

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 2-10291

Exam Date: 9/1/2005

1. Current Owner: GINGERICH BROTHERS FARMING
HC 85 BOX 28
MOUNTAIN HOME ID 83647
(208)845-2868
2. Accompanied by: RUDY GINGERICH
Phone No (208) 845-2868
Address: HC 85 BOX 28 MOUNTAIN HOME, ID 83647
Relationship to Permit Holder: OWNER AND OPERATOR OF THE IRRIGATION SYSTEM
3. SOURCE TRIBUTARY
SNAKE RIVER COLUMBIA RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 02-2181, 02-2094B, 02-2182B, 02-2375B, 02-2284B, 02-2183 & 02-10289
2. Other water rights with the same point of diversion: 02-2181, 02-2094B, 02-2182B, 02-2375B, 02-2284B, 02-2183 & 02-10289

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

SNAKE RIVER L3 NE1/4NW1/4 Sec. 4, 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	06E	3									3.0	40.0	25.0						68.0
06S	06E	4							1.9	40.0	34.0	40.0	40.0	16.0	29.0	40.0	40.0		280.9
06S	06E	5											.7	11.0		22.0	40.0		73.7
06S	06E	7				11.0								3.8					14.8
06S	06E	8	40.0	40.0	40.0	40.0	31.0	4.2	37.0	40.0	40.0	39.0			40.0	40.0			431.2
06S	06E	9	39.0	40.0	40.0	29.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0						428.0
06S	06E	10					3.2	19.0											22.2

Total Acres: 1318.8

PLEASE NOTE: This permit is recommended for licensing for 49.8 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	200 Hp	EMJ512153	JOHNSTON	12 INCH OUTLET
RIVER PUMP #2 P/D	HOLLOSHAFT	200 Hp	1406308	JOHNSTON	JX2147
RIVER PUMP #3 P/D	GENERAL ELECTRIC	200 HP	5532442	JOHNSTON	JX2146
RIVER PUMP #4	GENERAL ELECTRIC	125 HP	FJ6799464	UNKNOWN	3760275
BOOSTER #1 MAIN BOOSTER STATION	PRIEST ELECTRIC	60 HP	12-03-01-47074	CORNELL	MDL# - 5WB-60-2 SN - 39040
BOOSTER #2 VARIABLE SPEED MAIN BOOSTER STATION	PRIEST ELECTRIC	100 HP	CNJ309382	CORNELL	MDL # - 5YBMVM100-2 SN - 39037
BOOSTER #3 MAIN BOOSTER STATION	PRIEST ELECTRIC	60 HP	12-03-01-7076	CORNELL	MDL # - 5WB 30-2 SN - 39035
BOOSTER #4 MAIN BOOSTER STATION	BERKLEY	10 HP	JPM33131	BERKLEY	MDL # - B3ZPM SN - M3065
BOOSTER #10 POLE LINE STATION	BALDOR	40 HP	12-26-03-51439	CORNELL	MDL # - 4RB-40-4 SN - 6411
BOOSTER #9 POLE LINE STATION	BALDOR	25 HP	02-05-04-51430	CORNELL	MDL # - 4RB-25-4 SN - 69842

*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						

1. Measurements: Only 2 of the 4 pumps were operating at the time of the exam. The owner was planting new seeding alfalfa under a couple of his pivots, 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 → 19.83 CFS****MAXIMUM ALLOWABLE UNDER THIS PERMIT → 0.1.0 CFS (BASED ON 0.02 CFS PER ACRE LIMITATION FOR 49.8 ACRES).****F. VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 49.8 \times 4.0 = 199.2 \text{ afa}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 1.00 \times 260 \times 1.9835 = 515.7 \text{ afa}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 199.2 \text{ afa}$$

2. Volume Calculations for Other Uses: **NONE****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.

Miller and Gingerich share a common system using the same point of diversion. The water for both of these permits is diverted from the east pumping station located in Government Lot 3 S4. The water is diverted from the Snake River using 4 river pumps that divert into a common mainline. A long channel has been dug from the Snake River to the river pump station.

The mainline from the river pump station travels due south and supplies water to the yard and a mainline that parallels Highway 51 to irrigate some trees. The mainline continues south to the main booster station. The main booster station has 4 booster pumps that deliver the water through separate mainlines to several pivots and handlines on the west side of the farm. The main booster station is approximately a mile south of the river pump station.

An arm off the mainline from the river pump station travels east to the pole line booster station. This station is ½ mile south of the river pump station and ¼ mile east. This station has two booster pumps that pressurize the water for pivots and handlines on the east side of the farm. A mainline from the pole line booster station travels due north where it crosses under Highway 78 and supplies water to the Miller property.

There are 6 existing water rights on this property as shown on the overlap analysis sheet. None of these 6 water rights overlap the Miller property, so this permit is the only water right owned by Miller. These overlapping water rights use the same point of diversion and irrigate much of the same land as these permits. These permits were filed to cover the ground that wasn't licensed. I only found 49.8 acres of ground for Gingerich and all of the 9.5 acres of ground for Miller that has been irrigated that didn't have a water right. Most of Gingerich's acres are dispersed around the farm, making it difficult to mark them specifically on a map. The only way that Gingerich's permit can be licensed is as a permissible place of use. Miller's right will not need a permissible place of use.

Therefore, I recommend that the Gingerich permit be licensed for 49.8 acres within the ~~11318.8~~ ^{1318.8} acre permissible place of use described in the above land list. This is the only way it can be licensed. Since Miller's property doesn't have any overlapping water rights, a permissible place of use is not need for his property. All of the water rights on this system are licensed at an inch or close to an inch per acre. The combined total of all of the existing water rights is 24.63 cfs. The system capacity was calculated at 19.83 cfs. These permits will add an additional 1.00 cfs for Gingerich and 0.19 cfs for Miller to the existing water rights for a total of 25.82 cfs for this system. Therefore, the following condition will be needed:

Rights 02-2181, 02-2094B, 02-2182B, 02-2375B, 02-2284B, 02-2183, 02-10289, and 02-10290 when combined shall not exceed a total diversion rate of 19.83 cfs, a total annual maximum diversion volume of 5313.2 af at the field headgate, and the irrigation of 1328.3 acres.

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

Each right should have the following rates and volumes:

02-10289 (Miller) → 0.19 cfs → 38 afa → 9.5 acres

02-10291 (Gingerich) → 1.00 cfs → 199.2 afa → 49.8 acres within a 1318.8 acre Permissible Place of use.

