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Form No. 300-W

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WATER RESOURCES
WESTERN REGION

WATERMASTER'S

DAILY RECORD

Stream Weiser River

Water District 67

Month of May, June, July, August 2003

Watermaster Bosco Bosch

P. O. Address

Ten days after the close of the Irrigation season the Watermaster must forward this book to

DEPARTMENT OF WATER RESOURCES
STATE HOUSE
BOISE, IDAHO 83701

If this book is lost, the finder will please return it to the Watermaster of the district, as it contains valuable records.

MEASUREMENT OF WATER

Hydraulic Equivalents Which Will Be Found Useful To Irrigators

A cubic foot of water per second of time shall be the legal standard for the measurement of water in this state.

1. One Idaho Miner's inch equals approximately 1/50th of a cubic foot per second, or 9 gallons per minute.

2. A cubic foot per second equals approximately 50 miner's inches, or 450 gallons per minute.

3. One cubic foot per second for 24 hours equals approximately 2 acre feet.

4. One acre foot equals enough water to cover one acre exactly one foot in depth, or 43,560 cubic feet.

5. One miner's inch per acre for 100 days equals 3.97 feet deep on the land.

6. One miner's inch per acre for 150 days equals 5.95 feet deep on the land.

7. Five-eighths miner's inch per acre for 100 days equals 2.48 feet deep on the land.

8. Five-eighths miner's inch per acre for 150 days equals 3.72 feet deep on the land.

9. One-half miner's inch per acre for 100 days equals 1.98 feet deep on the land.

10. One-half miner's inch per acre for 150 days equals 2.98 feet deep on the land.

THE CIPPOLETTI WEIR

This form of measuring device is illustrated on page 5. It has a thin horizontal crest and thin sides; the weirs notch is wider across the top than at the bottom, the sides having a slope of one inch out to four inches up, or a 1:4 slope.

The essential requirements in setting, and the method of using the weir are as follows:

1. It should be set at the lower end of a stilling pool of sufficient length, width and depth to give an even, smooth current with a velocity of approach to the weir of not over one-half foot per second. This pool should be straight and of constant cross section, and the center line should pass through the middle of the weir crest.

2. The crest of the weir should be at right angles to the direction of the flow, and the face of the weir should be perpendicular.

3. The crest of the weir should be level so that the water passing over it will be of the same depth at all points along the crest.

4. The height of the crest above the bottom of the pool should be about three times the depth of the water flowing over it, and the sides of the pool, or box should be a distance from the sides of the crest at least twice the depth of the water passing over it.

5. The length of the crest should be at least three times the depth of the water passing over it, and of even feet, or multiples thereof, to conform to the accompanying tables.

6. The crest should be placed high enough to retard the flow above the weir to the required velocity; and so that the downstream water surface is far enough below the crest that air has free access under the falling sheet of water.

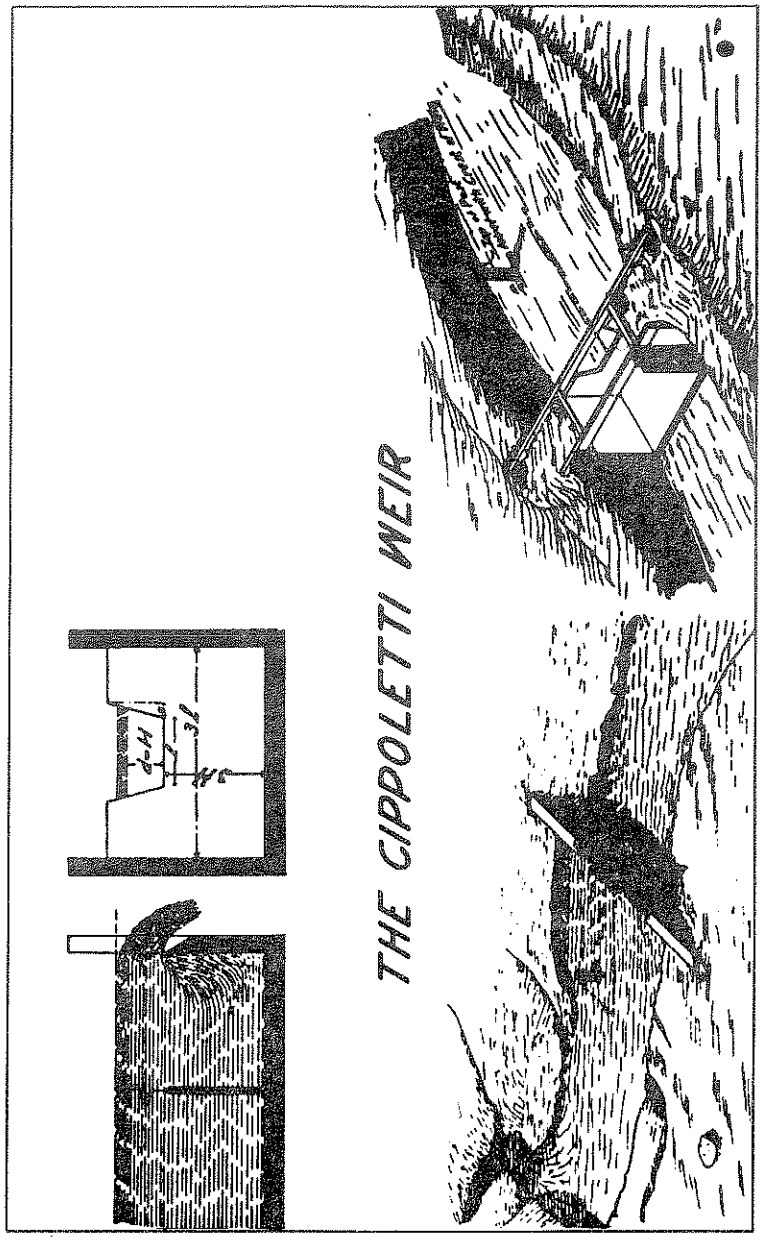
7. The depth of the water passing over the weir should be measured with accuracy at a point where the surface curve does does not affect the measurement. This may be done by driving a nail partially into the upstream face of the weir structure at the exact level of the crest and far enough to one side that it will be in comparatively still water; or by driving a substantial peg into the bottom of the pool several feet upstream from the crest, in still water, the top of which is exactly level with the crest; then measuring the depth of water above this nail or peg. The discharge in cubic feet per second can then be determined directly by this depth, or head, in inches and the length of the crest in inches from the table printed on page 4.

