

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-2219

Exam Date: 6/30/2005
2005

1. Current Owner: GEORGE D VOLLE
PO BOX 67
CAMBRIDGE ID 83610
(208)257-3568

ELEANOR VOLLE
PO BOX 67
CAMBRIDGE ID 83610
(208)257-3568

2. Accompanied by: Mike Summers

Phone No: Home – 257-3890, Cell – 550-0041

Address: 3075 Cove Road, Cambridge, ID 83610

Relationship to Permit Holder: Son-in-law/ Farm Manager

3. SOURCE

WEISER RIVER

TRIBUTARY

SNAKE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 67-7376 (Cambridge Ditch Company), and Lost Valley Reservoir water.
2. Other water rights with the same point of diversion: See attached list for Cambridge Ditch point of diversion overlaps

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

WEISER RIVER	NE1/4NE1/4	Sec. 30, Twp 15N, Rge 02W, B.M.
WASHINGTON County	(Rediversion)	
WEISER RIVER	SE1/4SW1/4	Sec. 16, Twp 15N, Rge 02W, B.M.
WASHINGTON County		
WEISER RIVER	SE1/4SE1/4	Sec. 30, Twp 15N, Rge 02W, B.M.
WASHINGTON County	(Rediversion)	
WEISER RIVER	SE1/4SE1/4	Sec. 30, Twp 15N, Rge 02W, B.M.
WASHINGTON County		
WEISER RIVER	NW1/4NE1/4	Sec. 30, Twp 15N, Rge 02W, B.M.
WASHINGTON County		

Method of Determination: Visual inspection and aerial photography.

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	
15N 02W 19															3.1	.7	3.8
15N 02W 29									2.9								2.9
15N 02W 30	5.3	5.1	3.0	7.5									12.0	12.0	12.0	15.0	71.9
15N 02W 31	25.0	14.0			1.9												40.9
15N 02W 32						37.0											37.0

Total Acres: 156.5

PLEASE NOTE: This permit only allows 120 acres of irrigation. Cambridge Ditch Company water is co-mingle with this right to allow the irrigation of the entire 156.5 acres. Therefore, this right should be licensed for 120 acres within the 156.6 acre permissible place of use mentioned above.

Method of Determination: Visual inspection and aerial photography.

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
CAMBRIDGE DITCH DIVERSION (RIVER)	none	none	none	none	none
LITTLE FIELD PUMP RE-DIVERSION (DITCH)	YMAR DIESEL	35 Hp	CT4-114	PACO	ES 856141A
LITTLE FIELD PUMP BACKUP DIVERSION (RIVER)	SAME AS ABOVE (YMAR)	SAME AS ABOVE (35Hp)	SAME AS ABOVE (CT4-114)	SAME AS ABOVE (PACO)	SAME AS ABOVE (ES 856141A)
MAIN DITCH PUMP RE-DIVERSION (DITCH)	MARATHON MOTOR	50 Hp	7B326TTDP40 69DBL	CORNELL	12155012188 T C00044
MAIN PUMP BACKUP DIVERSION (RIVER)	TRACTOR	40 Hp	N/A	CORNELL	3RLHF6 12256

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
POLYSONICS	POLYSONIC METER	TYME FLYTE	TFP	N8J4626	N/A	5/22/2005

2. Measurements:

Polysonic flow measurements were performed on the Little Field Pump and the Main Ditch pump. The Main Backup Diversion pump was not connected into the system at the time of the exam. A theoretical calculation was performed on the Main Backup Diversion pump, but it is only used in case the Main Ditch pump cannot deliver water. The system is set up to either run the Main Ditch pump or the Main Backup Diversion pump, so the theoretical calculation on the Main Backup pump doesn't add any system capacity.

E. FLOW CALCULATIONS**YES** Additional Computation Sheets Attached

Measured Method:

LITTLE FIELD PUMP → 0.78 CFS

MAIN DITCH PUMP → 2.32 CFS

TOTAL CAPACITY OF SYSTEM → 3.10 CFS

MAXIMUM ALLOWED BY PERMIT → 2.40 CFS

TOTAL AMOUNT RECOMMENDED FOR LICENSING IS 2.40 CFS.

PLEASE NOTE: The Main Backup pump has a diversion rate of 1.55 cfs, but this pump is only used when the Main Ditch pump cannot divert water. Therefore, it cannot be added to the system capacity. Adding this rate to the system capacity is basically a mute point, since the amount that can be recommended for licensing is limited by the amount listed on the permit.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 120 \text{ acres} \times 4.0 = 480 \text{ afa}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 2.40 \text{ cfs} \times 231 \times 1.9835 = 1099.7 \text{ afa}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 480 \text{ afa}$$

2. Volume Calculations for Other Uses:

G. NARRATIVE/REMARKS/COMMENTS

The water for this water right is typically diverted from the Weiser River through the Cambridge Ditch at their point of diversion located in the SESW S16 T15N R2W. The water is transported approximately 1.5 miles to the Little Field pump.