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	1.000 CFS	199.20 AF
<u>Totals:</u>		1.000 CFS	199.20 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

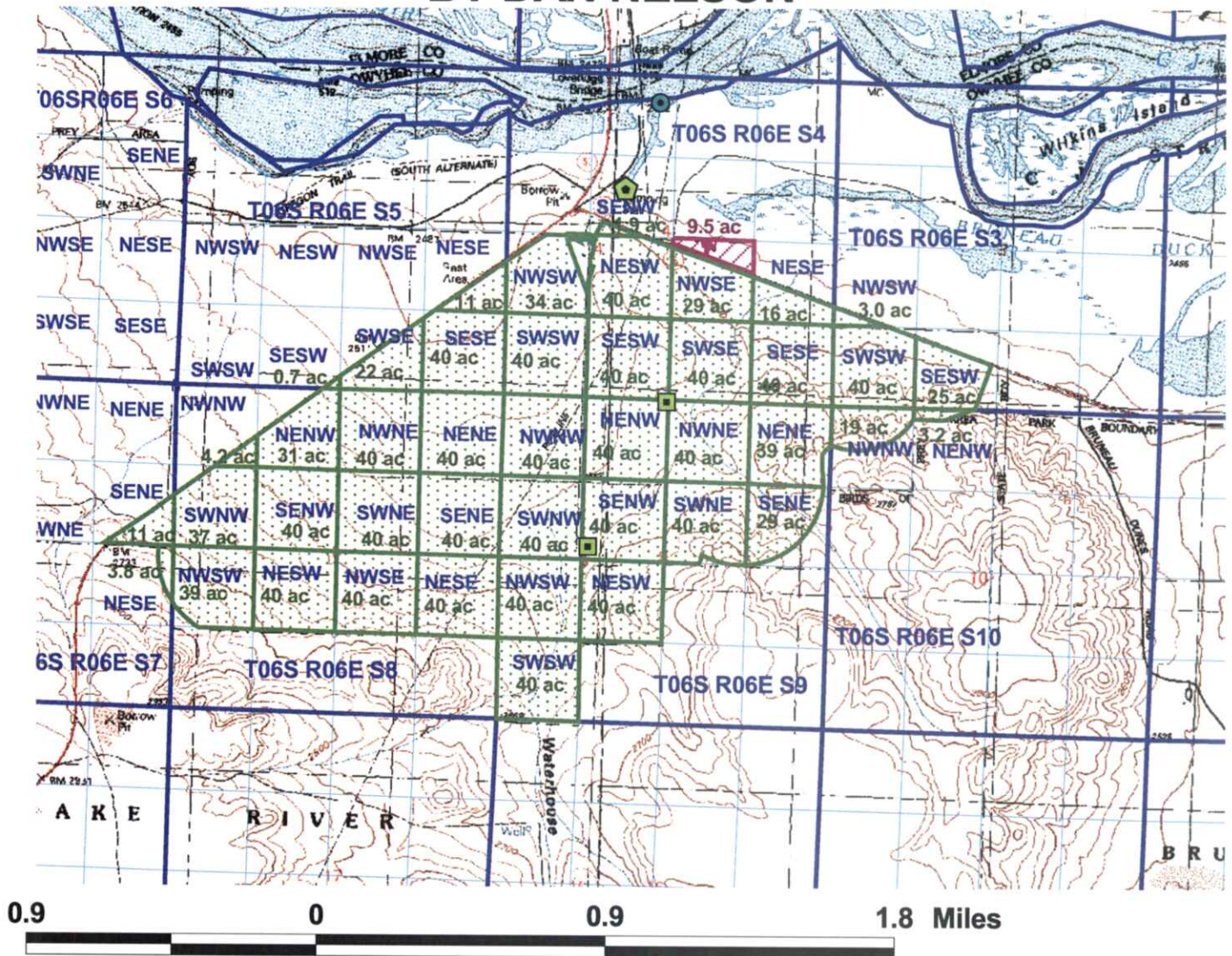
DANIEL A. NELSON – SENIOR AGENT

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

Reviewer _____ Date _____

SEAL

FIELD EXAM 02-10289 (MILLER) & 02-10291 (GINGERICH) QUADRANGLE MAP BY DAN NELSON



● POINT OF DIVERSION FOR BOTH 02-10289 AND 02-10291 FROM THE SNAKE RIVER

⬢ PUMP STATION FROM THE RIVER

■ BOOSTER PUMPS

▨ PLACE OF USE 02-10291

▨ PLACE OF USE 02-10289

▭ SECTION LINES

▭ 1/4 1/4 LINES

PLEASE NOTE:

