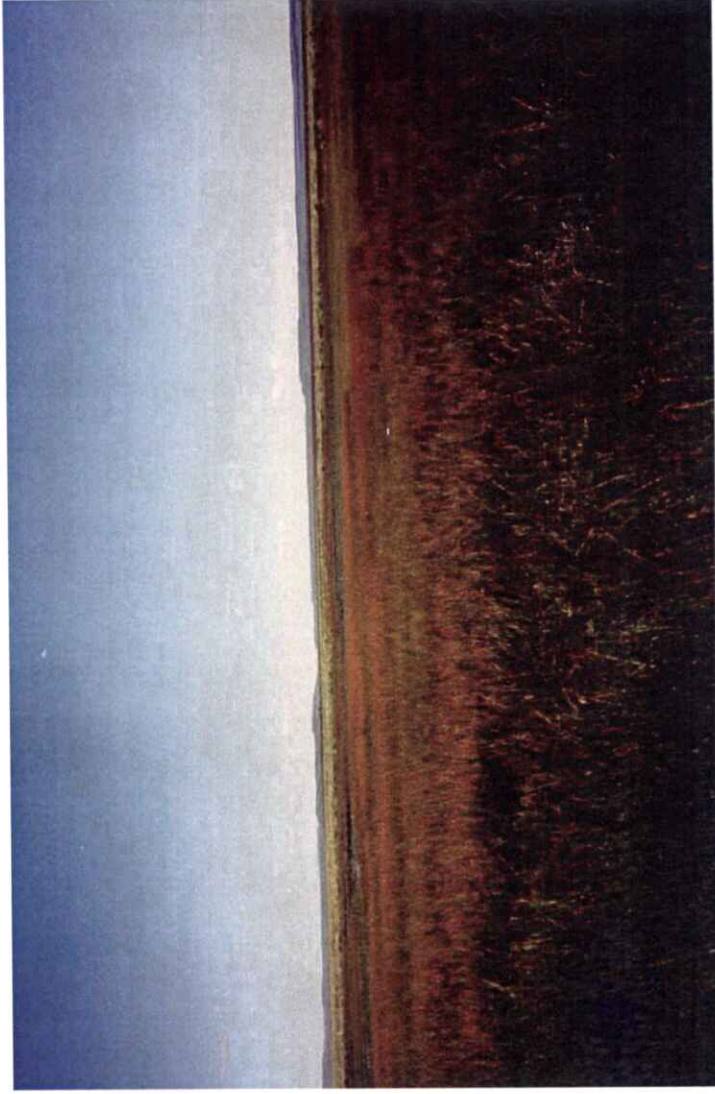


Figure C-30. Picture 3-20. IDWR recommended irrigated area -- T14S, R2E, S36 (June 10, 1999).



Figure C-27. Picture 3-17. IDWR recommended irrigated area -- T14S, R2E, S35 (June 9, 1999).



Figure C-28. Picture 3-18. IDWR recommended irrigated area -- T14S, R2E, S35 (June 9, 1999).



Figure C-25. Picture 3-15. IDWR recommended irrigated area -- T14S, R2E, S14, South half-West edge (June 9, 1999).



Figure C-26. Picture 3-16. IDWR recommended irrigated area -- T14S, R2E, S14, South half-West edge (June 9, 1999).



Figure C-23. Picture 3-13. IDWR recommended irrigated area -- T14S, R2E, S14, across fence is S15 (June 9, 1999).