The Little Field Pump re-diversion point is located in the NENE S30 T15N R2W. At this location the water is diverted from the ditch by a pipeline and pressurized by 35 Hp portable diesel pump. The pump then supplies a 6-inch mainline that travels east approximately 450 feet to the Weiser River. The pump is on wheels to allow the owner to move the pump to the other side of the mainline. The Cambridge Ditch has washed out in the spring, so the applicant has designed his system so he can divert directly from the river in case the ditch should fail. It is more efficient to use the ditch diversion, so the backup diversion is only used until the ditch can be repaired. There are two hand lines used to irrigate the little field from this mainline. The little field is the northern most field on the east side of the Weiser River.

After the Little Field Pump re-diversion, the water in the Cambridge Ditch continues down the ditch approximately $\frac{3}{4}$ of a mile to the Main Ditch Pump. The Main Ditch pump is located in the SESE S30 T15N R2W. A 50 Hp pump diverts water from the ditch at this point into a 10 inch mainline. The mainline travels approximately 350 feet south of the pump to another mainline that travels east and west. This mainline supplies the irrigation for the remainder of the property on both sides of the Weiser River. The mainline crosses the river to irrigate the fields west of the river. At the point where the pipeline crosses the river, the owner has set up a place to install a backup pump onto this mainline when the Cambridge Ditch washes out. The pump is not left on the mainline, but it is stored in a barn on the farm. The pump is only connected into the system if needed and then removed. Hand lines and wheel lines are used to irrigate the remainder of the fields. The owner is currently trying to convert everything over to wheel lines.

The pumps have control valves on them, but there are no measurement devices on either mainline. The watermaster has agreed to allow the owner to shut off his pumps, and measure the water in the ditch through the Cambridge Ditch Company's flume. The flume is located downstream of both the re-diversion points. I am concerned that this practice doesn't allow accurate measurements of the system. This practice also doesn't allow measurement of the water being diverted from the river when the ditch isn't being used. The permit doesn't have a condition requiring a measurement device, but I believe they should install a proper measurement device on these mainlines, so the watermaster can get an accurate accounting of the water being diverted by these pumps. I don't believe that this should prevent the licensing of this permit, however, the owner should be required to install adequate measurement devices by next irrigation season.

The only significant overlapping water rights are the Cambridge Ditch Company and Lost Valley Reservoir rights. The owner has purchased Cambridge Ditch Company water rights to cover the ground that isn't covered under this water right. The owner has also purchased 100 acre-feet of Lost Valley Reservoir storage water for the times when Weiser River water is not available. There are a large number of water rights that now use the Cambridge Ditch as a conveyance system for their personal water rights. None of these rights directly overlap the place of use, and the capacity of the Cambridge Ditch is sufficient to allow all the rights to be fulfilled when needed. The capacity of the Cambridge Ditch is 47.8 cfs (see field exam 67-7376 for ditch measurements). Not all the water rights diverted through the Cambridge Ditch are needed at the same time, so there is plenty of room to allow full delivery of all the rights.

I recommend that the following conditions be placed on the license:

- 1.) The owner shall install and maintain a measurement device and lockable control device acceptable to the department and the watermaster on each pump system. These devices must be installed in such a way that they will stay with the pump if it is moved to an alternative diversion point.
- 2.) This right is under the control of the Weiser River watermaster.
- 3.) This right when combined with all other rights is limited to 0.02 cfs per acre and 4.0 afa.
- 4.) This right is limited to 120 acres within the above listed 156.5 acre permissible place of use.
- 5.) Cambridge Ditch Company and Lost Valley Reservoir water are also delivered through this system.
- 6.) Multiple water rights are diverted through the Cambridge Ditch Company point of diversion.

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

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/15 to 10/31	2.400 CFS	480.00 AF
<u>Totals:</u>		2.400 CFS	480.00 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 7-11-05