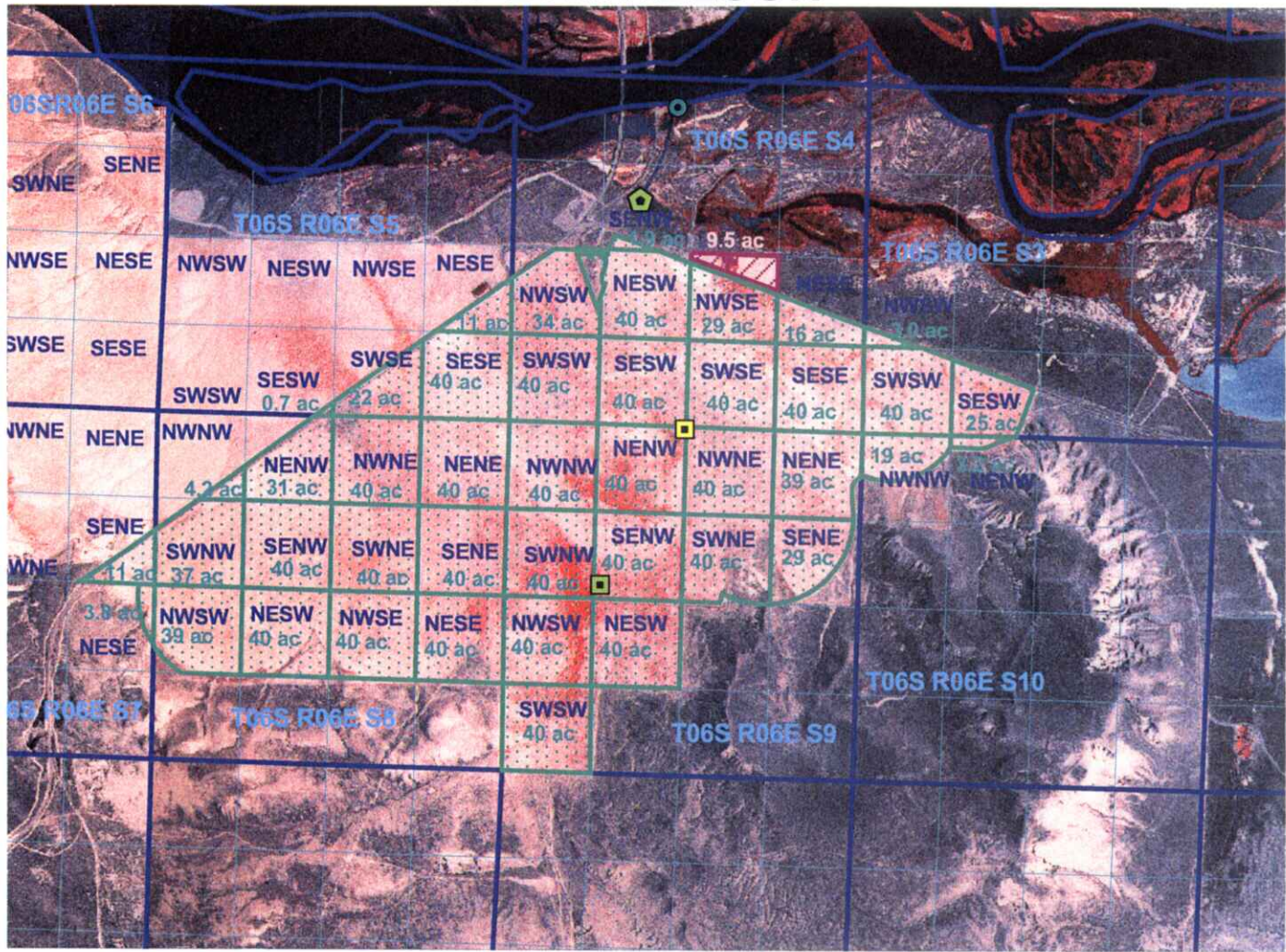
Water rights 02-10289 and 02-10291 share the same system, so I have included both rights in the mapping process. 02-10289 is the only water right for the Miller Property. The total number of acres Miller irrigates is 9.5 acres. Therefore, this permit will be recommended for all 9.5 acres.

There are several overlapping water rights for the place of use describe for the Gingerich property permit 02-10291. I found a total of 1318.8 acres irrigated on the Gingerich farm. 1269 of those acres already have existing water rights. Therefore, the most that can be irrigated under this right is 49.8 acres.

FIELD EXAM 02-10289 (MILLER) & 02-10291 (GINGERICH)

PLACE OF USE

BY DAN NELSON



0.9 0 0.9 1.8 Miles

● POINT OF DIVERSION FOR BOTH 02-10289 AN 02-10291 FROM THE SNAKE RIVER

⬢ PUMP STATION FROM THE RIVER

■ BOOSTER PUMPS

▨ PLACE OF USE 02-10291

▨ PLACE OF USE 02-10289

▭ SECTION LINES

▭ 1/4 1/4 LINES

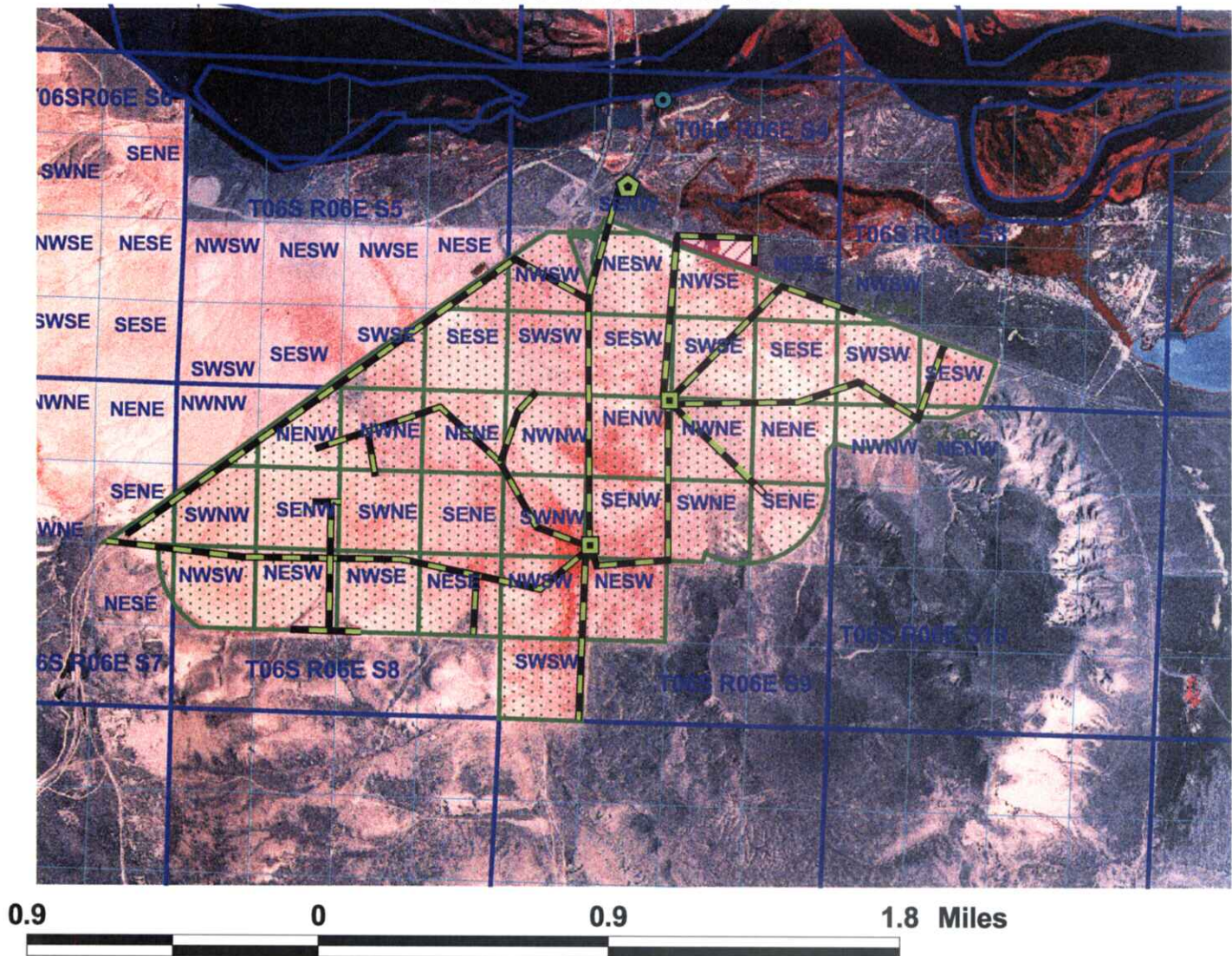
PLEASE NOTE:

Water rights 02-10289 an 02-10291 share the same system, so I have included both rights in the mapping process. 02-10289 is the only water right for the Miller Property. The total number of acres Miller irrigates is 9.5 acres. Therefore, this permit will be recommended for all 9.5 acres.