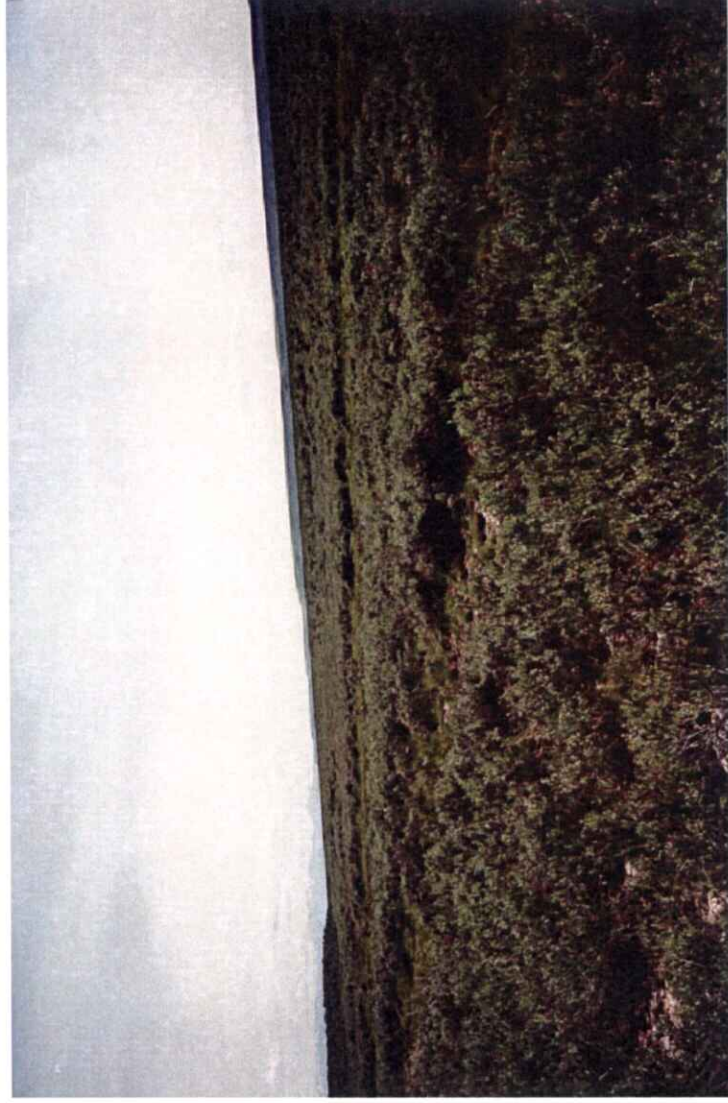


Figure C-24. Picture 3-14. IDWR recommended irrigated area -- T14S, R2E, S14 South half-West edge (June 9, 1999).



Figure C-21. Picture 3-11. IDWR recommended irrigated area -- T14S, R3E, S6-NE (June 9, 1999).



Figure C-22. Picture 3-12. IDWR recommended irrigated area -- T14S, R2E, S14, South half-West edge (June 9, 1999).



Figure C-19. Picture 3-9. IDWR recommended irrigated area -- T13S, R3E, S32 (June 9, 1999).



Figure C-20. Picture 3-10. IDWR recommended irrigated area -- T14S, R3E, S7 (June 9, 1999).