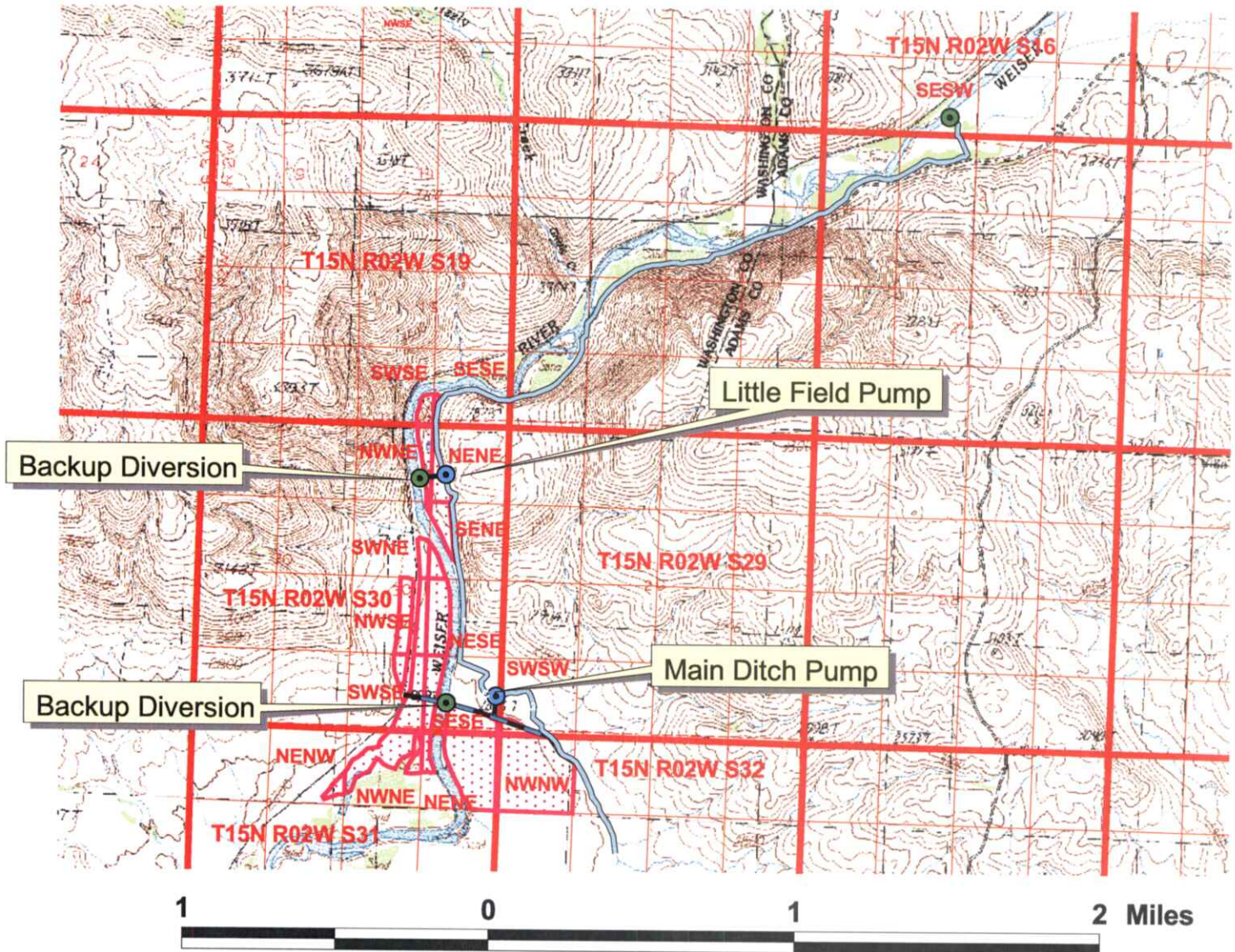
Reviewer _____ Date _____

SEAL

QUADRANGLE MAP

FIELD EXAM 67-2219

BY DAN NELSON



- RE-DIVERSION POINTS
- POINTS OF DIVERSION
- ▬ CAMBRIDGE DITCH
- ▬ MAINLINES
- ▬ PLACE OF USE
- ▬ SECTION LINES
- ▬ 1/4 1/4 LINES

PLEASE NOTE:

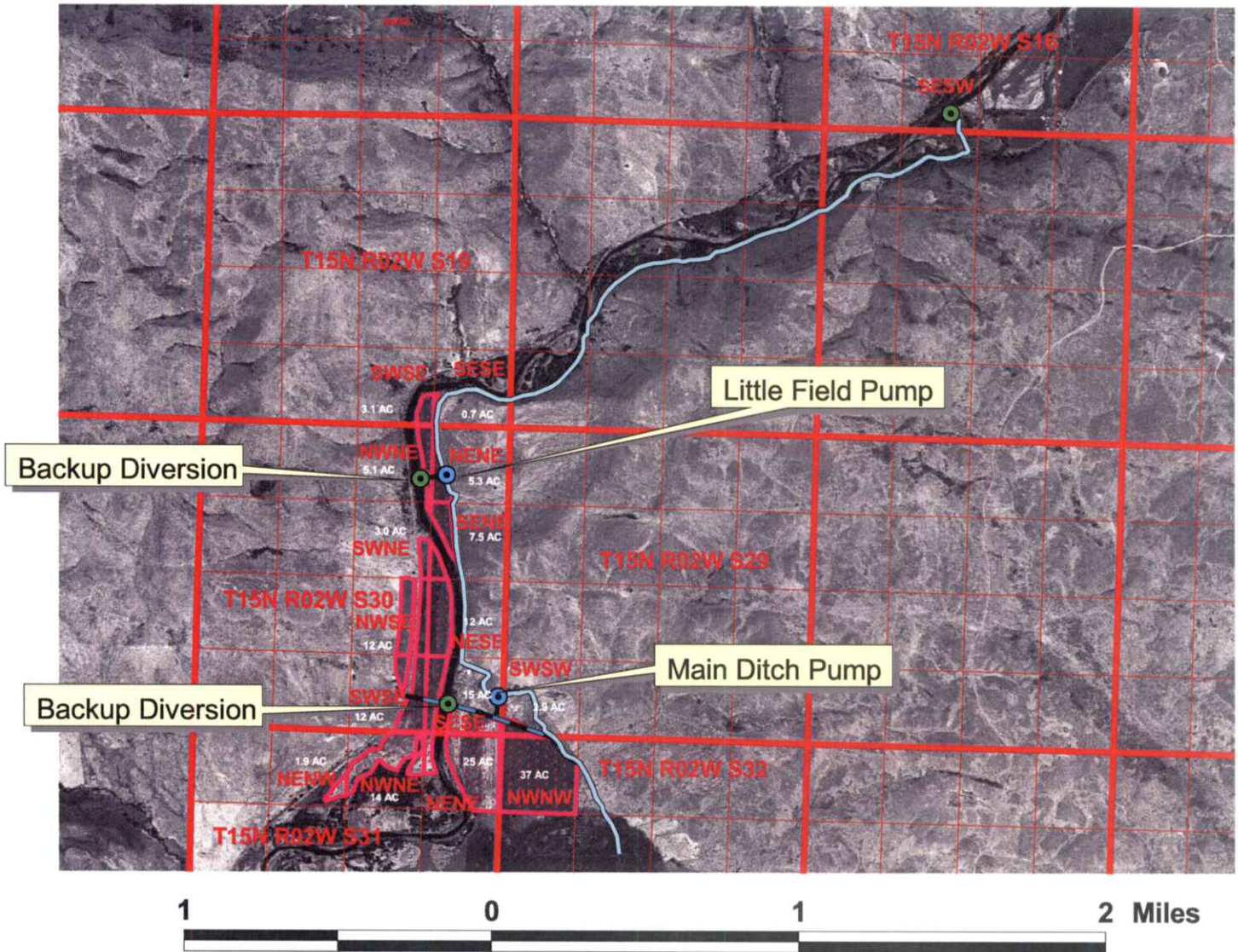
The point of diversion in section 16 is the point of diversion for the Cambridge Ditch Company. This diversion point was changed, so a licensing amendment is now needed. The point of diversion in the NWNE section 30 is a backup diversion for the re-diversion point from the ditch in the NENE section 30. The point of diversion in the SESE is the backup diversion for the re-diversion point from the ditch in the NENE section 30. The system is set up to allow the owner to divert directly from the Weiser River if the Cambridge Ditch should fail. The owner has the ability to move the portable pumps to these locations.