There are several overlapping water rights for the place of use describe for the Gingerich property permit 02-10291. I found a total of 1318.8 acres irrigated on the Gingerich farm. 1269 of those acres already have existing water rights. Therefore, the most that can be irrigated under this right is 49.8 acres.



FIELD EXAM 02-10289 (MILLER) & 02-10291 (GINGERICH) SYSTEM DIAGRAM MAP BY DAN NELSON



● POINT OF DIVERSION FOR BOTH 02-10289 AND 02-10291 FROM THE SNAKE RIVER

⬠ PUMP STATION FROM THE RIVER

■ BOOSTER PUMPS

— MAINLINE

▨ PLACE OF USE 02-10291

▨ PLACE OF USE 02-10289

▭ SECTION LINES

▭ 1/4 1/4 LINES

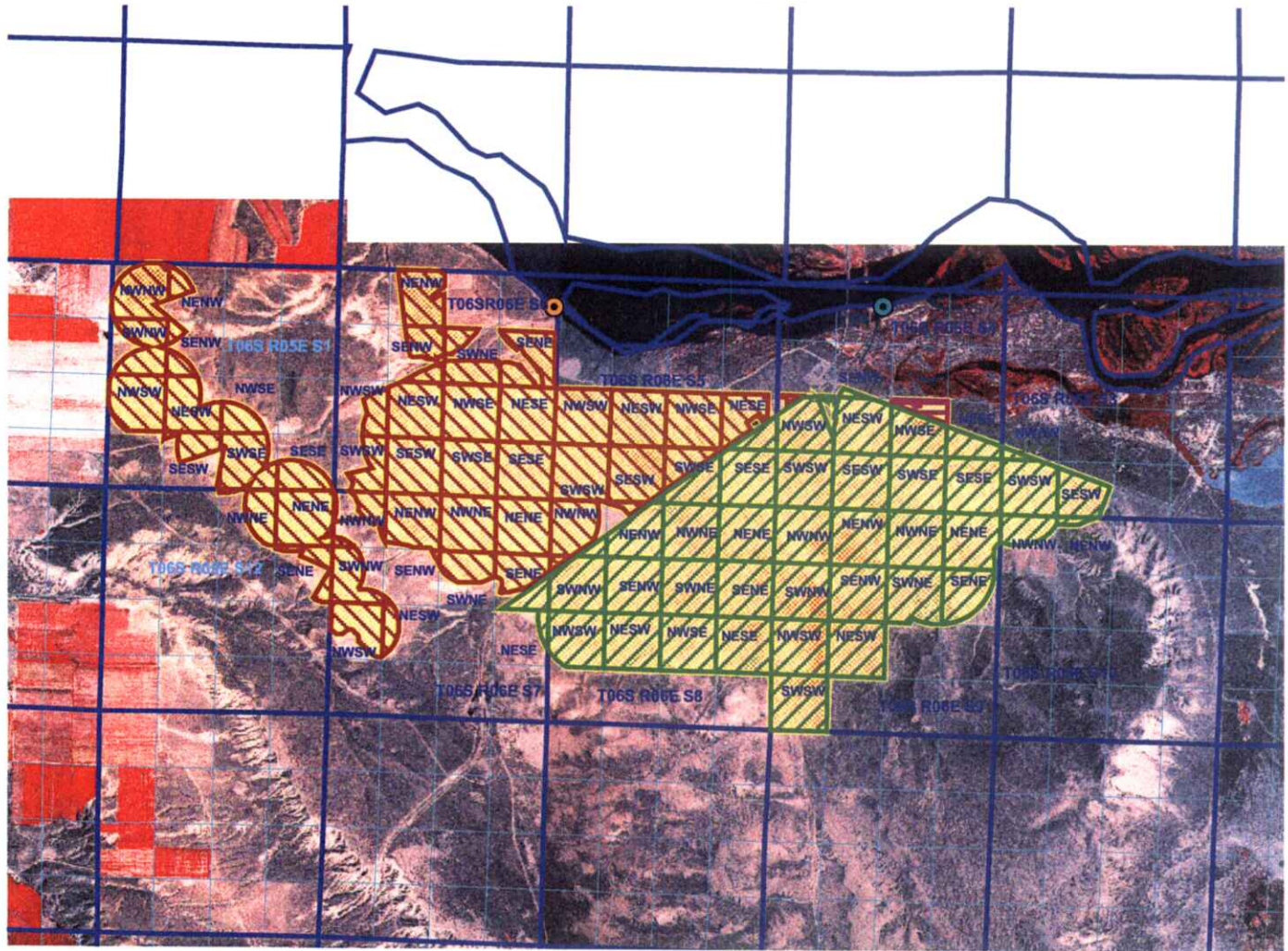
PLEASE NOTE:

Water rights 02-10289 and 02-10291 share the same system, so I have included both rights in the mapping process. 02-10289 is the only water right for the Miller Property. The total number of acres Miller irrigates is 9.5 acres. Therefore, this permit will be recommended for all 9.5 acres.

There are several overlapping water rights for the place of use describe for the Gingerich property permit 02-10291. I found a total of 1318.8 acres irrigated on the Gingerich farm. 1269 of those acres already have existing water rights. Therefore, the most that can be irrigated under this right is 49.8 acres.