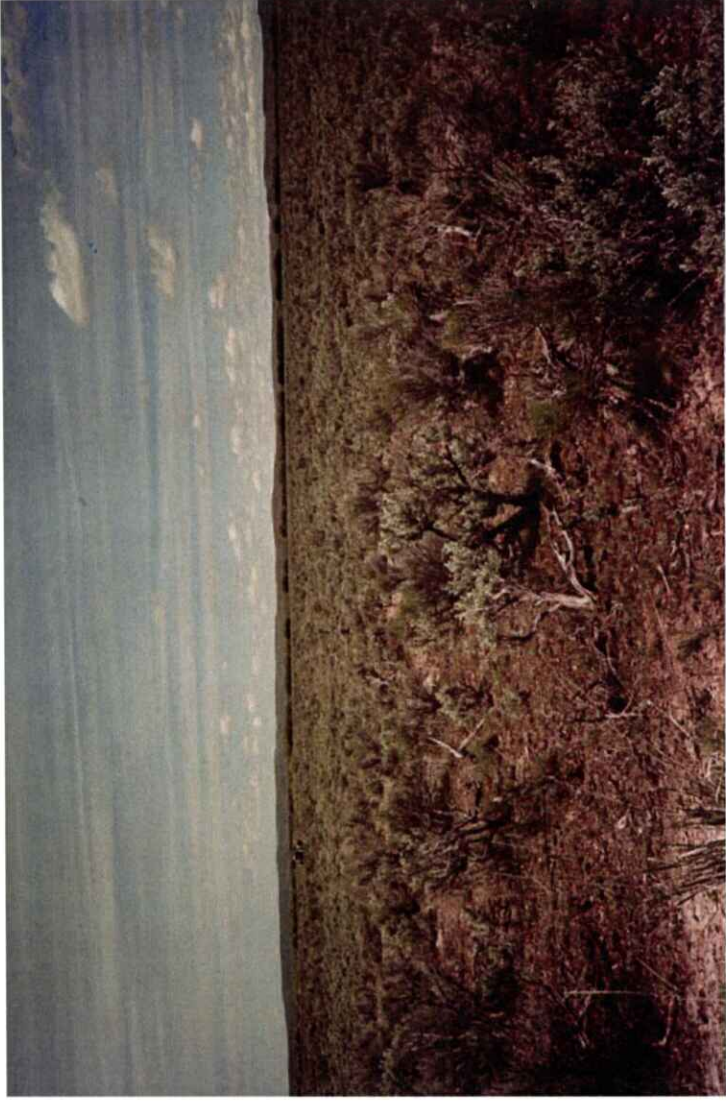


Figure C-17. Picture 3-7. IDWR recommended irrigated area -- T13S, R3E, S32 (June 9, 1999).



Figure C-18. Picture 3-8. IDWR recommended irrigated area -- T13S, R3E, S32 (June 9, 1999).

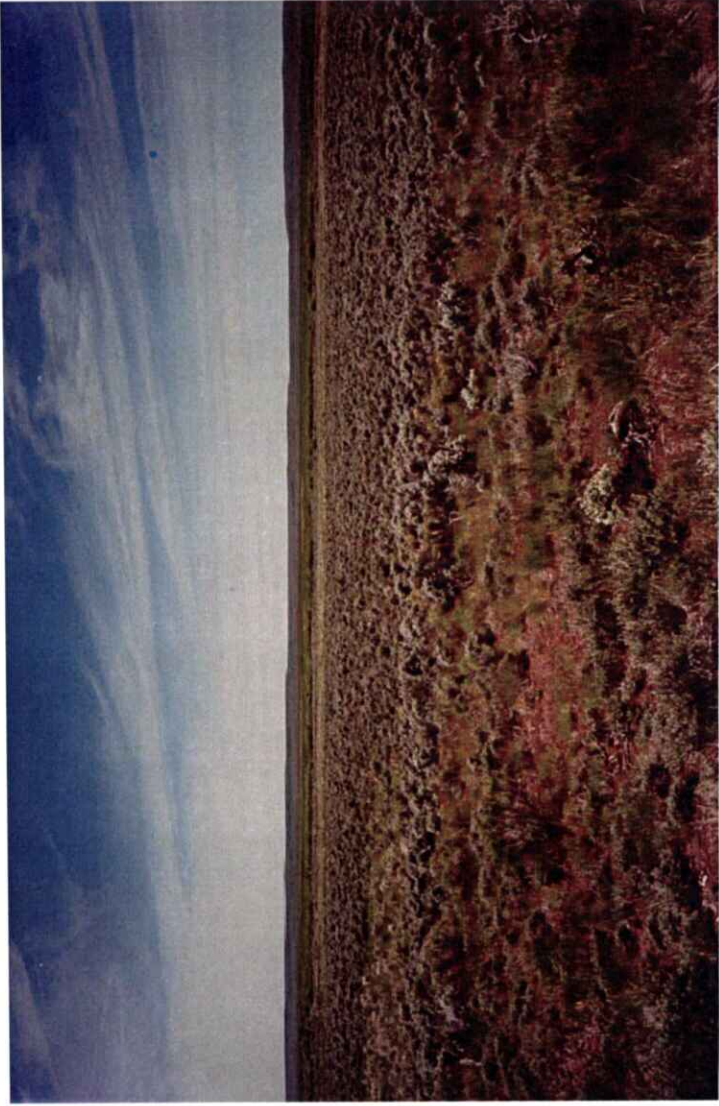


Figure C-15. Picture 3-5. IDWR recommended irrigated area -- T13S, R3E, S32 (June 9, 1999).