SYSTEM DIAGRAM

FIELD EXAM 67-2219

BY DAN NELSON



- RE-DIVERSION POINTS
- POINTS OF DIVERSION
- CAMBRIDGE DITCH
- MAINLINES
- PLACE OF USE
- SECTION LINES
- 1/4 1/4 LINES

PLEASE NOTE:

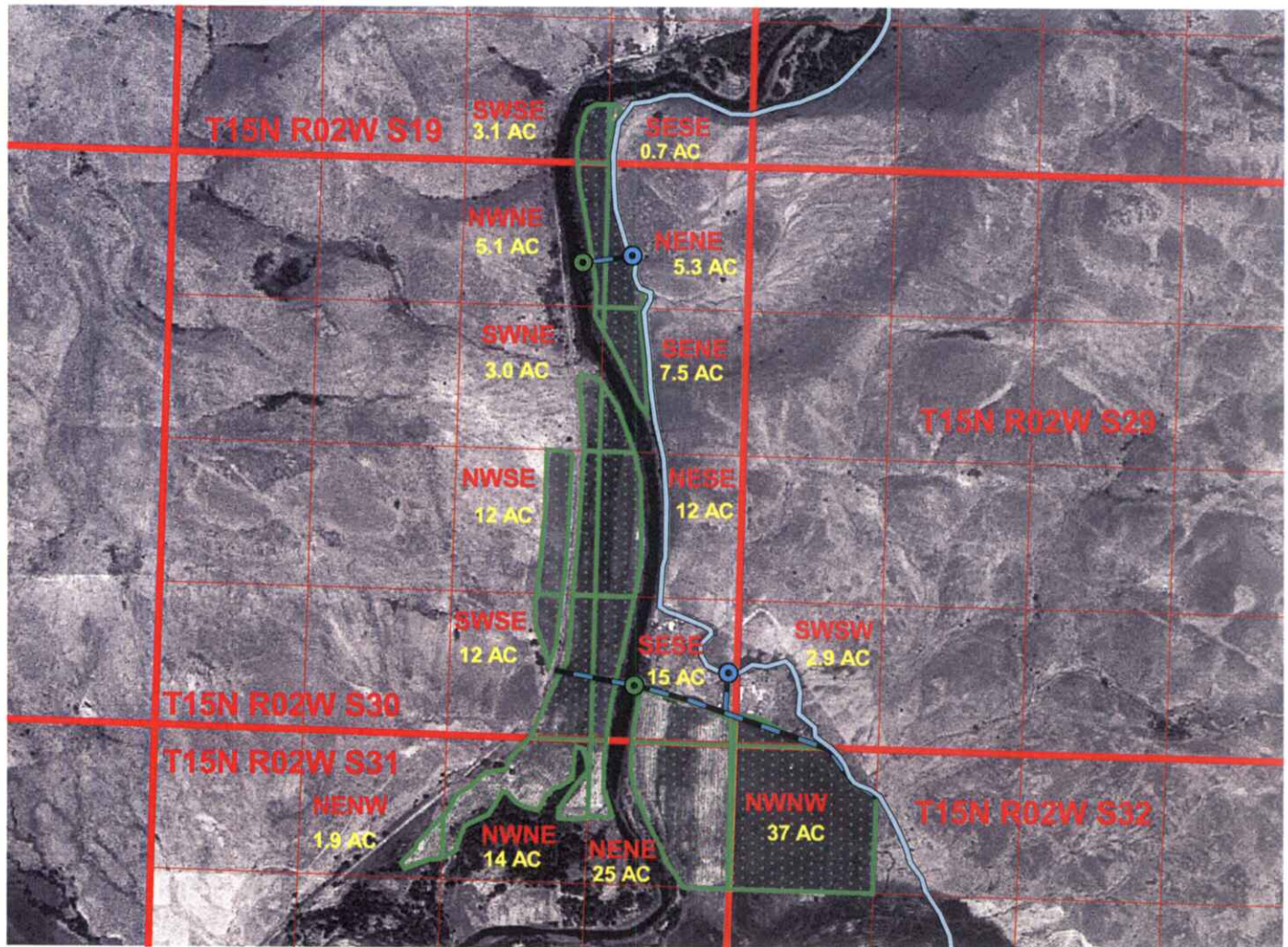
The point of diversion in section 16 is the point of diversion for the Cambridge Ditch Company. This diversion point was changed, so a licensing amendment is now needed. The point of diversion in the NWNE section 30 is a backup diversion for the re-diversion point from the ditch in the NENE section 30. The point of diversion in the SESE is the backup diversion for the re-diversion point from the ditch in the NENE section 30. The system is set up to allow the owner to divert directly from the Weiser River if the Cambridge Ditch should fail. The owner has the ability to move the portable pumps to these locations. All of the irrigation is done with hand lines and wheel lines.



