

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 2-10290

Exam Date: 8/23/2005

1. Current Owner: ROBERT J MEYERS
3024 WOODRIDGE DR
TWIN FALLS ID 83301
(208)733-4952
2. Accompanied by: ROBERT J MEYERS
Phone No: SAME AS ABOVE
Address: SAME AS ABOVE
Relationship to Permit Holder: CURRENT OWNER OF PROPERTY

- | | |
|------------------|------------------|
| 3. <u>SOURCE</u> | <u>TRIBUTARY</u> |
| SNAKE RIVER | COLUMBIA RIVER |

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 02-2281, 02-2094A, 02-2182A, 02-2375A, 02-2284A, 02-2285, & 02-2282
2. Other water rights with the same point of diversion: 02-2281, 02-2094A, 02-2182A, 02-2375A, 02-2284A, 02-2285, & 02-2282

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

SNAKE RIVER	L1 NE1/4NE1/4	Sec. 6,	Twp 06S,	Rge 06E, B.M.
OWYHEE County				

Method of Determination: VISUAL INSPECTION AND USE OF AERIAL PHOTOS

2.

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06S 05E 1					6.7 L 3	36.0 L 4	31.0	11.0	34.0	39.0		15.0		14.0	38.0	18.0	242.7
06S 05E 12	40.0	20.0		13.0													73.0
06S 06E 4									.8								.8
06S 06E 5									40.0	40.0	40.0	40.0	23.0	40.0	17.0		240.0
06S 06E 6			25.0	30.0	30.0 L 3			21.0	40.0	13.0 L 6	19.0 L 7	40.0	40.0	40.0	40.0	40.0	378.0
06S 06E 7	40.0	40.0	20.0	22.0	38.0 L 1	14.0 L 2	25.0	1.4	8.4	26.0 L 3							234.8
06S 06E 8					3.2	31.0	2.2										36.4

Total Acres: 1205.7

PLEASE NOTE: This permit is recommended for licensing for 89.7 acres within the above described permissible place of use.

Method of Determination: VISUAL INSPECTION AND USE OF AERIAL PHOTOS

3. YES Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.

YES Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

YES Aerial Photo Attached (required for irrigation of 10+ acres).

YES Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
RIVER PUMP #1 P/D	GENERAL ELECTRIC	150 Hp	SNEAJ626080	GOULDS	IP 97320
RIVER PUMP #2 P/D	GENERAL ELECTRIC	150 Hp	SNEAJ626080	GOULDS	IP97320
RIVER PUMP #3 P/D	HIGH THRUST	200 Hp	CF9402472974	GOULDS	IP97319
RIVER PUMP #4 P/D	HIGH THRUST	350 Hp	CF3640061262	UNKNOWN	16 INCH DISCHARGE
BOSSTER #1	MARATHON	100 Hp	4D404TTDS8649 AN	PACO	12 INCH DISCHARGE

4. PUMPS CONTINUED

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
BOOSTER #3	UNKNOWN	75 Hp	UNKOWN	PACO	12 INCH DISCHARGE
BOOSTER #4	US MOTORS	30 Hp	H030S2BLT	GOULD	1P04245
BOOSTER #5	US MOTORS	50 Hp	H05092BLG	GOULDS	LPO4244

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
N/A						

3. Measurements: Only 2 of the 4 pumps were operating at the time of the exam. The owner was harvesting potatoes, so it wasn't possible for him to turn on the system without causing damage to his system and his crops. Therefore a Theoretical was done on the three pumps.

E. FLOW CALCULATIONS

YES Additional Computation Sheets Attached

Measured Method:

PLEASE SEE ATTACHED SHEETS FOR FLOW CALCULATIONS

SYSTEM CAPACITY → 16.79 CFS

MAXIMUM ALLOWABLE UNDER THIS PERMIT → 1.79 CFS (BASED ON 0.02 CFS PER ACRE LIMITATION FOR 89.7 ACRES).

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 89.7 \times 4.0 = 358.8 \text{ AFA}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 1.79 \text{ CFS} \times 260 \text{ DAYS} \times 1.9835 = 923.1 \text{ AFA}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 358.8 \text{ AFA}$$

2. Volume Calculations for Other Uses: N/A

G. NARRATIVE/REMARKS/COMMENTS

This permit was originally filed to cover the areas not already covered by a license or decree on a large 2534-acre farm owned by River Ranch Farms. River Ranch Farms dissolved, and the property was sold and went through several owners. Currently, there are 3 owners of the original farm. Robert J. Meyers (02-10290), Gingerich Brothers Farming (02-10291), and David O. Miller (02-10289) now own portions of the original of this farm and of the original permit. Since River Ranch Farms no longer exists, the split will need to be done during the licensing phase of this process. The Snake River Basin Adjudication (SRBA) claims have already been split into 02-7273B (Gingerich), 02-7273C (Meyers), and 02-7273D (Miller). We were not able to maintain these water rights when the splits were done on the water right side, so that is the reason for new water right numbers.

The original permit had two points of diversion. However, the points of diversion were also split when the property was sold. Meyers has sole use and control of the western diversion in Government Lot 1, NENE S6 T6S R6E. Gingerich and Miller share the diversion in Government Lot 3, NENW S4 T6S R6E. The original farm was split using Highway 51 and Highway 78. Meyer's farm includes all the lands west of Highway 51. Mr. Miller owns a 10-acre parcel on the east side of Highway 51 and north of highway 78. Gingerich owns the property east of Highway 51 and south of Highway 78.

This portion of the permit is associated with Mr. Meyer's portion of the original water right. Mr. Meyers diverts his water from the west diversion in Lot 1 S6. Meyer's diversion diverts water from the Snake River using 4-turbine pumps. These pumps are numbered 1 through 4. River pumps 1 through 3 deliver water to a common mainline that irrigates all the lands on the east side of his farm. These lands are on a flat and will be referred to as the lower fields. River pump 4 delivers water through a separate mainline to a small pond in the SESE S1 T6S R5E.

The common mainline from river pumps 1 through 3 travels due north ¼ of mile to a booster pump referred to as booster pump 1. The mainline at booster pump 1 split in several directions to feed pivots and handlines for the far eastern portion of the farm. A mainline from booster pump 1 travels due west ½ mile to booster pump 3. The mainline from booster pump three also splits in several directions to feed handlines and pivots in the middle portion of the farm.

The mainline from river pump 4 that open discharges into the same pond in S1. The water in the pond is re-lifted by booster pumps 4 and 5 to supply the handlines and pivots on the western fields or upper fields.

After Meyers purchased the farm, he has redone some of the irrigation schemes. Pivots have been moved around, and solid set handlines are being used in different areas. Even though the systems have been moved around a bit, new lands have not been added to the system. Some the pivots on the upper fields have been removed and are now being irrigated with solid set hand lines. The upper fields are on rolling hills, and it is more efficient to irrigate these lands with handlines instead of pivots.

There are 7 existing water rights on this property as shown on the overlap analysis sheet. These water rights use the same point of diversion and irrigate much of the same land as this permit. This permit was filed to cover the ground that wasn't licensed. I only found 89.7 acres of ground that has been irrigated that didn't have a water right. Most of these acres are dispersed around the farm, making it difficult to mark them specifically on a map. The only way that this permit can be licensed is as a permissible place of use.

Therefore, I recommend that this permit be licensed for 89.7 acres within the 1205.7-acre permissible place of use described in the above land list. This is the only way it can be licensed. All of the water rights on this property are licensed at an inch or close to an inch per acre. The combined total of all of the existing water rights are 22.15 cfs. The system capacity was calculated at 16.79 cfs. This permit will add an additional 1.79 cfs to the existing water rights for a total of 23.94 cfs. Therefore, the following condition will be needed:

Rights 02-2281, 02-2094A, 02-2182A, 02-2375A, 02-2284A, 02-2285, and 02-2282 when combined shall not exceed a total diversion rate of 16.79 cfs, a total annual maximum diversion volume of 4822.8 af at the field headgate, and the irrigation of 1205.7 acres.

This condition should also be added to the existing water right when recommend by the SRBA staff.

Have conditions of permit approval been met? ☒ Yes ☐ No

PLEASE NOTE: There was ample pipe to do a polysonic measurement on this system, but the opportunity to measure the system with all the pumps operating was not possible at the time of the exam. However, the theoretical calculation performed should be adequate.