Figure C-16. Picture 3-6. IDWR recommended irrigated area -- T13S, R3E, S32 (June 9, 1999).

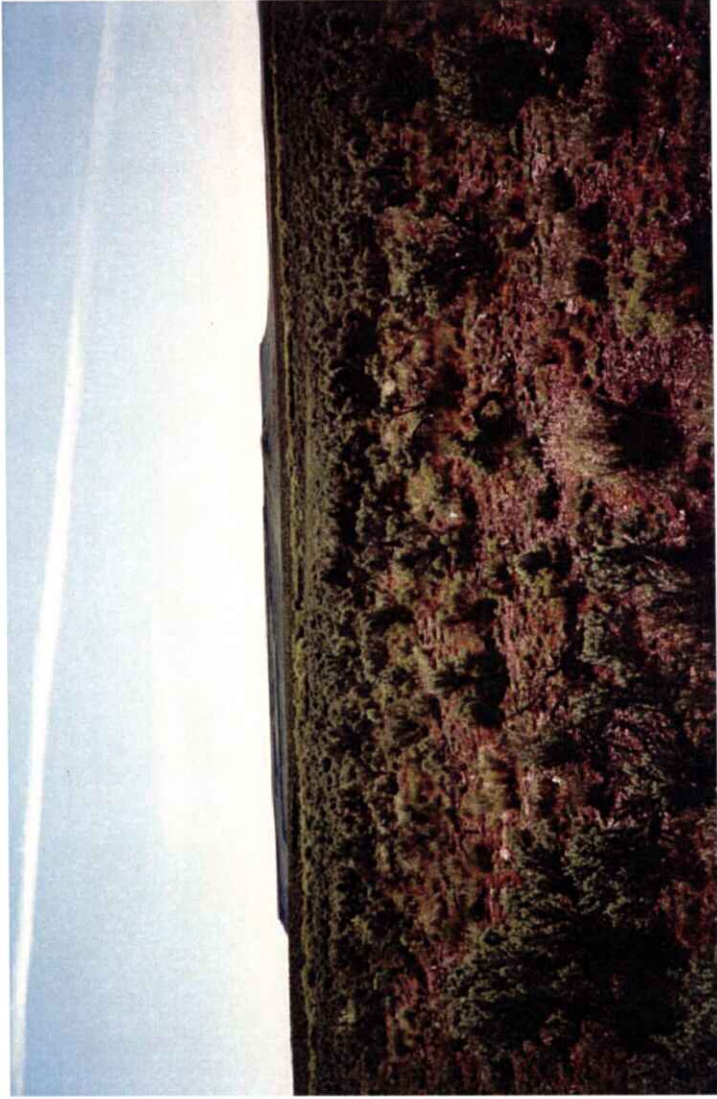


Figure C-13. Picture 3-3. IDWR recommended irrigated area -- T13S, R3E, S18 (June 9, 1999).