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



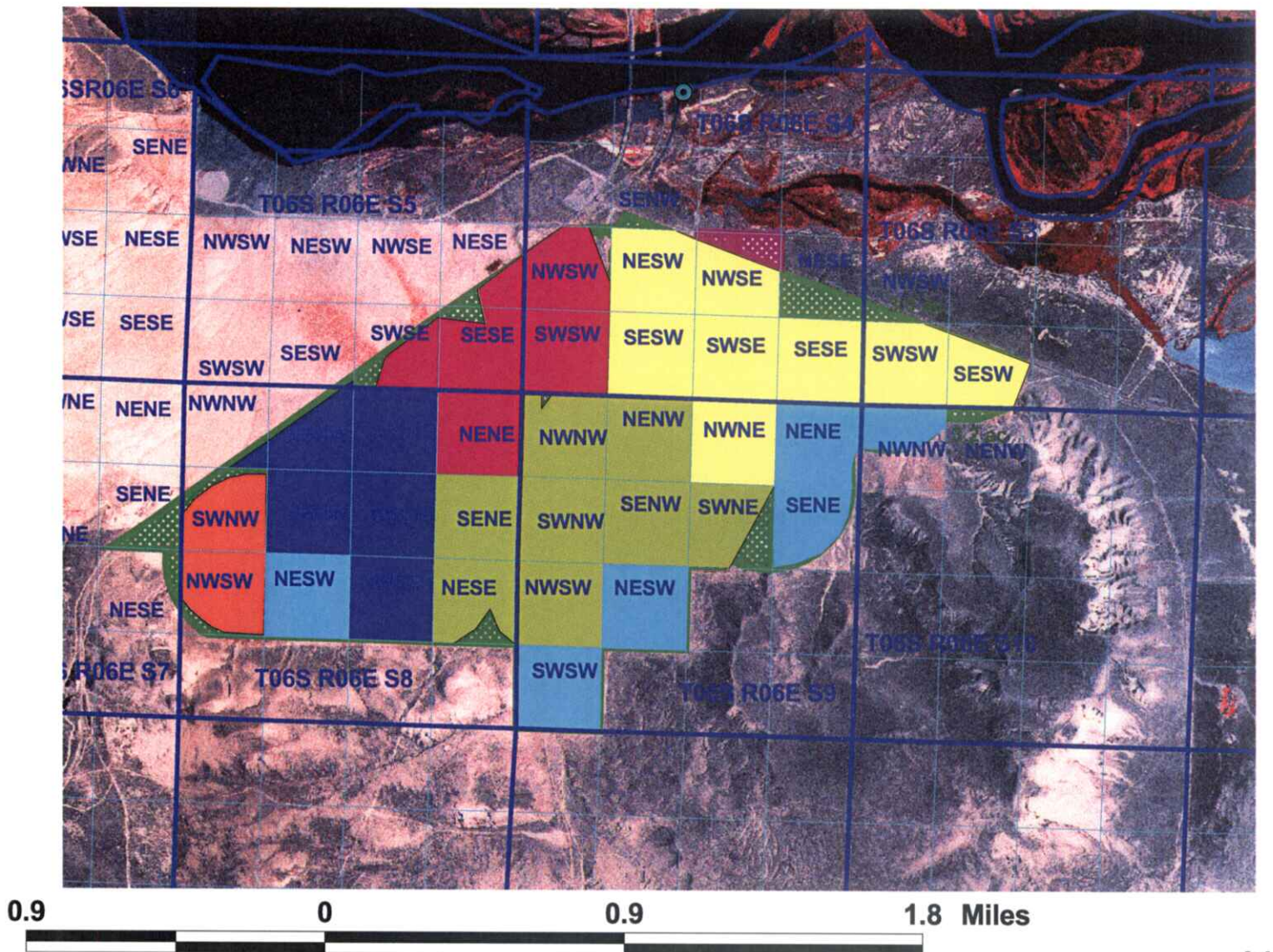
PLEASE NOTE:

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 02-10289 & 02-10291

OVERLAPPING RIGHTS

BY DAN NELSON



● POINT OF DIVERSION 02-10289 & 02-10291 ALSO ORIGINAL DIVERSION FOR 02-7273 AND ALL OVERLAPPING RIGHTS

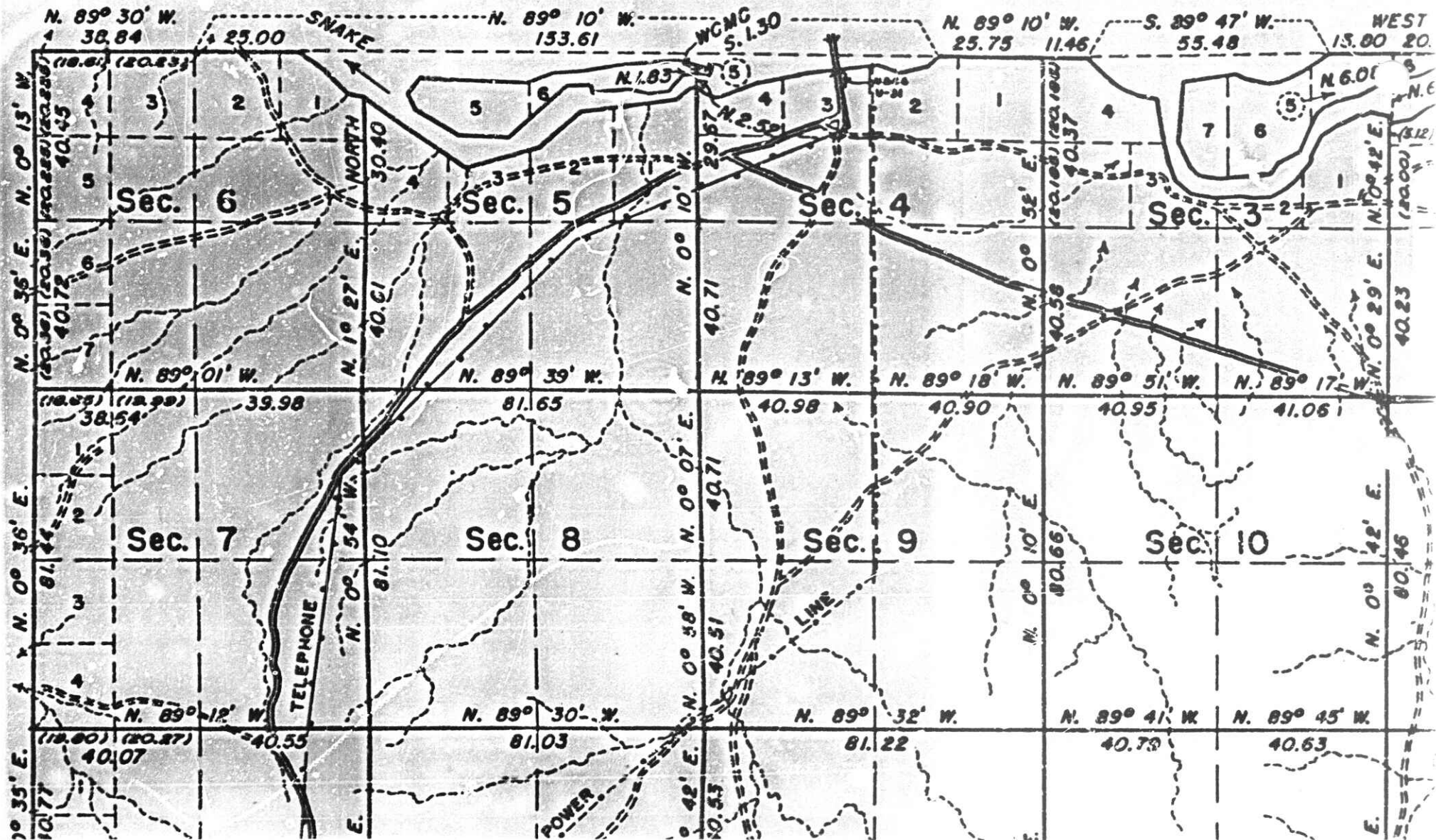
- PLACE OF USE 02-2181
- PLACE OF USE 02-2094B
- PLACE OF USE 02-2182B
- PLACE OF USE 02-2375B
- PLACE OF USE 02-2284B
- PLACE OF USE 02-2183
- BOUNDARY OF IRRIGATED GROUND 02-10289
- BOUNDARY OF IRRIGATED GROUND 02-10291
- SECTION LINES
- 1/4 1/4 LINES