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/01 to 11/15	1.790 CFS	358.80 AF
<u>Totals:</u>		1.790 CFS	358.80 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☐ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

DANIEL A. NELSON – SENIOR AGENT

Field Examiner's Name Daniel A. Nelson Date 10-7-05

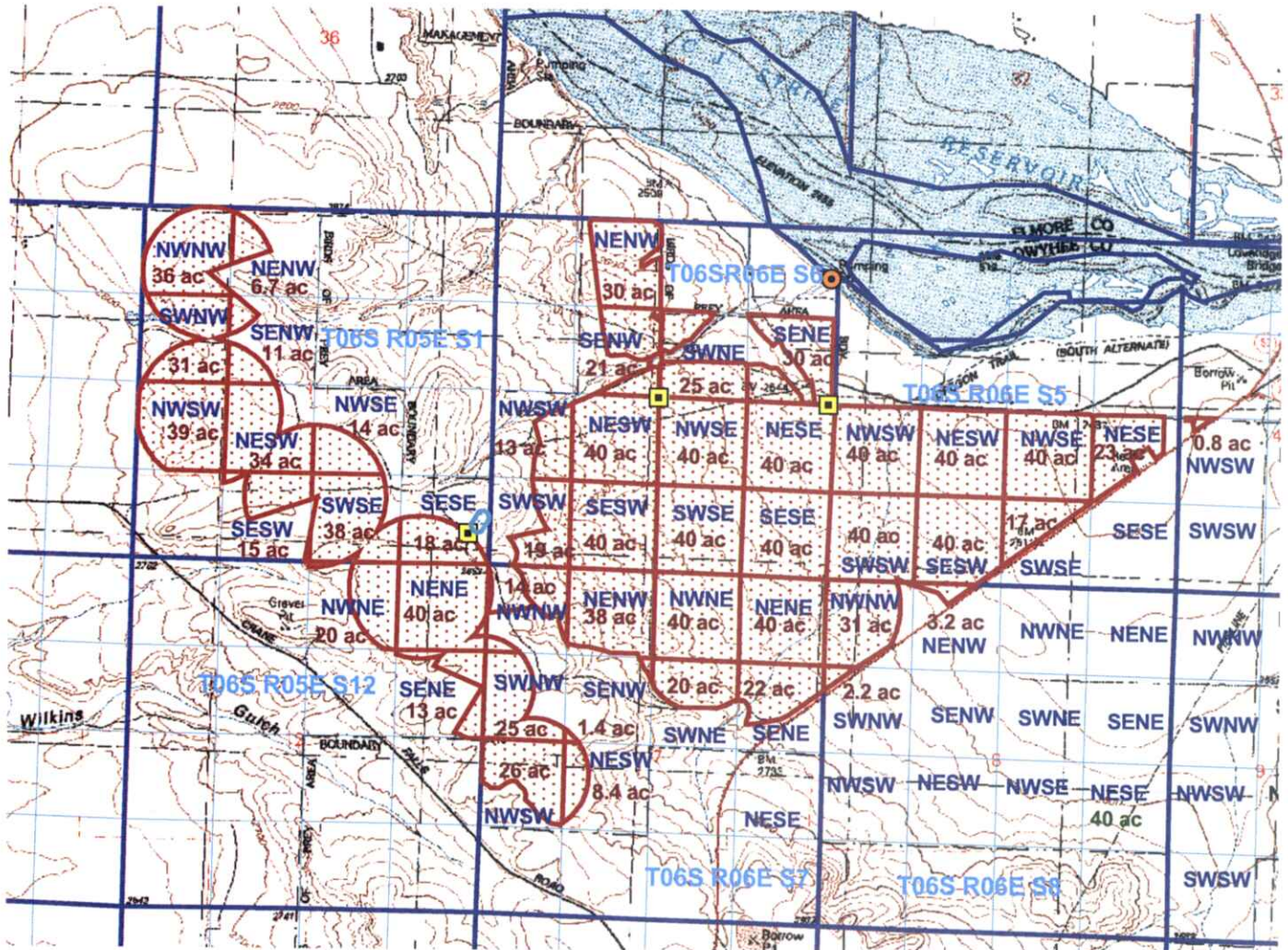
Reviewer _____ Date _____

SEAL

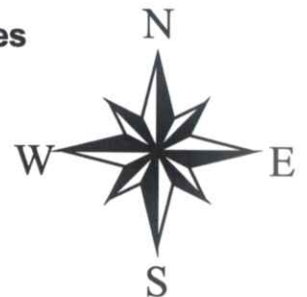
FIELD EXAM 02-10290

QUADRANGLE MAP

BY DAN NELSON



0.8 0 0.8 1.6 Miles



- POINT OF DIVERSION FROM SNAKE RIVER
- RELIFT POND
- BOOSTER PUMPS
- PLACE OF USE
- SECTION LINES
- 1/4 1/4 LINES

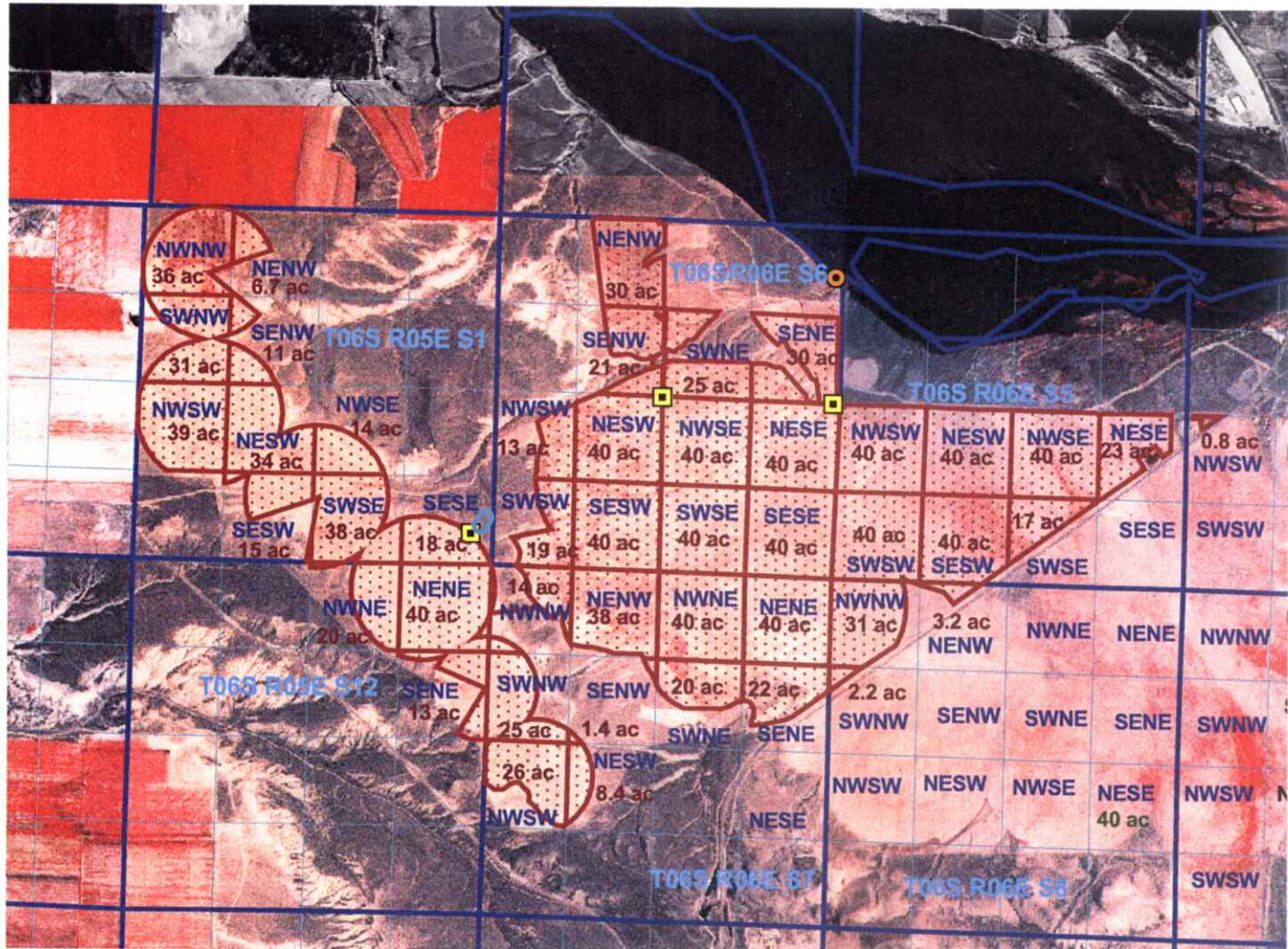
PLEASE NOTE:

This is the place of use for the Meyers portion of 02-7273. The original farm was split and is now owned by three separate parties. The total acres irrigated for 02-10290 is 1205.7 acres. 1116 of the 1205.7 acres are covered with an existing water right at a full inch per acre. Therefore, this permit can only be licensed for 89.7 acres. Since the 89.7 acres are spread throughout the farm, the only reasonable way to license this permit is to allow 89.7 acres within a 1205.7 acre permissible place of use. This will cover all of the acres being irrigated.