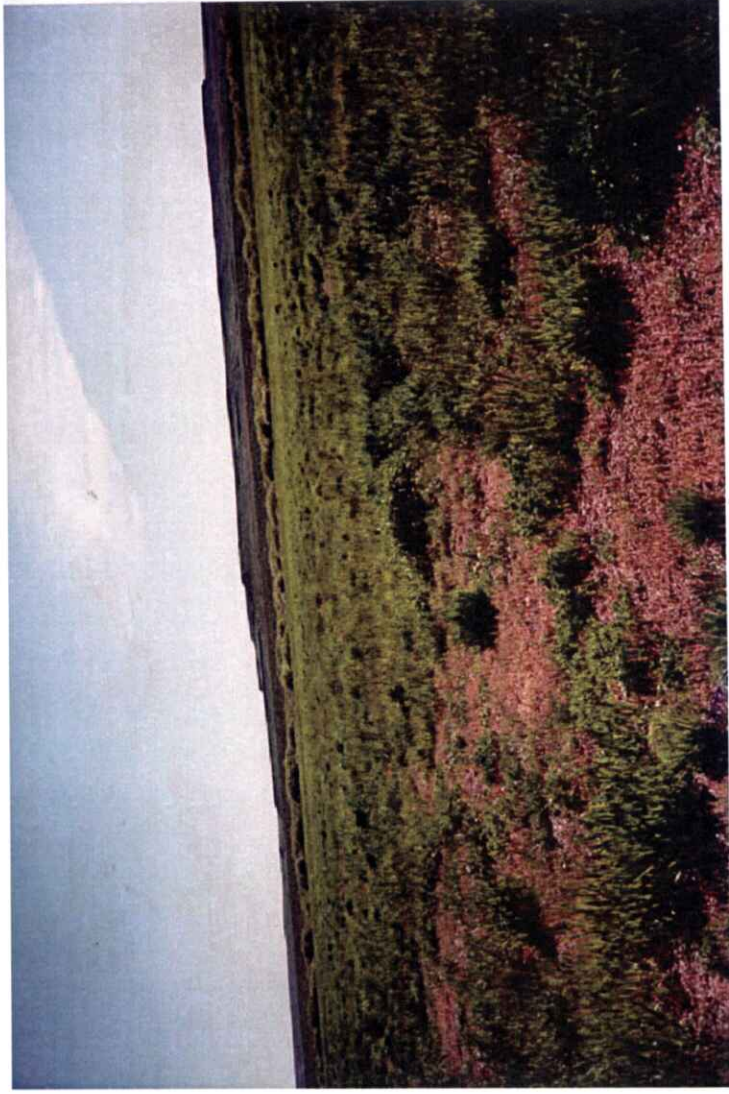


Figure C-14. Picture 3-4. IDWR recommended irrigated area -- T13S, R3E, S19 (June 9, 1999).



Figure C-11. Picture 3-1. IDWR recommended irrigated area -- T13S, R2E, S21, and 28 (June 8, 1999).



Figure C-12. Picture 3-2. IDWR recommended irrigated area -- T13S, R3E, S30 (June 9, 1999).



Figure C-9. Picture 2-22. IDWR recommended irrigated area -- T14S, R2E, S6, and 7 and T14S, R1E, S1 and 12 (June 8, 1999).



Figure C-10. Picture 2-25. IDWR recommended irrigated area -- T13S, R2E, S21, and 28 (June 8, 1999).



Figure C-7. Picture 2-20. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).



Figure C-8. Picture 2-21. IDWR recommended irrigated area -- T14S, R2E, S6, and 7 and T14S, R1E, S1 and 12 (June 8, 1999).



Figure C-5. Picture 2-18. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).



Figure C-6. Picture 2-19. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).



Figure C-3. Picture 2-16. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).



Figure C-4. Picture 2-17. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).



Figure C-1. Picture 2-14. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).