PLEASE NOTE:

This permit was originally designed to pick up the ground being irrigated that was not covered by an existing water right. There is no overlapping water rights for 02-10289, but there are multiple rights overlapping 02-10291. There are many scattered areas that need covered by this permit through out the place of use, and water right 02-2284B is already a permissible place of use water right. Therefore, permit 02-10291 will need to be a permissible place of use also to cover all the acres. The point of diversion for this right is the same point of diversion for all of these water rights.

TOWNSHIP NO. 6 SOUTH, RANGE NO. 6 EAST

DEPENDENT RESERVE

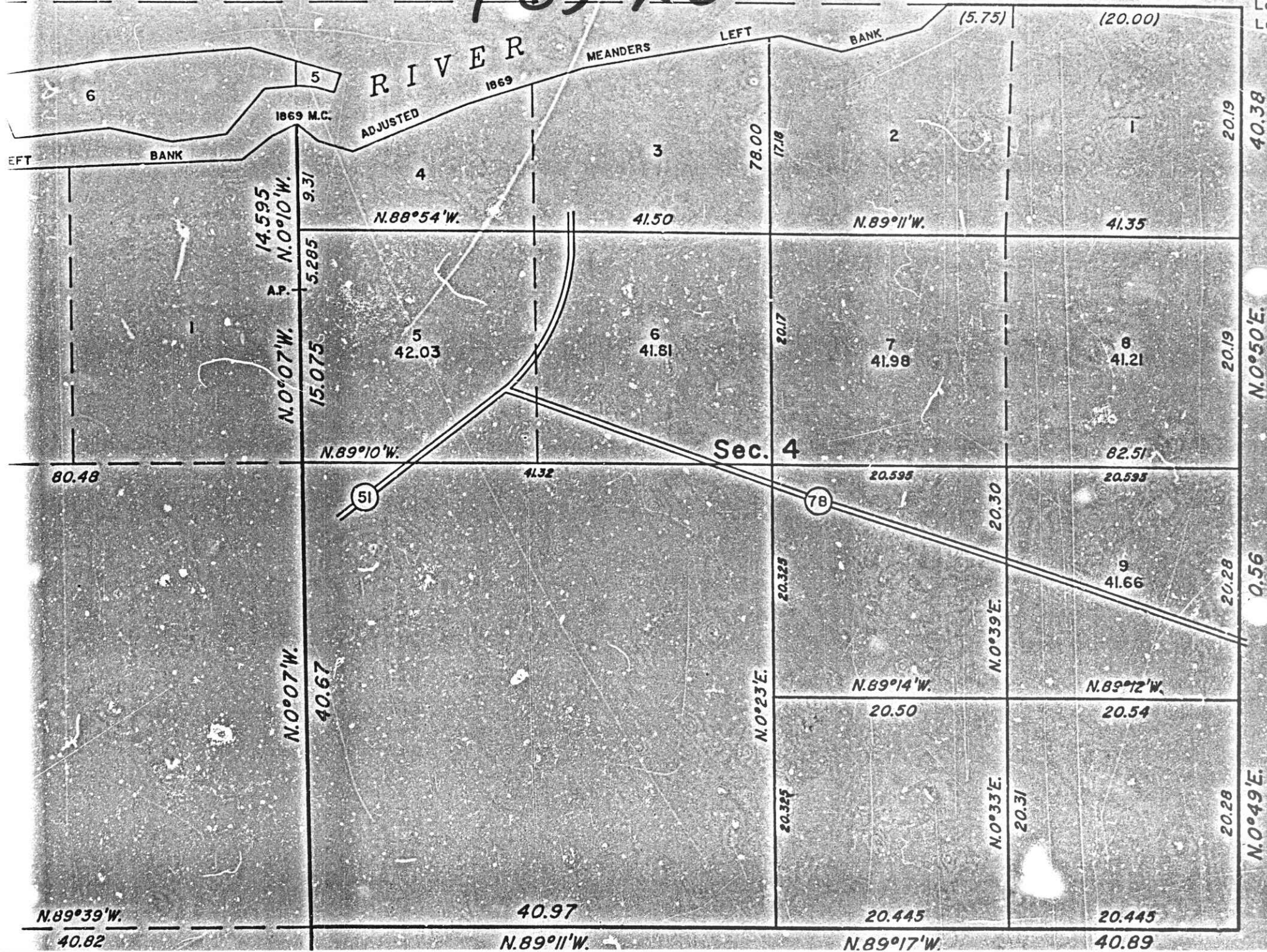


RIVER RESERVOIR

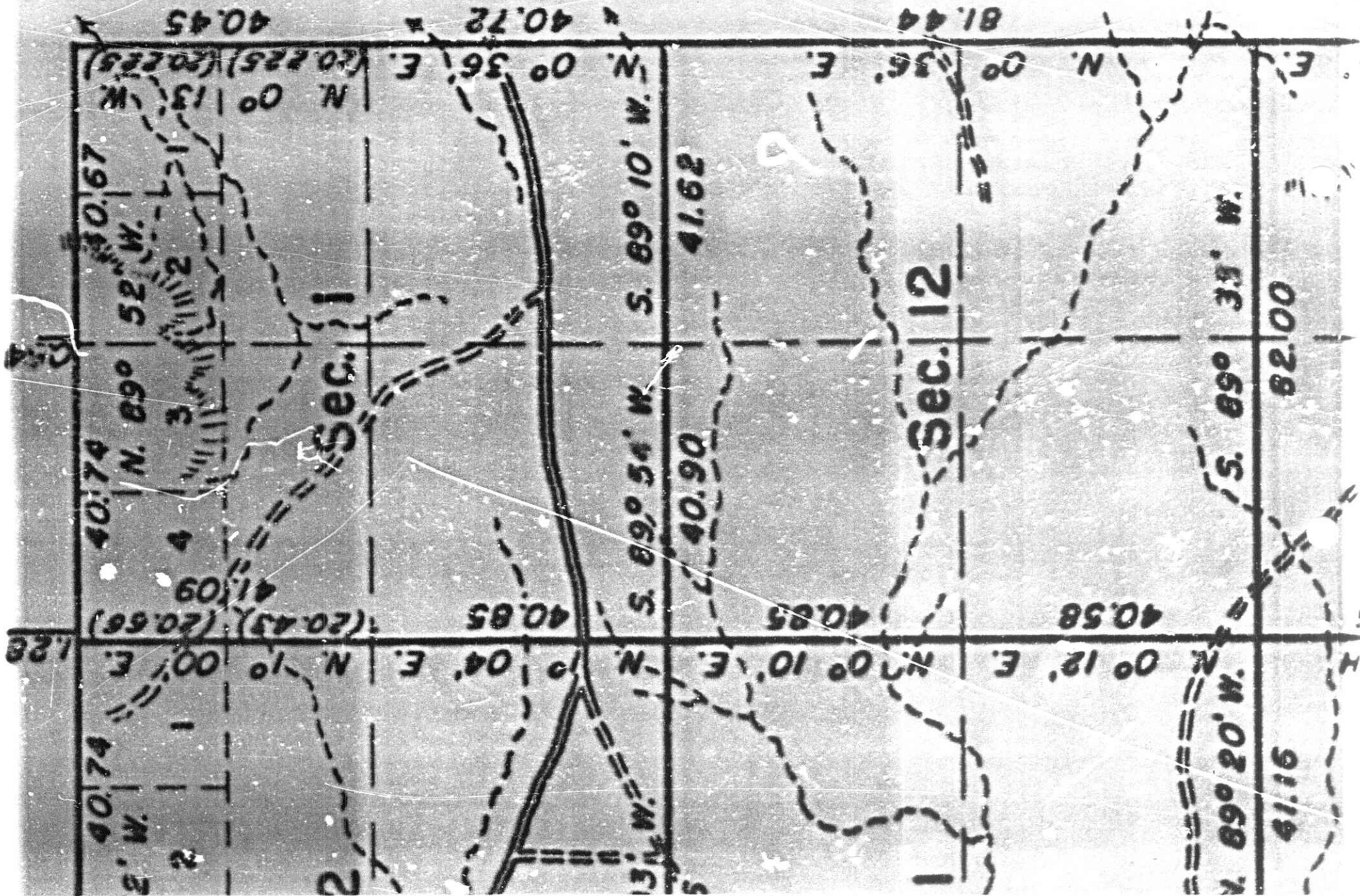
T6S R6E

1869 M.C. N.89°10'W. 25.75

BLM, C
Latitude
Longitude



T6S R5E



**LAND LIST FOR GINGERICH PERMIT NUMBER 02-10291
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	6E	3										3	40	25					68
6S	6E	4								1.9	40	34	40	40	16	29	40	40	280.9
6S	6E	5												0.7	11		22	40	73.7
6S	6E	7				11									3.8				14.8
6S	6E	8	40	40	40	40	31	4.2	37	40	40	39			40	40			431.2
6S	6E	9	39	40	40	29	40	40	40	40	40	40	40						428
6S	6E	10					3.2	19											22.2
TOTAL																			1318.8

ACRES CURRENTLY IRRIGATED UNDER EXISTING WATER RIGHTS ==>

1269

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

49.8

PLEASE NOTE: There are currently 1269 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 49.8 acres not currently covered by an existing water right. **Therefore, I recommend that this permit be licensed for 49.8 acres within the above shown 1,318.8 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 02-10289 (MILLER) & 02-10291 (GINGERICH)