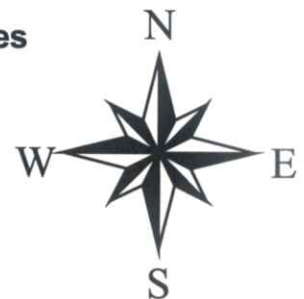
FIELD EXAM 02-10290

PLACE OF USE MAP

BY DAN NELSON



0.8 0 0.8 1.6 Miles



- POINT OF DIVERSION FROM SNAKE RIVER
- RELIFT POND
- BOOSTER PUMPS
- PLACE OF USE
- SECTION LINES
- 1/4 1/4 LINES

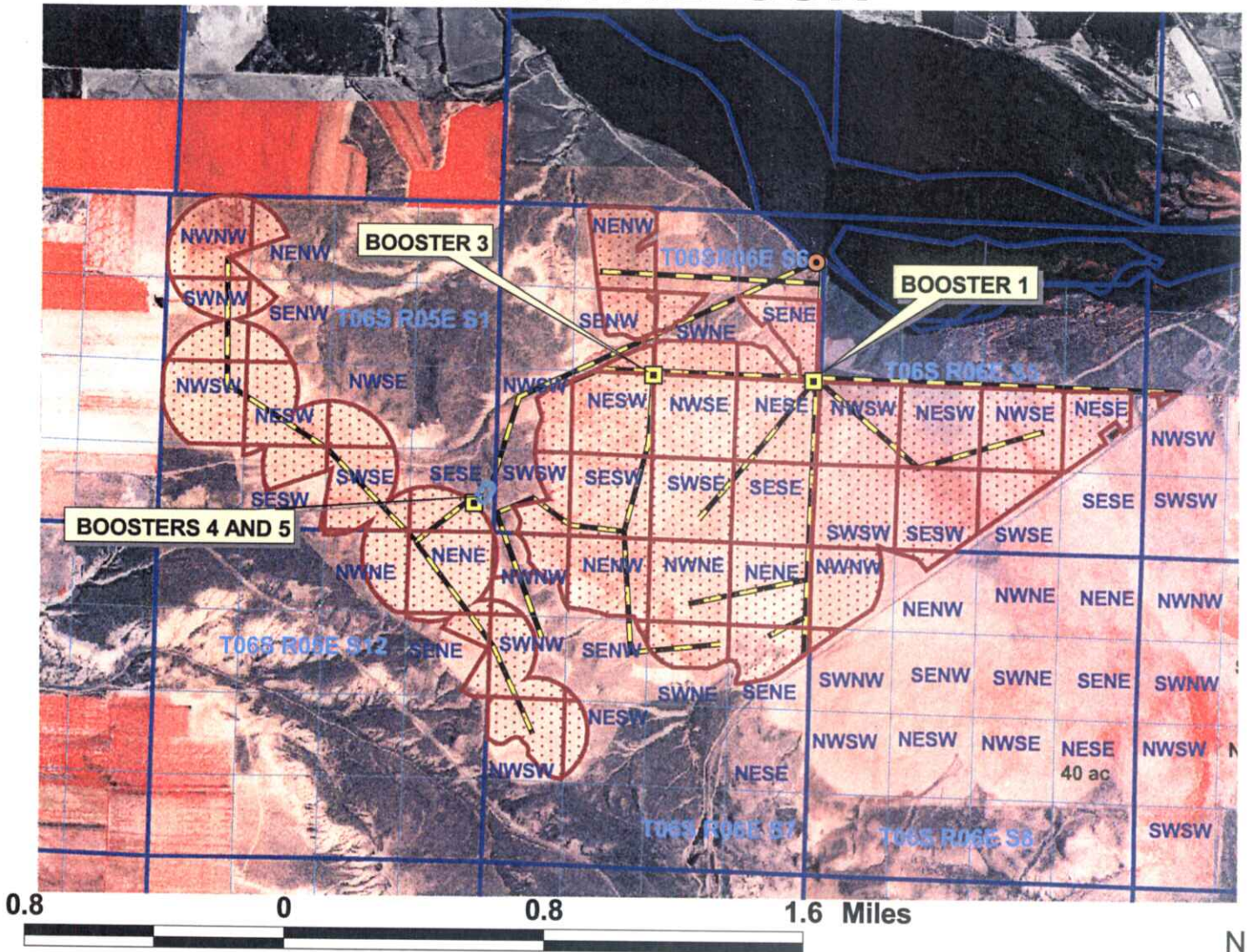
PLEASE NOTE:

This is the place of use for the Meyers portion of 02-7273. The original farm was split and is now owned by three separate parties. The total acres irrigated for 02-10290 is 1205.7 acres. 1116 of the 1205.7 acres are covered with an existing water right at a full inch per acre. Therefore, this permit can only be licensed for 89.7 acres. Since the 89.7 acres are spread throughout the farm, the only reasonable way to license this permit is to allow 89.7 acres within a 1205.7 acre permissible place of use. This will cover all of the acres being irrigated.

FIELD EXAM 02-10090

SYSTEM DIAGRAM

BY DAN NELSON



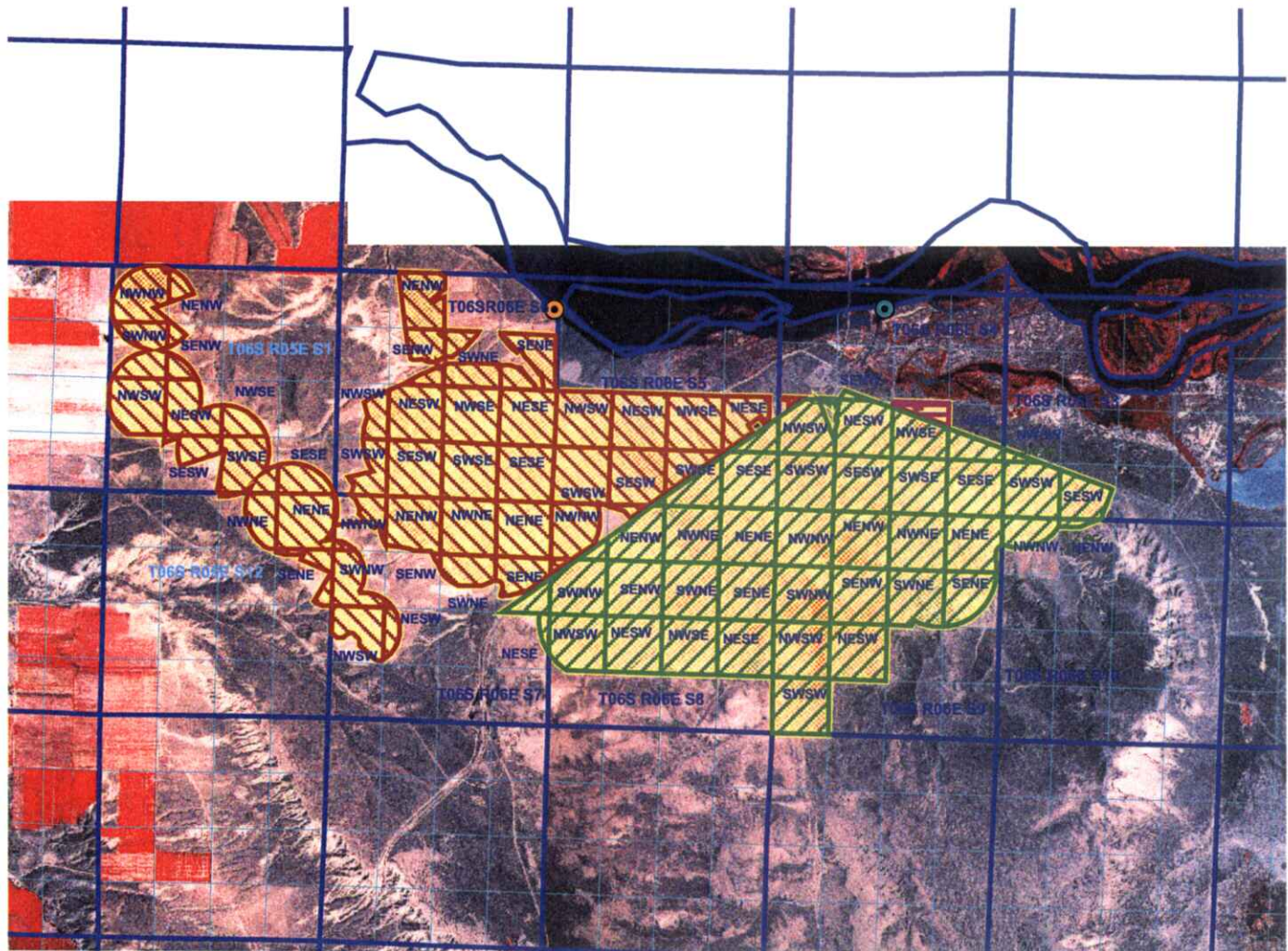
PLEASE NOTE:

-  **MAINLINE**
-  **POINT OF DIVERSION FROM SNAKE RIVER**
-  **RELIFT POND**
-  **BOOSTER PUMPS**
-  **PLACE OF USE**
-  **SECTION LINES**
-  **1/4 1/4 LINES**

There are 4 pumps at the point of diversion (river pumps) that divert the water for this permit. One of these pumps divert water in a southwesterly direction and open discharges into a pond. Boosters 4 and 5 relift the water from the pond and delivers water to the 6 pivots on the west side of the property. The other three river pumps divert water in a northerly direction to Booster 1. The water is transported by underground mainlines from this point to a number of pivots and handlines. Booster 3 is a 1/2 mile west of Booster 1, and is used to pressurize the pivots and handlines in the middle of farm. Booster 1 pressurizes the mainlines for the pivots and handlines on the east side of the farm. The mainline locations may not be exact. They were all buried mainlines, so the actual location of the mainline may be off a little bit from this diagram.



FIELD EXAM 02-10289, 02-10290, & 0210291 SPLITS OF ORIGINAL PERMIT 02-7273 BY DAN NELSON



1 0 1 2 Miles

- POINT OF DIVERSION FOR 02-10289 & 02-10291
(WAS AN ORIGINAL P/D FOR 02-7273)
- POINT OF DIVERSION FOR 02-10290
(WAS AN ORIGINAL P/D FOR 02-7273)

▨ PLACE OF USE 02-10291

▨ PLACE OF USE 02-10290

▨ PLACE OF USE 02-10289

▨ ORIGINAL BORDERS OF 02-7273 BEFORE SPLIT

▨ SECTION LINES

▨ 1/4 1/4 LINES



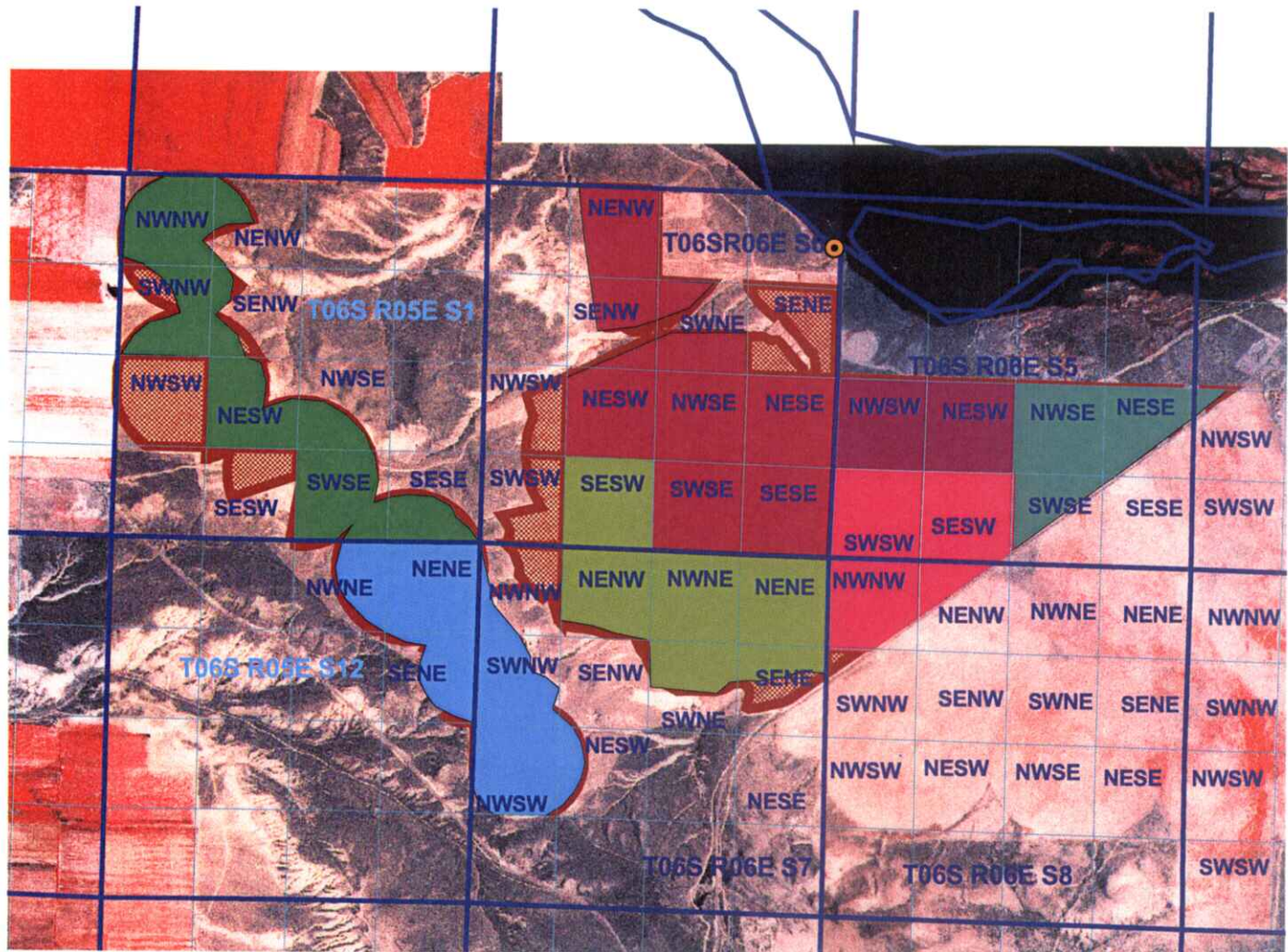
PLEASE NOTE:

Permit 02-7273 was originally filed by River Ranch Farms to cover the ground not already covered by existing water rights. The farm has been sold to three separate owners, Meyers, Gingerich, and Miller. I have outlined the original farm in yellow, and then shown the three splits of the original farm.