PLACE OF USE

FIELD EXAM 67-2219

BY DAN NELSON

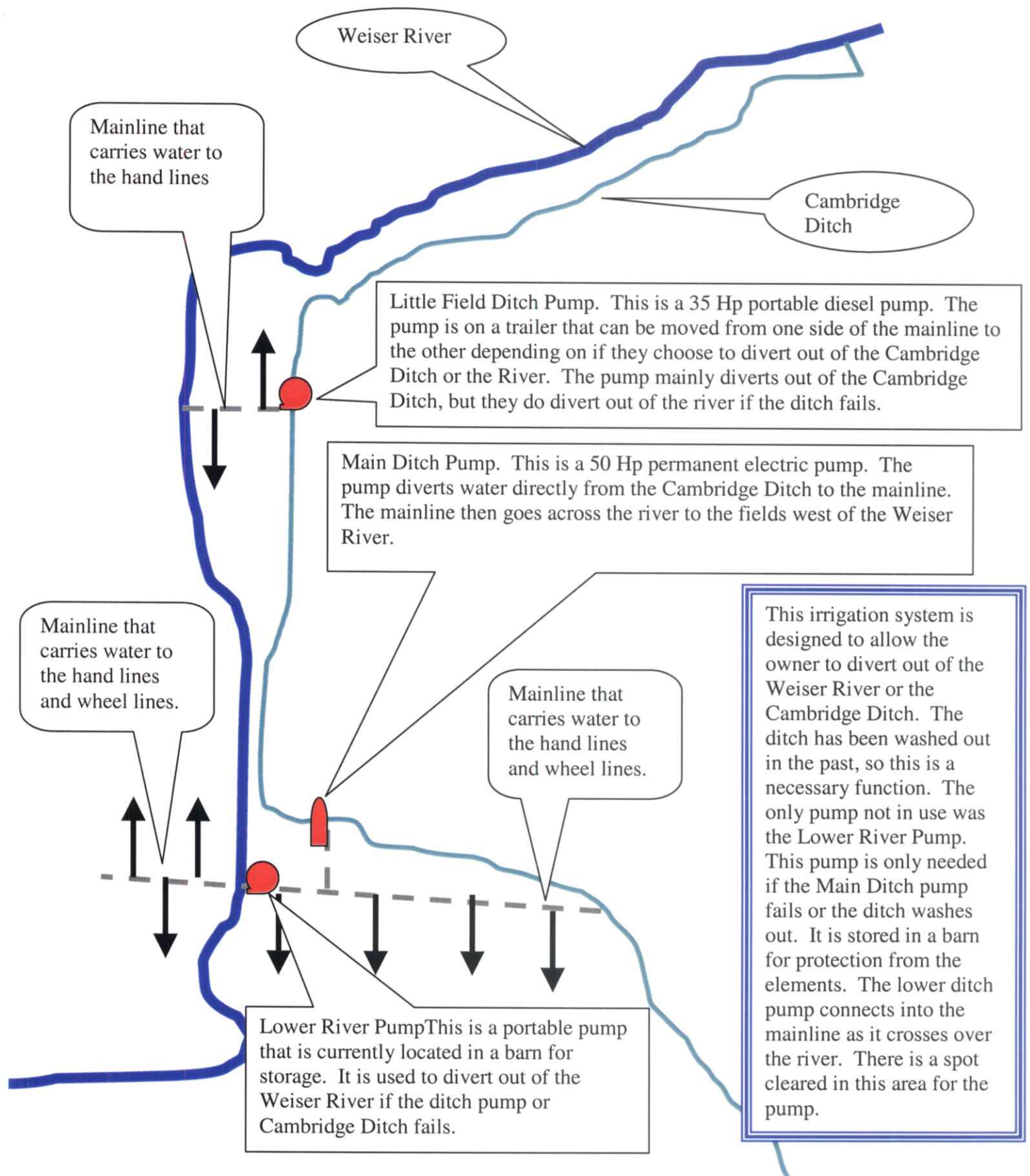


0.5 0 0.5 1 Miles

- REDIVERSION POINTS
- POINTS OF DIVERSION
- CAMBRIDGE DITCH
- MAINLINES
- PLACE OF USE
- SECTION LINES
- 1/4 1/4 LINES



SYSTEM DIAGRAM FOR FIELD EXAM 67-2219
BY DAN NELSON



TOTAL OVERLAP OF CAMBRIDGE DITCH COMPANY POINT OF DIVERSION PER COMPANY REPRESENTATIVES

Basin	Sequence	Suffix	Basis	Priority Date	Rate(cfs)	Volume(af)	Source	Water Use(s)	Source Table	Source Table
67	32	B	Decreed	1886-07-04	0.8		WEISER RIVER	IRRIGATION	FOX, JANE (Current); FOX, MIKE E (Current)	wrWaterRight
67	32	C	Decreed	1886-07-04	0.4		WEISER RIVER	IRRIGATION	NOAH, KATHRYN A (Current); NOAH, RANDY E (Current)	wrAdjudicationClaim
67	32	D	Decreed	1886-07-04	0.4		WEISER RIVER	IRRIGATION	NELSON, VAUGHN (Current)	wrAdjudicationClaim
67	32	E	Decreed	1886-07-04	1.8		WEISER RIVER	IRRIGATION	SMITH, SHIRLEY F (Current)	wrAdjudicationClaim
67	34		Decreed	1884-05-06	2.5		WEISER RIVER	IRRIGATION	PFOST, J EMMETT (Current)	wrWaterRight
67	34	B	Decreed	1884-05-06	0.94		WEISER RIVER	IRRIGATION	NOAH, KATHRYN A (Current); NOAH, RANDY E (Current)	wrAdjudicationClaim
67	34	C	Decreed	1884-05-06	0.06		WEISER RIVER	IRRIGATION	KLINE, GLENN N (Current)	wrAdjudicationClaim
67	34	E	Decreed	1884-05-06	0.5		WEISER RIVER	IRRIGATION	BARTON RANCH INC (Current)	wrAdjudicationClaim
67	36		Decreed	8/27/1910	1		WEISER RIVER	IRRIGATION	MOONEY, DAVID C (Current); MOONEY, MARJORIE I (Current)	wrAdjudicationClaim
67	36		Decreed	8/27/1910	1		WEISER RIVER	IRRIGATION	ABERNATHY, GOLDIE (Current)	wrWaterRight
67	37		Decreed	8/27/1910	1		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim
67	37		Decreed	8/27/1910	1		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrWaterRight
67	497		Decreed	6/1/1904	1.2		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim
67	497		Decreed	6/1/1904	1.2		WEISER RIVER	IRRIGATION	LAUGHLIN, E C (Current)	wrWaterRight
67	658		Decreed	6/1/1910	0.8		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim
67	658		Decreed	6/1/1910	0.8		WEISER RIVER	IRRIGATION	LAUGHLIN, E C (Current)	wrWaterRight
67	2055		License	9/25/1912	2		WEISER RIVER	DOMESTIC, IRRIGATION	ABERNATHY, HARRY (Current)	wrWaterRight
67	2055	A	License	9/25/1912	1.3		WEISER RIVER	IRRIGATION	MOONEY, DAVID C (Current); MOONEY, MARJORIE I (Current)	wrAdjudicationClaim
67	2055	B	License	9/25/1912	0.7		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim
67	2211		License	2/20/1952	1.62		WEISER RIVER	IRRIGATION, STOCKWATER	NOAH, KATHRYN A (Current); NOAH, RANDY E (Current)	wrAdjudicationClaim
67	2211		License	2/20/1952	0.6		WEISER RIVER	IRRIGATION	INGEBRETSEN, FRANK R (Current)	wrWaterRight
67	2212		License	2/20/1952	0.6		WEISER RIVER	IRRIGATION	MOONEY, DAVID C (Current); MOONEY, MARJORIE I (Current)	wrAdjudicationClaim
67	2212		License	2/20/1952	0.6		WEISER RIVER	IRRIGATION	THOMASON, JAMES M (Current)	wrWaterRight
67	2213		License	2/20/1952	3.6		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim
67	2213		License	2/20/1952	3.6		WEISER RIVER	IRRIGATION	JOHNSON, CLIFFORD L (Current)	wrWaterRight
67	2214		License	2/20/1952	0.9		WEISER RIVER	IRRIGATION	WHITTLE, MARGARET H (Current)	wrWaterRight