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 → 5.47 CFS

PUMP 2 → 5.47 CFS

PUMP 3 → 5.47 CFS

PUMP 4 → 3.42 CFS

TOTAL → 19.83 CFS

Currently there are existing water rights on this property totaling 24.63 cfs. This permit would add an additional 1.00 cfs for Gingerich and 0.19 cfs for Miller. This was a combined system with 02-10290 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 1318.8 for Gingerich and 9.5 acres for Miller for a total of 1328.3 acres from this system. Please see below for the acre feet amount.

$1328.3 \text{ acres} \times 4.0 = 5313.2 \text{ afa}$

$19.83 \times 260 \text{ days} \times 1.9835 = 10,227 \text{ afa}$

I recommend that these two permits 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 02-2181, 02-2094B, 02-2182B, 02-2375B, 02-2284B, 02-2183, 02-10289, and 02-10290 when combined shall not exceed a total diversion rate of 19.83 cfs, a total annual maximum diversion volume of 5313.2 af at the field headgate, and the irrigation of 1328.3 acres.

Each right should have the following rates and volumes:

02-10289 (Miller) → 0.19 cfs → 38 afa → 9.5 acres

02-10291 (Gingerich) → 1.00 cfs → 199.2 afa → 49.8 acres within a 1318.8 acre Permissible
Place of use.

GROUNDWATER THEORETICAL ANNALYSIS

GINGERICH AND
MILLER'S PUMP
NUMBER 1

FILE: 02-10289 (MILLER'S SPLIT OF 02-7273) AND 02-10291 (GINGERICH'S SPLIT OF 02-7273)

DATE: 9/1/2005

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])

$$Q = \frac{(8.8) \times (200 \text{ Hp}) \times (0.70) = 1232}{[(10.5 \text{ LIFT}) + (93 \text{ psi} \times 2.31)] = 225.33} = \frac{5.47 \text{ CFS}}{2454 \text{ GPM}}$$

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. They all divert the Snake River water into a common mainline. The pressure at the owner's gauge was 93 psi.