FIELD EXAM 02-10290

OVERLAPPING WATER RIGHTS

BY DAN NELSON



0.9 0 0.9 1.8 Miles

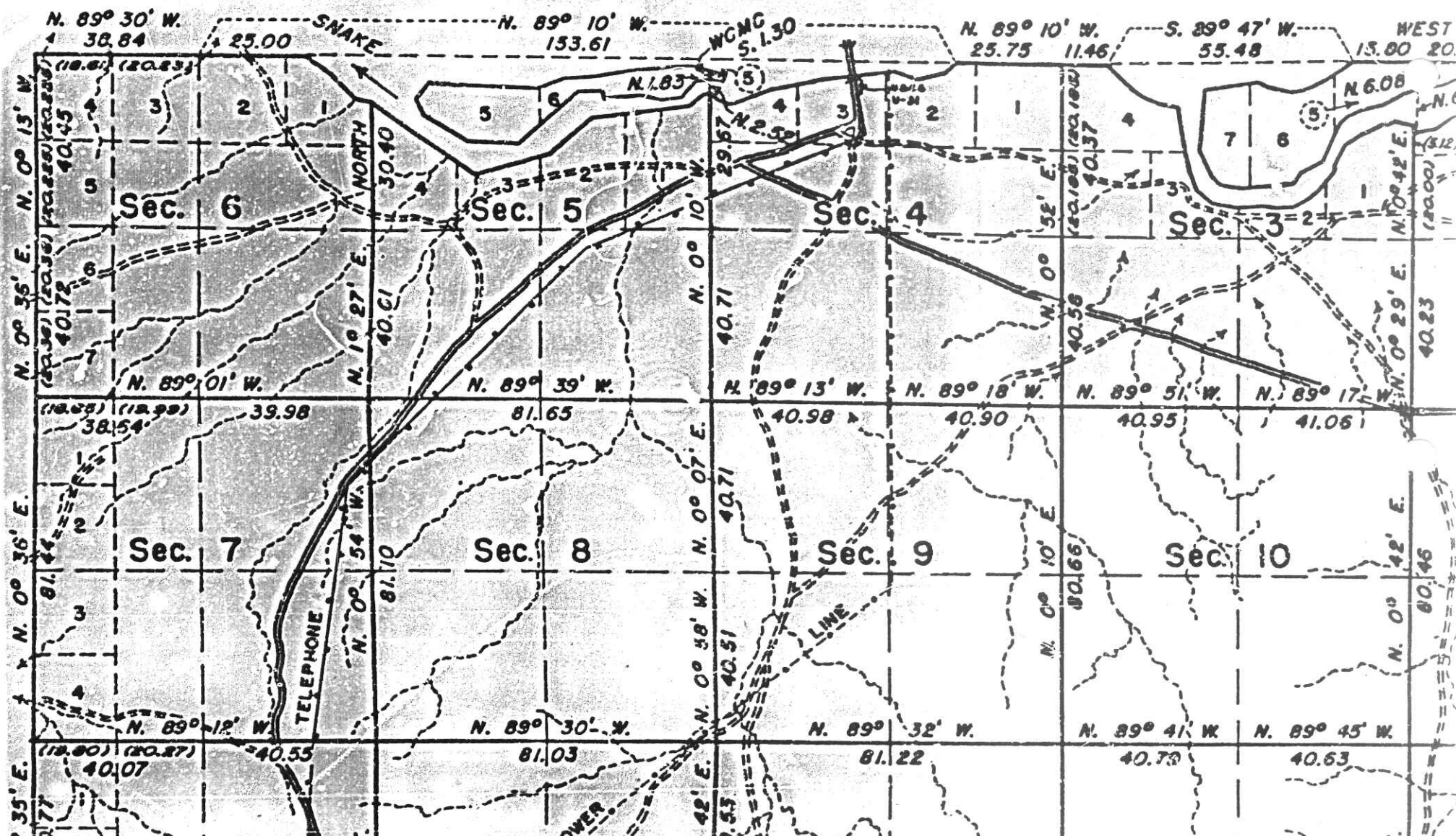
● POINT OF DIVERSION 02-0290 ALSO ORIGINAL DIVERSION FOR 02-7273

- PLACE OF USE 02-2735A
- PLACE OF USE 02-2285
- PLACE OF USE 02-2284A
- PLACE OF USE 02-2282
- PLACE OF USE 02-2281
- PLACE OF USE 02-2182A
- PLACE OF USE 02-2094A
- BOUNDARY OF IRRIGATED GROUND 02-10290
- SECTION LINES
- 1/4 1/4 LINES

This permit was originally designed to pick up the areas not currently covered by a water right. There are scattered areas that need to be covered by this water right. This is the main reason a permissible place of use is the only reasonable way to license this permit. The point of diversion is the same for all of these overlapping water rights.