67	2219		Permit	11/18/1965	2.4		GRIZZLY CREEK , WEISER RIVER	IRRIGATION	VOLLE, ELEANOR (Current); VOLLE, GEORGE D (Current)	wrAdjudicationClaim
67	2219			11/18/1965	2.4		WEISER RIVER	IRRIGATION	VOLLE, ELEANOR (Current); VOLLE, GEORGE D (Current)	wrWaterPermit
67	4092		Statutory Claim	5/15/1962	3.2		WEISER RIVER	IRRIGATION, STOCKWATER	FOX, JANET M (Current); FOX, MIKE E (Current)	wrWaterRight
67	4092	A	Beneficial Use	5/15/1962	1.6		WEISER RIVER	IRRIGATION, STOCKWATER	NELSON, VAUGHN (Current)	wrAdjudicationClaim
67	4092	B	Statutory Claim	5/15/1962	1.6		WEISER RIVER	IRRIGATION, STOCKWATER	NOAH, KATHRYN A (Current); NOAH, RANDY E (Current)	wrAdjudicationClaim
67	4159		Statutory Claim	6/1/1914	4.8		WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim
67	4159		Statutory Claim	6/1/1914	4.8		WEISER RIVER	IRRIGATION	BRAUN, ERNA (Current); BRAUN, THEODORE (Current)	wrWaterRight
67	7204		License	10/29/1973	0.1		WEISER RIVER	IRRIGATION, STOCKWATER	WILSON, JOE F (Current)	wrAdjudicationClaim
67	7204		License	10/29/1973	0.1	16.4	WEISER RIVER	IRRIGATION, STOCKWATER	WILSON, JOE F (Current)	wrWaterRight
67	7376		Permit	3/14/1978	13		WEISER RIVER	IRRIGATION	CAMBRIDGE DITCH CO (Current)	wrAdjudicationClaim
67	7376			3/14/1978	40		WEISER RIVER	IRRIGATION	CAMBRIDGE DITCH CO (Current)	wrWaterPermit
67	10400		Beneficial Use	5/15/1962	0.3		WEISER RIVER	IRRIGATION	NOAH, KATHRYN A (Current); NOAH, RANDY E (Current)	wrAdjudicationClaim
67	14280		Decreed	1884-05-06	0.5	120	WEISER RIVER	IRRIGATION	FOX, JANET M (Current); FOX, MIKE E (Current)	wrAdjudicationClaim
67	14281		Decreed	1884-05-06	0.5	120	WEISER RIVER	IRRIGATION	CHE ENTERPRISES INC (Current)	wrAdjudicationClaim

POLYSONIC READINGS

PERMIT #: 67-2219

POINT OF DIVERSION - DITCH PUMP

FIRST SET OF INFORMATION:

SET-UP IMPUTE DATA USED DURING
PREPARATION FOR FLOW MEASUREMENTS.

SECOND SET OF INFORMATION:

THESE ARE THE READINGS TAKEN FOR
THIS PUMP. THE TOTAL FLOW WAS
AVERAGED OVER A 10 MINUTE READING.

FLows IN GALLONS PER MINUTE (GPM)

1040 GPM FLOW RATE

FLows IN CUBIC FEET PER SECOND (CFS)

1040 GPM / 448.8 = 2.32 CFS FLOW RATE

MODE SELECT	10:36+	1.036E 3GPM	00R
INPUT		+ 5.918E 0FPS	00R
		+00000 *10 G	00R
		-00000 *10 G	00R
OUTER DIAMETER	10:37+	1.036E 3GPM	00R
10.300 IN		+ 5.918E 0FPS	00R
		+00104 *10 G	00R
		-00000 *10 G	00R
PIPE MATERIAL			
? CS,SS			
WALL THICKNESS	10:38+	1.031E 3GPM	00R
0.9200 IN		+ 5.889E 0FPS	00R
		+00208 *10 G	00R
		-00000 *10 G	00R
INNER LINING			
? NO LING.	10:39+	1.043E 3GPM	00R
		+ 5.958E 0FPS	00R
		+00308 *10 G	00R
		-00000 *10 G	00R
KIND OF FLUID			
? WATER			
SENSOR MOUNTING	10:40+	1.021E 3GPM	00R
? U		+ 5.833E 0FPS	00R
		+00416 *10 G	00R
		-00000 *10 G	00R
TYPE OF SENSOR			
? SMALL			
SPACING	10:41+	1.014E 3GPM	00R
9.074 IN U		+ 5.793E 0FPS	00R
		+00520 *10 G	00R
		-00000 *10 G	00R
ZERO MODE			
AUT ZERO	10:42+	1.050E 3GPM	00R
		+ 5.997E 0FPS	00R
		+00622 *10 G	00R
		-00000 *10 G	00R
MODE SELECT			
T0 CHECK			
0355.9 MMSEC	10:43+	1.051E 3GPM	00R
112.60 % T0		+ 6.000E 0FPS	00R
		+00720 *10 G	00R
		-00000 *10 G	00R
06-30 10:3200			
+002.30 % A12			
	10:44+	1.032E 3GPM	00R
		+ 5.895E 0FPS	00R
		+00833 *10 G	00R
		-00000 *10 G	00R
	10:45+	1.041E 3GPM	00R
		+ 5.944E 0FPS	00R
		+00933 *10 G	00R
		-00000 *10 G	00R
	10:46+	1.060E 3GPM	00R
		+ 6.056E 0FPS	00R
		+01040 *10 G	00R
		-00000 *10 G	00R

POLYSONIC READINGS

PERMIT #: 67-2219

POINT OF DIVERSION - LITTLE FIELD PUMP

FIRST SET OF INFORMATION:

SET-UP IMPUTE DATA USED DURING
PREPARATION FOR FLOW MEASUREMENTS.

MODE SELECT
INPUT

09:43+357.953E 0GPM 00R
+ 3.940E 0FPS 00R
+00000 *10 G 00R
-00000 *10 G 00R

SECOND SET OF INFORMATION:

THESE ARE THE READINGS TAKEN FOR
THIS PUMP. THE TOTAL FLOW WAS
AVERAGED OVER A 10 MINUTE READING.