GROUNDWATER THEORETICAL ANNALYSIS

GINGERICH AND
MILLER'S PUMP
NUMBER 2

FILE: 02-10289 (MILLER'S SPLIT OF 02-7273) AND 02-10291 (GINGERICH'S SPLIT OF 02-7273)

DATE: 9/1/2005

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])

$$Q = \frac{(8.8) \times (200 \text{ Hp}) \times (0.70) = 1232}{[(10.5 \text{ LIFT}) + (93 \text{ psi} \times 2.31)] = 225.33} = \frac{5.47 \text{ CFS}}{2454 \text{ GPM}}$$

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. They all divert the Snake River water into a common mainline. The pressure at the owner's gauge was 93 psi.

GROUNDWATER THEORETICAL ANNALYSIS

GINGERICH AND
MILLER'S PUMP
NUMBER 3

FILE: 02-10289 (MILLER'S SPLIT OF 02-7273) AND 02-10291 (GINGERICH'S SPLIT OF 02-7273)

DATE: 9/1/2005

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])

$$Q = \frac{(8.8) \times (200 \text{ Hp}) \times (0.70) = 1232}{[(10.5 \text{ LIFT}) + (93 \text{ psi} \times 2.31)] = 225.33} = \frac{5.47 \text{ CFS}}{2454 \text{ GPM}}$$

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. They all divert the Snake River water into a common mainline. The pressure at the owner's gauge was 93 psi.

GROUNDWATER THEORETICAL ANNALYSIS

GINGERICH AND
MILLER'S PUMP
NUMBER 4

FILE: 02-10289 (MILLER'S SPLIT OF 02-7273) AND 02-10291 (GINGERICH'S SPLIT OF 02-7273)

DATE: 9/1/2005

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])

$$Q = \frac{(8.8) \times (125 \text{ Hp}) \times (0.70) = 770}{[(10.5 \text{ LIFT}) + (93 \text{ psi} \times 2.31)] = 225.33} = \frac{3.42 \text{ CFS}}{1534 \text{ GPM}}$$

LIFT FROM:

Measurement (☒)

Owner ()

Area estimate ()

Well Logs ()

PSI FROM:

Measurement ()

Owner ()

Estimate ()

Owner Gage (☒)

Booster (Y) (N)

NOTES ON PUMP:

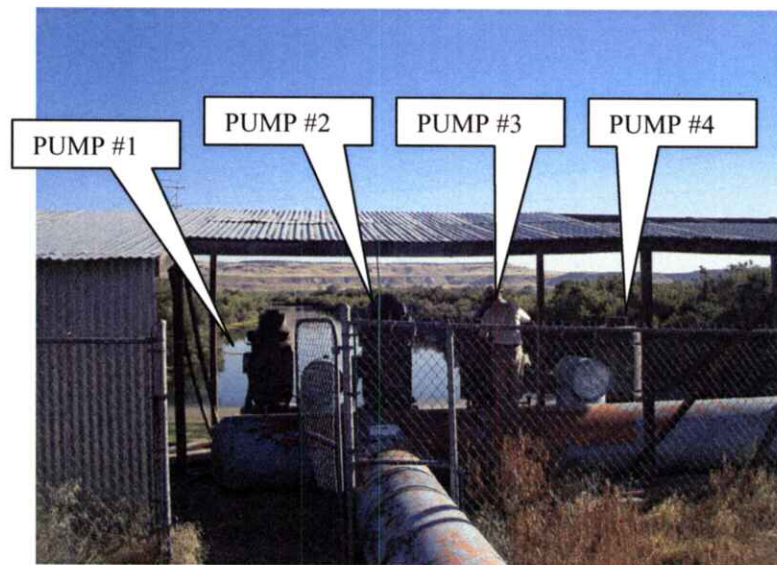
Motor Make, Serial or ID

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. They all divert the Snake River water into a common mainline. The pressure at the owner's gauge was 93 psi.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/1/2005

FILE NUMBER 02-10289 (Miller) & 02-10289 (Gingerich)

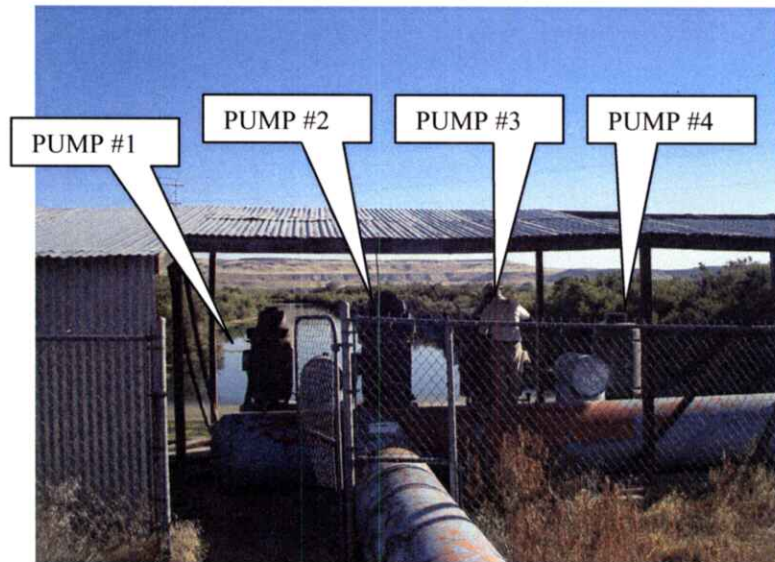


These are photos of the River Pump Station. There is a $\frac{1}{4}$ mile channel that diverts the water from the river, and delivers it to the pump station. The reason for the channel is to eliminate some of the debris that is carried by the river from getting into the pumps. There are 4 pumps that divert water is to a 24 inch mainline. The mainline delivers the water to the farm and various booster systems.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/1/2005

FILE NUMBER 02-10289 (Miller) & 02-10289 (Gingerich)



These are photos of the River Pump Station. There is a $\frac{1}{4}$ mile channel that diverts the water from the river, and delivers it to the pump station. The reason for the channel is to eliminate some of the debris that is carried by the river from getting into the pumps. There are 4 pumps that divert water is to a 24 inch mainline. The mainline delivers the water to the farm and various booster systems.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/1/2005

FILE NUMBER 02-10289 (Gingerich)



These are photos of the farm from just past the house. You can see the house behind the state vehicle. The house is located at the northern most point of the farm.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/1/2005

FILE NUMBER 02-10289 (Gingerich)



These are pictures of the farm from the southern most point of the farm. I took these pictures up on a hill, so you could see the entire farm.