TOWNSHIP NO. 6 SOUTH, RANGE NO. 6 EAST

DEPENDENT RESERVE

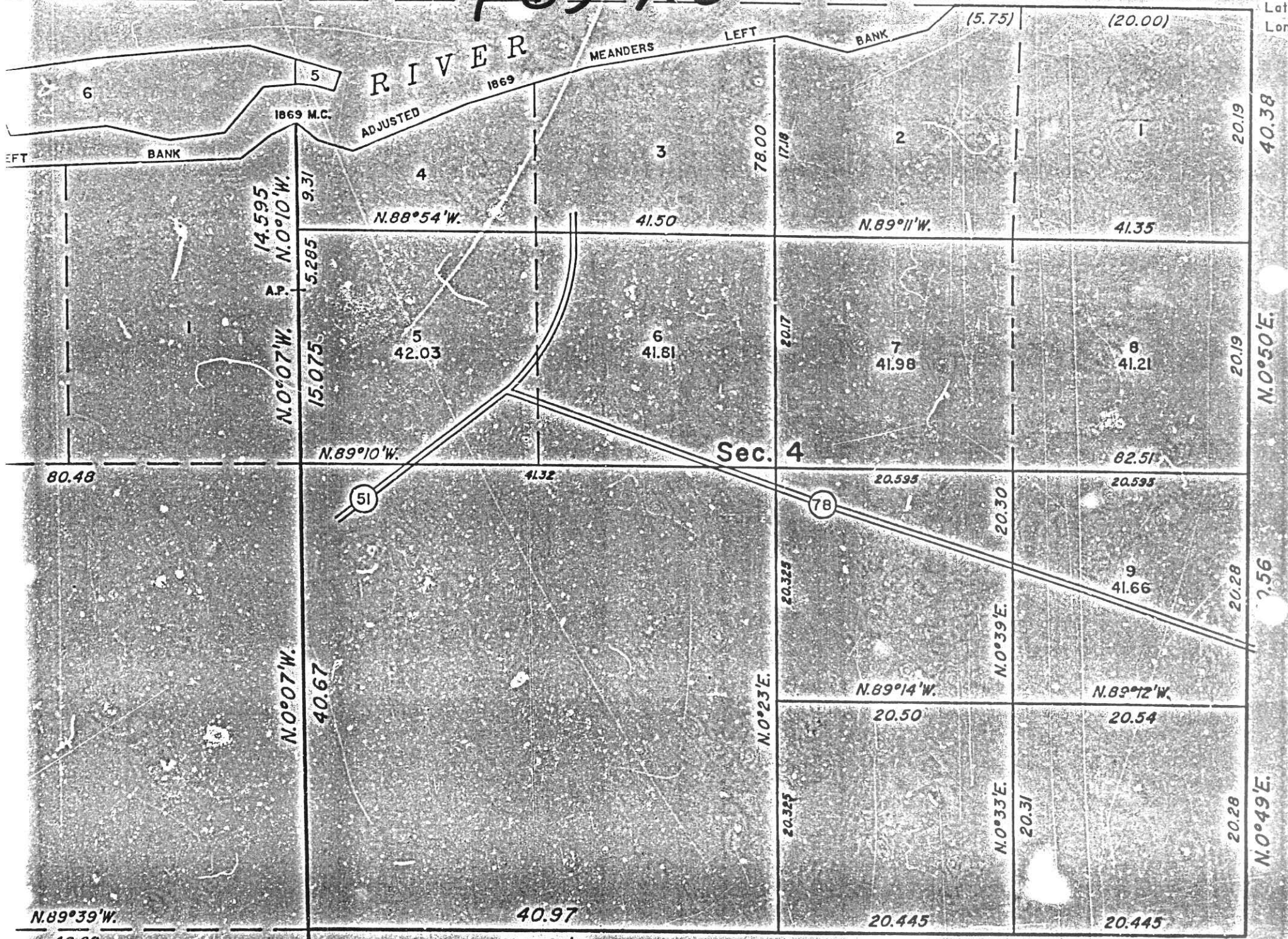


RIVER RESERVOIR

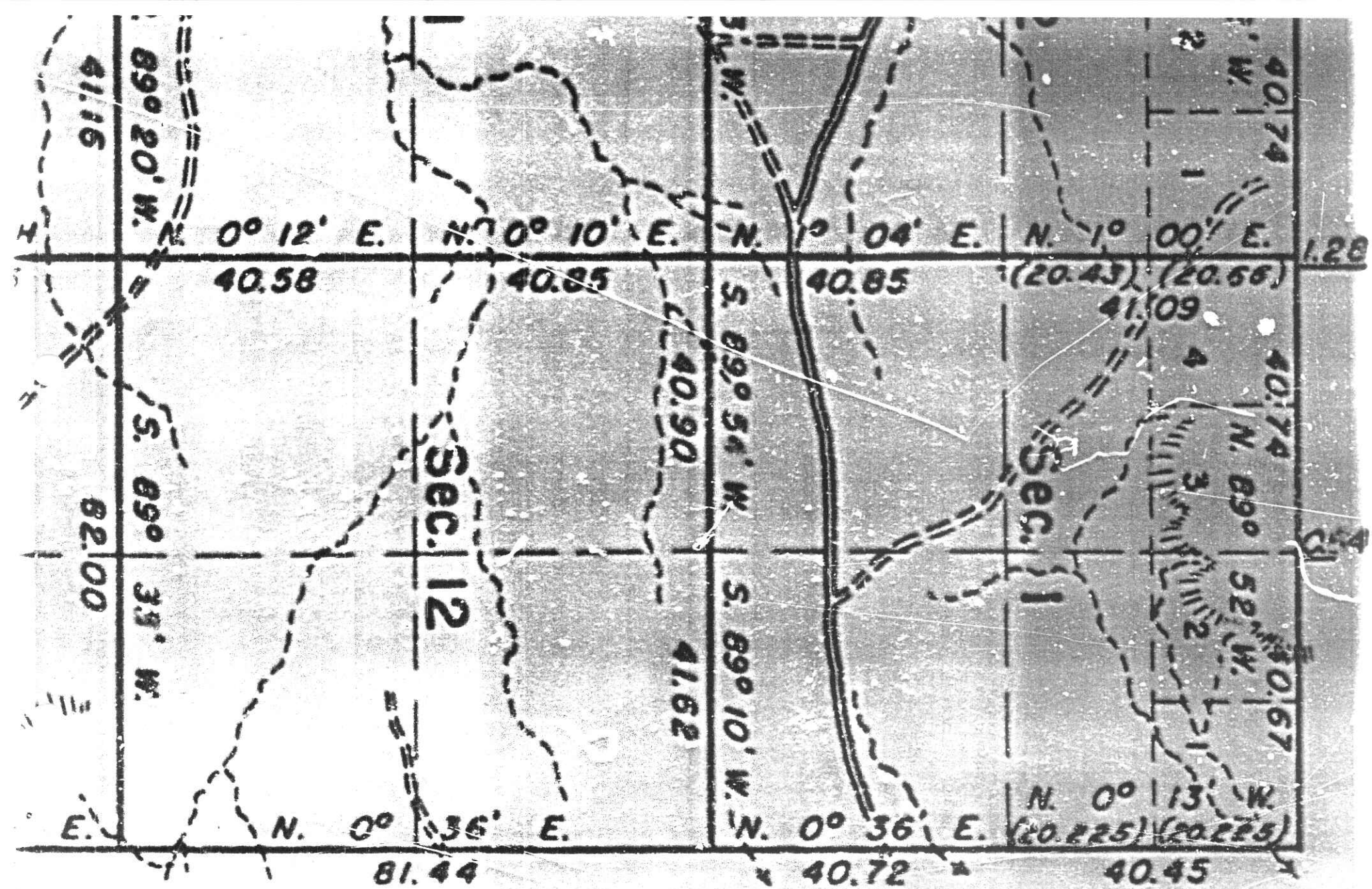
T6S R6E

1869 M.C. N.89°10'W. 25.75

BLM, C
Latitude
Longitude



T65 R5E



**LAND LIST FOR MEYERS PERMIT NUMBER 02-10290
FOR FIELD EXAM BY DAN NELSON**

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
6S	5E	1					6.7	36	31	11	34	39		15		14	38	18	242.7
6S	5E	12	40	20		13													73
6S	6E	4										0.8							0.8
6S	6E	5									40	40	40	40	23	40	17		240
6S	6E	6			25	30	30			21	40	13	19	40	40	40	40	40	378
6S	6E	7	40	40	20	22	38	14	25	1.4	8.4	26							234.8
6S	6E	8					3.2	31	2.2										36.4
TOTAL																			1205.7

ACRES CURRENTLY IRRIGATED UNDER EXISTING WATER RIGHTS ==> 1116

ACRES AVAILABLE FOR LICENSING FROM SYSTEM (TOTAL ACRES IRRIGATED - EXISTING LICENSED ACRES) ==> 89.7

PLEASE NOTE: There are currently 1116 acres licensed at an inch per acre from the Snake River. This permit is also from the Snake River, so the acres not covered by current water rights can be licensed under this permit. I discovered that there is currently 89.7 acres not currently covered by an existing water right. **Therefore, I recommend that this permit be licensed for 89.7 acres within the above shown 1,205.7 acre permissible place of use.**

FIELD EXAM 02-10289, 02-10290, & 02-10291 (SPLITS FROM 02-7273)

OVERLAPPING WATER RIGHTS

BY DAN NELSON

MEYERS OVERLAP				
WATER RIGHT	CFS	VOLUME	ACRES	CFS PER ACRE
02-2281	3.54	885	177	0.02
02-2094A	1.79	NONE	93	0.019247
02-2182A	2.32	NONE	121	0.019174
02-2375A	1.6	400	80	0.02
02-2284A	3.84	960	192	0.02
02-2285	5.68	1420	284	0.02
02-2282	3.38	845	169	0.02
TOTAL	22.15		1116	0.019848

GINGERICH BROTHERS OVERLAP				
WATER RIGHT	CFS	VOLUME	ACRES	CFS PER ACRE
02-2181	5.8	NONE	301	0.019269
02-2094B	3.51	NONE	182	0.019286
02-2182B	3.76	NONE	196	0.019184
02-2375B	4.26	1,065	213	0.02
02-2284B*	1.24	310	62	0.02
02-2183	6.06	NONE	315	0.019238
TOTAL	24.63		1269	0.019409

PLEASE NOTE: There is no overlapping rights for Miller's portion of 02-7273 WATER RIGHT 02-10289

ALSO NOTE: The average rate per acre is very close to an inch or 0.02 cfs per acre.

* 02-2284B is for 62 acres within a 69 acre PPU

Please note adjudication claim 02-7272 was claimed in T6S R6E S6 & S7, but was recommended in T6S R7E S6 & S7. Therefore there is no true overlap here. Also, water right 02-7004 is for lands in the same sections, but different 40 acre tracts. Therefore, these should be the only overlapping water rights.

FIELD EXAM 02-10290 (MEYERS)
CALCULATION OF SYSTEM CAPACITY
BY DAN NELSON

This system diverts water from the Snake River through 4 river pumps. A theoretical calculation was done on all four pumps to attain the capacity of the system. This sheet is to combine the four pumps together to determine the total capacity of the system.

PUMP 1 → 3.58 CFS

PUMP 2 → 3.58 CFS

PUMP 3 → 4.77 CFS

PUMP 4 → 4.86 CFS

TOTAL → 16.79 CFS

Currently there are existing water rights on this property totaling 22.15 cfs. This permit would add an additional 1.79 cfs for this permit. This was a combined system with 02-10289 and 02-10291 at one time, however, if you added all the water rights up, there still wouldn't be enough system capacity to cover all of the water rights.

This brings forth the question of whether or not this diversion rate can supply the full 4.0 acre-feet per acre allowed. The total number of acres irrigated is 1205.7 acres from this system. Please see below for the acre-feet amount.