OUTER DIAMETER
6.2800 IN

09:44+343.159E 0GPM 00R
+ 3.779E 0FPS 00R
+00034 *10 G 00R
-00000 *10 G 00R

PIPE MATERIAL
? AL.DI

WALL THICKNESS
0.0540 IN

09:45+353.726E 0GPM 00R
+ 3.894E 0FPS 00R
+00070 *10 G 00R
-00000 *10 G 00R

INNER LINING
? NO LING.

09:46+358.745E 0GPM 00R
+ 3.950E 0FPS 00R
+00104 *10 G 00R
-00000 *10 G 00R

KIND OF FLUID
? WATER

SENSOR MOUNTING
? U

09:47+349.763E 0GPM 00R
+ 3.851E 0FPS 00R
+00141 *10 G 00R
-00000 *10 G 00R

TYPE OF SENSOR
? SMALL

SPACING
4.128 IN U

09:48+352.405E 0GPM 00R
+ 3.881E 0FPS 00R
+00175 *10 G 00R
-00000 *10 G 00R

ZERO MODE
AUT ZERO

09:49+345.801E 0GPM 00R
+ 3.809E 0FPS 00R
+00212 *10 G 00R
-00000 *10 G 00R

06-30 09:3800 *R
+002.90 % AI2

MODE SELECT
T0 CHECK

09:50+353.198E 0GPM 00R
+ 3.887E 0FPS 00R
+00247 *10 G 00R
-00000 *10 G 00R

0222.1 NMSEC
097.57 % T0

09:51+351.613E 0GPM 00R
+ 3.871E 0FPS 00R
+00282 *10 G 00R
-00000 *10 G 00R

09:52+366.670E 0GPM 00R
+ 4.038E 0FPS 00R
+00318 *10 G 00R
-00000 *10 G 00R

09:53+355.047E 0GPM 00R
+ 3.910E 0FPS 00R
+00352 *10 G 00R
-00000 *10 G 00R

FLows IN GALLONS PER MINUTE (GPM)

352 GPM FLOW RATE

FLows IN CUBIC FEET PER SECOND (CFS)

352 GPM / 448.8 = 0.78 CFS FLOW RATE

GROUNDWATER THEORETICAL ANNALYSIS

FILE: 67-2219

DATE: 6-30-2005

BY: DANIEL A. 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 puijing water level

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

$$Q = \frac{(8.8) \times (40 \text{ Hp}) \times (0.70)}{[(20 \text{ ft}) + (60 \text{ psi} \times 2.31)]} = 1.55 \text{ cfs}$$

(1.55 X 448.8 = 697 gpm)

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

REMARKS: This pump was not operational at te time of this field exam. It only used for backup purposes. The pump is a PTO drive pump, and a 40 Hp tractor is used to operate the pump. The standard operating pressure on the pump for a system like this one would be apprcimately 60 psi. The pump pulls water from Weiser River so the maximum lift would be approximately 20 ft. The owner stated that he can only run about 4 lines with this pump. The sprinkler lines have 32 sprinklers per line. The sprinklers have 5/32 nozzles that operate at about 5 gpm per nozzle. Therefore, the pump operates at approximately 640 gpm. (4 lines X 32 sprinklers X 5 gpm = 640 gpm) The owner's estimate matches very close to the theoretical. The actual output of this pump is not as critical as the other two pumps, since it is only used when the main ditch pump is not operational. The flow rate for this pump should not be added to the capacity of the entire system, since it is rarely used. The ditch pump is the main pump used and should be the limiting factor when determining capacity for the lower fields. The upper field pump must be included in the capacity calculations.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 6/30/2005

FILE NUMBER 67-2219



These are photos of the main ditch pump. This pump supplies all the water for the farm, except for the little field to the north. There is no measurement device on this pump. This permit does not require a measurement device and controlling works, but I would recommend that the owner install a suitable device for the watermaster. Currently the watermaster shuts down the pump and measures the water over the Cambridge Ditch Company flume. A measurement device should be installed to attain proper rates of water. However, licensing shouldn't be delayed, since there is not a requirement on the permit, and the watermaster has accepted this method of measurement.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 6/30/2005

FILE NUMBER 67-2219



These are pictures of the fields being irrigated from the Main Ditch Pump. The mainline runs along the top of these fields.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 6/30/2005

FILE NUMBER 67-2219



These are photos of the Little Field Pump and the little field. The little field is the northern most field east of the Weiser River. This is a portable 35 Hp diesel pump. The pump can be connected to either side of the mainline shown in the pictures below. There are times that the Cambridge Ditch washes out and this pump is moved to the Weiser River side of the mainline and water is diverted directly out of the river. Water cannot be diverted into both sides of the pump at the same time. There is no measurement device or control valve on this pump. A measurement device and controlling works are not required by this permit, but I would recommend that the owner install a suitable device for the watermaster. Currently the watermaster shuts down the pump and measures the water over the Cambridge Ditch Company flume. Whereas this pump can also divert water directly from the river, a measurement device should be installed. However, licensing shouldn't be delayed, since there is not a requirement on the permit, and the watermaster has accepted this method of measurement.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 6/30/2005

FILE NUMBER 67-2219



These photos are of the pump site and pump for the lower backup point of diversion. This pump is a PTO or tractor driven pump. The pump is connected into the mainline as it crosses the Weiser River at the location shown in the top picture. This pump is only used when the main ditch well goes down or the Cambridge Ditch washes out. This pump is not used except for emergencies.