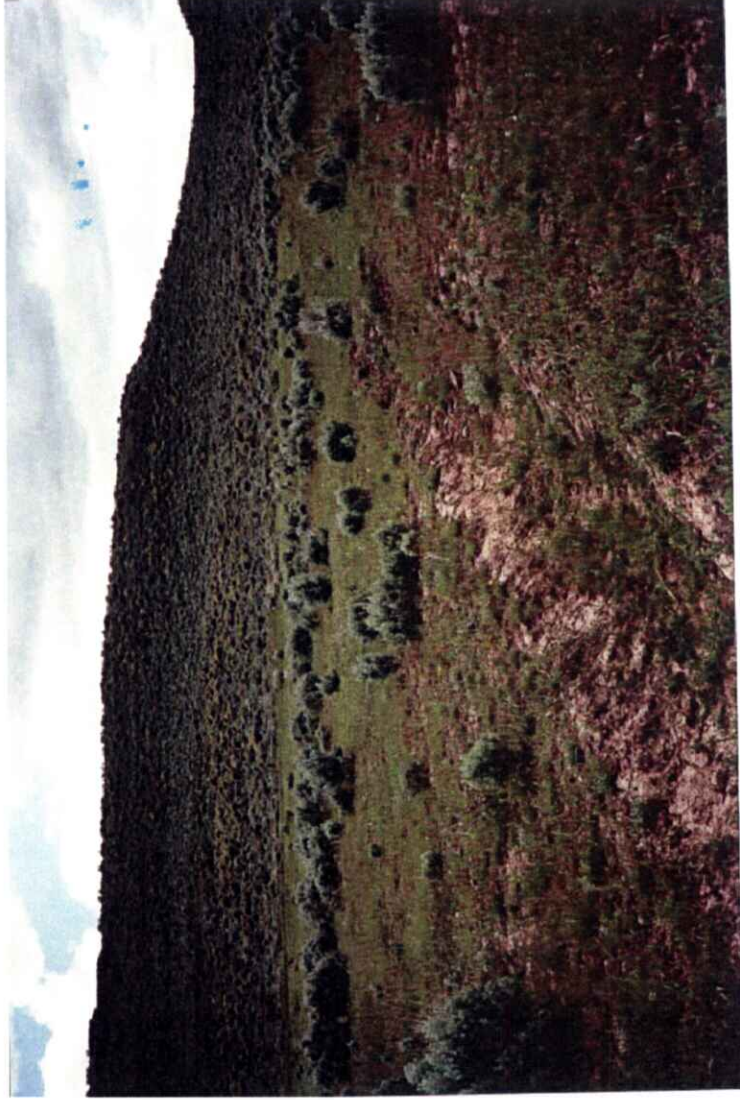


Figure C-2. Picture 2-15. IDWR recommended irrigated area -- T13S, R1E, S25, 26, and 36 (June 8, 1999).



Figure C-43. Picture 4-8. IDWR recommended irrigated area -- T14S, R2E, S25, NE ¼ Section (June 10, 1999).



Figure C-44. Picture 4-9. IDWR recommended irrigated area -- T14S, R2E, S25, NE ¼ Section (June 10, 1999).

APPENDIX D

RESUME OF DR. L. NIEL ALLEN, P.E. NATURAL RESOURCES CONSULTING ENGINEERS, INC.



NATURAL RESOURCES CONSULTING ENGINEERS, INC.
Fort Collins, Colorado

L. Niel Allen, Ph.D., P.E.

Senior Engineer

Special Skills and Expertise

Estimation of irrigation water requirements, practicably irrigable acreage (PIA) analysis, preparation of water right claims, preparation of water conservation and management plans, hydrographic surveys, irrigation system assessment, water resources planning, technical litigation support, and water rights negotiation support.

Education

Ph.D., Civil Engineering
University of Idaho, Moscow, Idaho. 1991

M.S., Agricultural & Irrigation Engineering
Utah State University, Logan, Utah. 1980

B.S., Agricultural & Irrigation Engineering
Utah State University, Logan, Utah. 1979

Professional Registrations

Professional Civil Engineer, California, No. C51308, 1994
Professional Civil Engineer, Nevada, No. 011476, 1995
Professional Civil Engineer, Utah, No. 87-172734-2202, 1987
Professional Civil Engineer, New Mexico, No.15602, 2002
State Water-Right Surveyor, Nevada, No. 1114, 2002

Advanced Training

- *Trimble Navigation Certified Mapping Course*, Fort Collins, Colorado, April 25-26, 2003.

Experience

Senior Engineer
Natural Resources Consulting Engineers, Inc.

January 1997-Present
Fort Collins, Colorado

- Technical Group Leader and Project Manager of NRCE's Agricultural Engineering Group.
 - Estimates crop water and irrigation diversion requirements.
 - Designs on-farm irrigation, water conveyance, and water distribution systems.
 - Provides cost estimates for PIA projects.
 - Identifies and maps presently and historically irrigated lands.
 - Evaluates historical irrigation water use and estimates future irrigation water requirements.
 - Assesses irrigation systems and provides information on water conservation and system rehabilitation.
 - Provides expert witness reports and testimony concerning PIA projects and water rights.
- Some of his specific projects include:

- Preparing PIA claims for the Pueblo of San Juan, Santa Clara, and San Ildefonso Indian Reservations in New Mexico (State of New Mexico v. Abbott and State of New Mexico v. Aragon).
- Preparing PIA claim and water right negotiations for the Crow Indian Reservation in Montana.
- Evaluated on-farm and district water use and water conservation measures for the Imperial Irrigation District (approximately 460,000 acres of irrigated land) in southern California.
- Identified and mapped historically irrigated land on the Shivwits and Acoma Indian Reservations.
- Supervised the mapping and preparation of water right claims for the Duck Valley Indian Reservation in southern Idaho and northern Nevada. Prepared the water right claims that were submitted to the states of Idaho and Nevada.
- Prepared technical information and conducted field investigations concerning irrigation upstream of the Duck Valley Indian Reservation.
- Developed a deficit irrigation model to estimate historical depletion by the Hopi and Navajo Indian Reservations from the northern washes of the Little Colorado River in Arizona and New Mexico.
- Prepared a water conservation and management plan, as well as developed a water measurement program for the Wapato Irrigation Project in central Washington. The Wapato Irrigation Project is a 140,000-acre irrigation project on the Yakama Reservation.
- Directed the preparation of an agricultural economic database for the Platte River in Wyoming, Colorado, and Nebraska. The database was used in the preparation of a Platte River EIS concerning endangered and threatened species that live in and along the Platte River.
- Evaluated and assessed the impacts of the 1999 U.S. Bureau of Reclamation interim operating criteria of the Weber Reservoir in Nevada on the Walker River Indian Reservation irrigated lands. The reservoir was operated at a low level due to safety concerns.
- Evaluated the water right impacts of a proposed Ahtanum Creek off-stream reservoir in Central Washington.
- Assessed irrigability and irrigation delivery system for approximately 20,000 acres of idle lands in the Wapato Irrigation Project in central Washington.
- Reviewed the State of New Mexico's San Jose River Hydrographic Survey for the Acoma Pueblo (State of New Mexico v. Kerr-McGee Crop.).
- Provided expert testimony concerning water rights in the Ahtanum Creek basin of Washington (Washington State Department of Ecology v. Acquavella, et al.).

Senior Engineer

Bookman-Edmonston Engineering, Inc.

March 1993-January 1997
Sacramento, California

- Provided analytical support concerning irrigation consumptive use, water rights, environmental considerations, and allocation of water resources for negotiation and litigation purposes.
 - Assisted in the preparation of environmental reports concerning water reclamation and development projects.
- On specific projects Dr. Allen:
- Provided technical information for negotiations concerning the Fort Belknap Indian Reservation (Montana) reserved water rights.
 - Provided technical negotiation support for the Truckee-Carson Irrigation District and the Lahontan Valley Environmental Alliance in Fallon, Nevada concerning issues related to water allocation on the Truckee and Carson Rivers.

- Formulated and evaluated agricultural irrigation management and conservation opportunities in the Snake River basin of Idaho and Oregon, increasing Snake River flows by one million acre-feet per year during salmon migration periods.
- Conducted on-farm irrigation and distribution system evaluations, supplied recommendations for irrigation system modifications and management improvements to increase irrigation efficiencies within five large Mexican irrigation districts.
- Prepared the description, economic analysis, and loan documentation for the construction of a groundwater/surface water conjunctive use and an in-lieu groundwater recharge system for Shafter-Wasco Irrigation District and Semitropic Water Storage District in Kern County, California.
- Determined potential agricultural irrigation demands and prepared cost estimates for facilities needing to recycle up to 290,000 acre-feet per year of water in the Sacramento and San Joaquin Counties of California, which was part of a study for the Sacramento Regional County Sanitation District.
- Evaluated institutional and physical transfer and exchange mechanisms required to recycle approximately 450,000 acre-feet per year of wastewater from the San Francisco Bay area.
- Evaluated the impact of fallowing irrigated agricultural lands in the Sacramento Valley on the water supply in the Sacramento River and the Sacramento-San Joaquin Delta.
- Prepared an Integrated Resource Plan for Arvin-Edison Water Storage District located in the Central Valley of California.
- Assisted in the preparation of the Definite Plan Report and DEIS for the Spanish Fork Canyon-Nephi System, which is a 510 cfs, 42-mile water conveyance pipeline and a component of the U.S. Department of the Interior Central Utah Project Bonneville Unit.