$1205.7 \text{ acres} \times 4.0 = 4822.8 \text{ afa}$

$16.79 \times 260 \text{ days} \times 1.9835 = 8658.8 \text{ afa}$

I recommend that this permit be licensed for a full inch per acre, since the capacity of the system can supply the full volume of water to all the acres the system irrigates. The existing water rights already exceed the system capacity, and these permits will add to the amount of water licensed or decreed over the capacity of the system. However, this has been done in the past by adding in a limiting condition. Therefore, the following condition will be needed:

Rights 02-2281, 02-2094A, 02-2182A, 02-2375A, 02-2284A, 02-2285, and 02-2282 when combined shall not exceed a total diversion rate of 16.79 cfs, a total annual maximum diversion volume of 4822.8 af at the field headgate, and the irrigation of 1205.7 acres.

This right should have the following rates and volumes:

02-10290 (Meyers) → 1.79 cfs → 358.8 afa → 89.7 acres within a 1205.7 acre Permissible
Place of use.

GROUNDWATER THEORETICAL ANNALYSIS

MEYER'S PUMP
NUMBER 1

FILE: 02-10290 (MEYER'S SPLIT OF 02-7273)

DATE: 8/23/2005

BY: DAN NELSON

THEORETICAL RATE OF FLOW: $Q = \frac{(8.8 \times (\text{HP}) \times (\text{EFF.}))}{\text{TDH}}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]

LIFT = Depth to water in FEET from land surface to pumping water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (150 \text{ Hp}) \times (0.70) = 924}{[(6.4 \text{ LIFT}) + (109 \text{ PSI} \times 2.31)] = 258.19} = \frac{3.58 \text{ CFS}}{1606 \text{ GPM}}$$

LIFT FROM:

Measurement (X)

Owner ()

Area estimate ()

Well Logs ()

PSI FROM:

Measurement ()

Owner ()

Estimate ()

Owner Gage (X)

Booster (Y) (N)

NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

REMARKS: There were several inline boosters on this system. However, they were up in the field, and only used to increase pressure in the middle of the system. The pressure reading from listed above was the direct pressure against the pump. The boosters did not contribute to the pressure against the gauge. There are four pumps diverting water for this water right from a common sump from the Snake River. Pump #1, Pump #2, and Pump #3 all divert the Snake River water into a common mainline. All three of these pumps are operated under the same pressure read at 109 psi. The owner told me that the system is designed to operate at a pressure at the river pump station of approximately 100 to 110 psi. A theoretical will be performed on pumps 1-3 with a pressure of 109 psi.

Pump #4 diverts water into a separate mainline that transports water from the Snake River diversion in a southwesterly direction where it open discharges into a pond. The pond is located on a hill 437 feet above the pump station, so there is significant pressure or lift on pump #4.

GROUNDWATER THEORETICAL ANNALYSIS

MEYER'S PUMP
NUMBER 2

FILE: 02-10290 (MEYER'S SPLIT OF 02-7273)

DATE: 8/23/2005

BY: DAN NELSON

THEORETICAL RATE OF FLOW: $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]

LIFT = Depth to water in FEET from land surface to pumping water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (150 \text{ Hp}) \times (0.70) = 924}{[(6.4 \text{ LIFT}) + (109 \text{ PSI} \times 2.31)] = 258.19} = \frac{3.58 \text{ CFS}}{1606 \text{ GPM}}$$

LIFT FROM:

Measurement (X)

Owner ()

Area estimate ()

Well Logs ()

PSI FROM:

Measurement ()

Owner ()

Estimate ()

Owner Gage (X)

Booster (Y) (N)

NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

REMARKS: There were several inline boosters on this system. However, they were up in the field, and only used to increase pressure in the middle of the system. The pressure reading from listed above was the direct pressure against the pump. The boosters did not contribute to the pressure against the gauge. There are four pumps diverting water for this water right from a common sump from the Snake River. Pump #1, Pump #2, and Pump #3 all divert the Snake River water into a common mainline. All three of these pumps are operated under the same pressure read at 109 psi. The owner told me that the system is designed to operate at a pressure at the river pump station of approximately 100 to 110 psi. A theoretical will be performed on pumps 1-3 with a pressure of 109 psi.

Pump #4 diverts water into a separate mainline that transports water from the Snake River diversion in a southwesterly direction where it open discharges into a pond. The pond is located on a hill 437 feet above the pump station, so there is significant pressure or lift on pump #4.

GROUNDWATER THEORETICAL ANNALYSIS

MEYER'S PUMP
NUMBER 3

FILE: 02-10290 (MEYER'S SPLIT OF 02-7273)

DATE: 8/23/2005

BY: DAN NELSON

THEORETICAL RATE OF FLOW: $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]

LIFT = Depth to water in FEET from land surface to pumping water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (200 \text{ Hp}) \times (0.70) = 1232}{[(6.4 \text{ LIFT}) + (109 \text{ PSI} \times 2.31)] = 258.19} = \frac{4.77 \text{ CFS}}{2141 \text{ GPM}}$$

LIFT FROM:

Measurement (X)

Owner ()

Area estimate ()

Well Logs ()

PSI FROM:

Measurement ()

Owner ()

Estimate ()

Owner Gage (X)

Booster (Y) (N)

NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

REMARKS: There were several inline boosters on this system. However, they were up in the field, and only used to increase pressure in the middle of the system. The pressure reading from listed above was the direct pressure against the pump. The boosters did not contribute to the pressure against the gauge. There are four pumps diverting water for this water right from a common sump from the Snake River. Pump #1, Pump #2, and Pump #3 all divert the Snake River water into a common mainline. All three of these pumps are operated under the same pressure read at 109 psi. The owner told me that the system is designed to operate at a pressure at the river pump station of approximately 100 to 110 psi. A theoretical will be performed on pumps 1-3 with a pressure of 109 psi.

Pump #4 diverts water into a separate mainline that transports water from the Snake River diversion in a southwesterly direction where it open discharges into a pond. The pond is located on a hill 437 feet above the pump station, so there is significant pressure or lift on pump #4.

GROUNDWATER THEORETICAL ANNALYSIS

MEYER'S PUMP
NUMBER 4

FILE: 02-10290 (MEYER'S SPLIT OF 02-7273)

DATE: 8/23/2005

BY: DAN NELSON

THEORETICAL RATE OF FLOW: $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]

LIFT = Depth to water in FEET from land surface to pumping water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (350 \text{ Hp}) \times (0.70) = 2156}{[(6.4 \text{ LIFT}) + (437 \text{ FT LIFT})] = 443.4} = \frac{4.86 \text{ CFS}}{2182 \text{ GPM}}$$

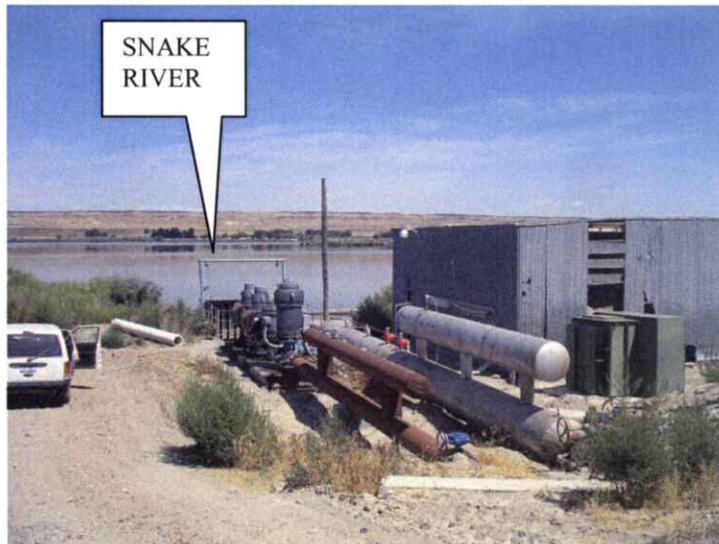
<u>LIFT FROM:</u>	<u>PSI FROM:</u>	<u>NOTES ON PUMP:</u>
Measurement (X)	Measurement ()	Motor Make, Serial or ID
Owner ()	Owner ()	
Area estimate ()	Estimate (X)	Pump Make, Serial or ID, rating
Well Logs ()	Owner Gage ()	
Booster (Y) (N)		

REMARKS: There were several inline boosters on this system. However, they were up in the field, and only used to increase pressure in the middle of the system. The pressure reading from listed above was the direct pressure against the pump. The boosters did not contribute to the pressure against the gauge. There are four pumps diverting water for this water right from a common sump from the Snake River. Pump #1, Pump #2, and Pump #3 all divert the Snake River water into a common mainline. All three of these pumps are operated under the same pressure read at 109 psi. The owner told me that the system is designed to operate at a pressure at the river pump station of approximately 100 to 110 psi. A theoretical will be performed on pumps 1-3 with a pressure of 109 psi.

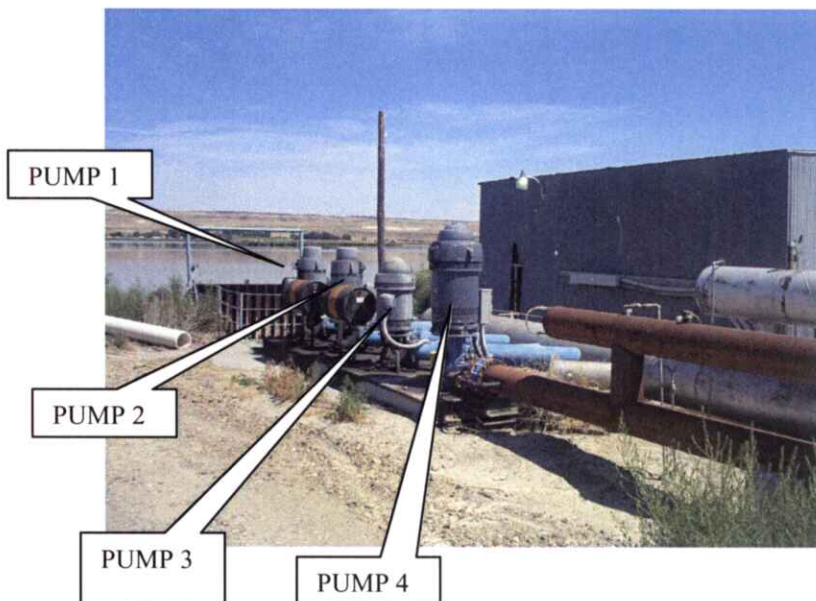
Pump #4 diverts water into a separate mainline that transports water from the Snake River diversion in a southwesterly direction where it open discharges into a pond. The pond is located on a hill 437 feet above the pump station, so there is significant pressure or lift on pump #4.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8/23/2005

FILE NUMBER 02-10290 (Meyers)



These are photos of the river pump station for the Meyers farm 02-10290. There are 4 pumps that are numbered 1 to 4 starting at the river diversion. Pumps 1 through 3 divert into the silver mainline that supplies pivots and handlines that irrigation the eastern side of the farm. Pump #4 diverts water into the rust colored mainline that diverts water up to a pond. The water in the pond is re-diverted by two booster pumps that supply the pivots and handlines on the western side of the farm. The body of water in the background is the Snake River.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8/23/2005

FILE NUMBER 02-10290 (Meyers)

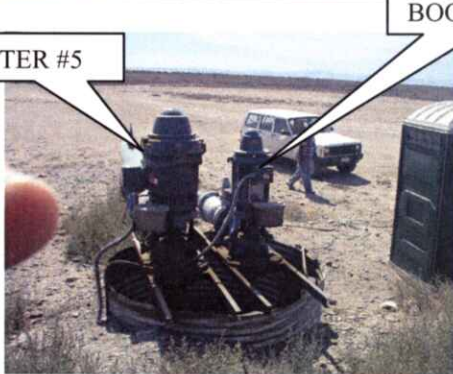
SNAKE RIVER AND
SNAKE RIVER
PUMP STATION



BOOSTER PUMP
#1. This pump is
due south of the
river diversion.



BOOSTER PUMP #3.
This is 1/2 mile west of
booster pump #1.



BOOSTER #5

BOOSTER #4

BOOSTER PUMPS #4 & #5.
The mainline from river pump #4 runs in
a southwesterly direction and open
discharges water into the pond and the
two boosters divert water directly from
the pond.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8/23/2005

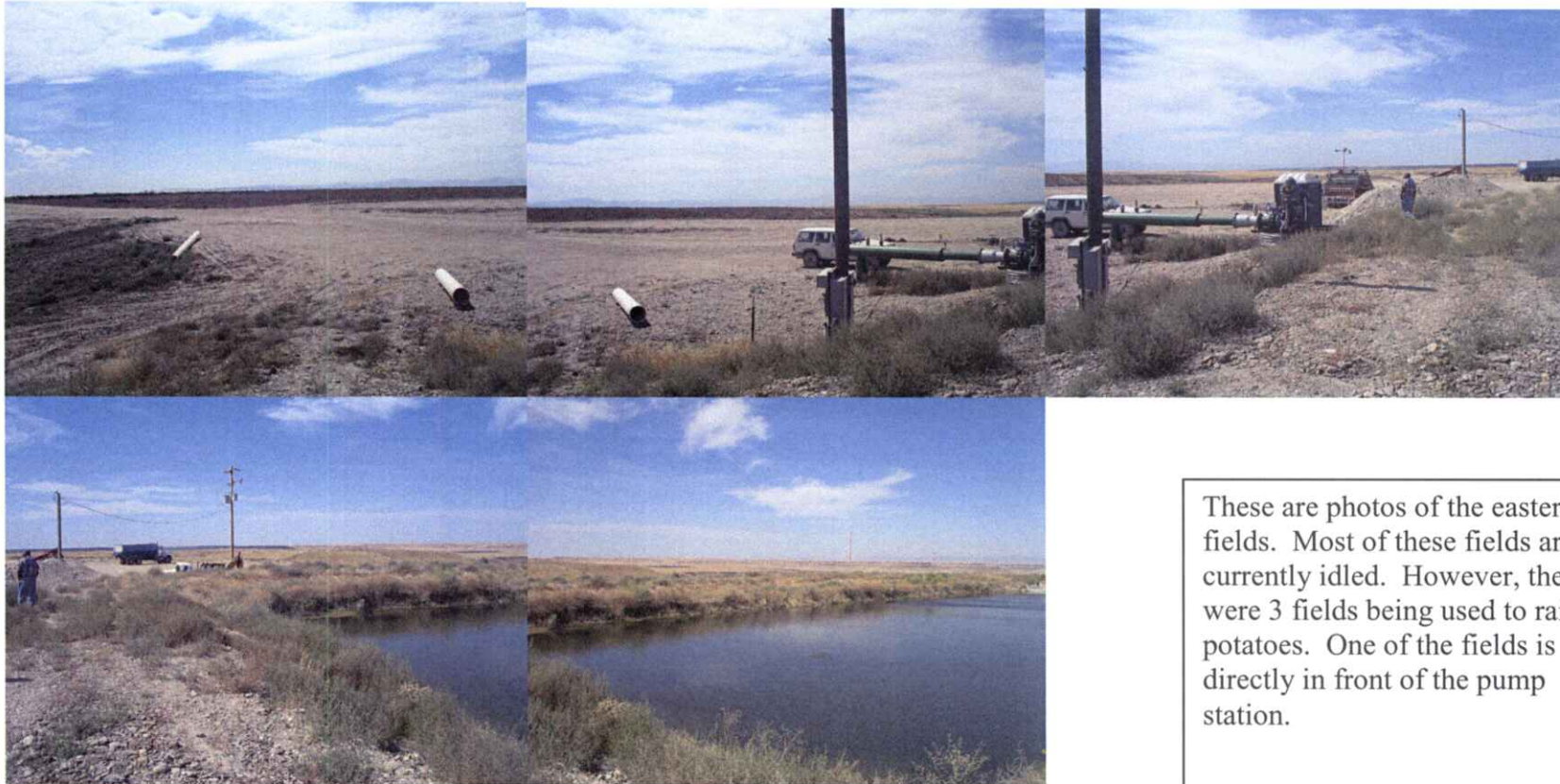
FILE NUMBER 02-10290 (Meyers)



The above photos are of the irrigation shown on the eastern fields from the Booster #3 location. These show that pretty much all of the eastern fields were and still are irrigated.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8/23/2005

FILE NUMBER 02-10290 (Meyers)



These are photos of the eastern fields. Most of these fields are currently idled. However, there were 3 fields being used to raise potatoes. One of the fields is directly in front of the pump station.