**Extension Water Specialist for Southern Nevada
Cooperative Extension Service, University of Nevada**

**March 1992-March 1993
Reno, Nevada**

- Participated in research to determine the suitability of using saline water from shallow perched aquifers in the Las Vegas Valley as an additional source of irrigation water for turf.
- Helped prepare a document to encourage public policy dialogue in forums on managing and allocating water in Nevada, and moderated a public forum in Las Vegas using this document.
- Organized and conducted a technical conference entitled Salinity Effects on Plant-Soil-Water Relationships, which was held in Las Vegas, Nevada in 1993, and concerned the Colorado River Salinity Control Program.
- Taught Irrigation Principles, Irrigation Scheduling, and Irrigation Audit Courses to irrigation and landscape managers in Las Vegas.

**Extension Irrigation Engineer and Research Engineer
Utah State University**

**1985-1992
Logan, Utah**

- Performed urban and agricultural irrigation audits that included evaluation of irrigation pumping plants, hydraulics of mainlines, and adequacy of irrigation systems for over 100 irrigation systems in Utah.
- Provided guidelines for the operation and management of gravity-pressurized sprinkler irrigation systems.
- Assisted in establishing an electronic weather station network in Utah, and helped develop software that allowed the data to be used for crop water requirements and irrigation scheduling.
- Aided in interdisciplinary research on crop growth and yield as affected by environmental conditions and water management and verified evapotranspiration equations using climatic data and soil moisture measurements from neutron probe readings.

- Other areas of research include consumptive use estimation, nitrate movement determination, and evaluation of the Colorado River Salinity Control Program.
- Helped teach a five-month irrigation management training course, and presented irrigation system management information to water users.

Irrigation Engineer

Snyder Irrigation and Agri-Services, Inc.

**1981-1985
Salt Lake City, Utah**

- Designed and managed the construction of numerous irrigation systems that considered economics, soils, topography, climate, crops, labor, energy, and water resources in Utah, Wyoming, and Idaho for individual farmers and irrigation companies. The work included the design of pumping plants, pipelines, canals, water control structures, and sprinkler systems.

Irrigation Engineer

Pitcher Irrigation Company

**1980
Preston, Idaho**

- Supervised the design, development, and construction of irrigation systems in Idaho and Utah.

Research and Teaching Assistant

Utah State University

**1979-1980
Logan, Utah**

- Conducted some of the first research concerning "surge irrigation", with an emphasis on the advance rate of water down furrows.
- Assisted in teaching a Water Law and Institution course.

Independent Consulting Experience

From 1989 to 1993, Dr. Allen provided irrigation management information to irrigators concerning the reclamation of salt-affected soils and irrigation with poor quality saline or sodic water. In addition, he assisted in the design, management, and construction of a 4,500-acre irrigation rehabilitation project, including 12 wells and 35 pivots. The annual energy usage dropped from over 9 million kilowatt-hours before rehabilitation to less than 5 million kilowatt-hours after work was completed.

Relevant Computer Skills

- *Hydrologic and Crop Water Requirement Models*: Operated several models
- *Hydraulic Models*: Operated a hydraulic pipeline network program
- *Software and Model Development*: Irrigation Scheduling Models, Crop Water Use Models, Irrigation Depletion Models
- *Programming Languages*: BASIC, FORTRAN

Professional Memberships

- American Society of Civil Engineers

Publications

- Allen, L. N. (1992). *Economical and Statistical Based On-Farm Irrigation Scheduling*, ASCE Proceedings of the Irrigation and Drainage Session at Water Forum '92 - Saving a Threatened Resource - In Search of Solutions, Baltimore, Maryland.
- . (1992). *Directory of Available Assistance for Nevada's Rural Water Users*.
- . (1991). *Economic and Statistical Based On-Farm Irrigation Scheduling*, Ph.D. Dissertation, Department of Civil Engineering, University of Idaho.