Discharge of Cippoletti Weirs in Cubic Feet per Second

Discharge Computed for head in inches, and length of crest in inches.

Head in Ins.	LENGTH OF WEIR—INCHES 12	18	24	36	Head in Ins.	LENGTH OF WEIR—INCHES 12	18	24	36
1	.08	.12	.16	.24	6 5/8	.....	2.07	2.76	4.14
1 1/8	.10	.15	.19	.29	6 3/4	.....	2.13	2.84	4.26
1 1/4	.11	.17	.23	.34	6 7/8	.....	2.19	2.92	4.38
1 3/8	.13	.20	.26	.39					
1 1/2	.15	.22	.30	.45	7	.....	2.25	3.00	4.50
1 5/8	.17	.25	.33	.50	7 1/8	.....	.....	3.08	4.62
1 3/4	.19	.28	.38	.56	7 1/4	.....	.....	3.16	4.74
1 7/8	.21	.31	.42	.62	7 3/8	.....	.....	3.25	4.87
					7 1/2	.....	.....	3.33	4.99
2	.23	.34	.46	.69	7 5/8	.....	.....	3.41	5.12
2 1/8	.25	.38	.50	.75	7 3/4	.....	.....	3.50	5.24
2 1/4	.27	.41	.55	.82	7 7/8	.....	.....	3.58	5.37
2 3/8	.30	.45	.59	.89					
2 1/2	.32	.48	.64	.96	8	.....	.....	3.67	5.50
2 5/8	.34	.52	.69	1.03	8 1/8	.....	.....	3.75	5.63
2 3/4	.37	.55	.74	1.11	8 1/4	.....	.....	3.84	5.76
2 7/8	.40	.59	.79	1.19	8 3/8	.....	.....	3.93	5.89
					8 1/2	.....	.....	4.01	6.02
3	.42	.63	.84	1.26	8 5/8	.....	.....	4.11	6.16
3 1/8	.45	.67	.89	1.34	8 3/4	.....	.....	4.19	6.29
3 1/4	.47	.71	.95	1.42	8 7/8	.....	.....	4.29	6.43
3 3/8	.50	.75	1.00	1.51					
3 1/2	.53	.80	1.06	1.59	9	.....	.....	4.37	6.56
3 5/8	.56	.84	1.12	1.68	9 1/8	.....	.....	.....	6.69
3 3/4	.59	.88	1.17	1.76	9 1/4	.....	.....	.....	6.84
3 7/8	.62	.93	1.24	1.86	9 3/8	.....	.....	.....	6.98
					9 1/2	.....	.....	.....	7.12
4	.65	.97	1.29	1.94	9 5/8	.....	.....	.....	7.26
4 1/8	.68	1.02	1.36	2.04	9 3/4	.....	.....	.....	7.40
4 1/4	.71	1.06	1.42	2.13	9 7/8	.....	.....	.....	7.54
4 3/8	.74	1.11	1.48	2.22					
4 1/2	.77	1.16	1.55	2.32	10	.....	.....	.....	7.69
4 5/8	.80	1.21	1.61	2.42	10 1/8	.....	.....	.....	7.84
4 3/4	.84	1.26	1.68	2.52	10 1/4	.....	.....	.....	7.97
4 7/8	.87	1.31	1.74	2.62	10 3/8	.....	.....	.....	8.12
					10 1/2	.....	.....	.....	8.27
5	.91	1.36	1.81	2.72	10 5/8	.....	.....	.....	8.42
5 1/8	.....	1.41	1.88	2.82	10 3/4	.....	.....	.....	8.56
5 1/4	.....	1.46	1.95	2.92	10 7/8	.....	.....	.....	8.72
5 3/8	.....	1.51	2.02	3.03					
5 1/2	.....	1.56	2.09	3.13	11	.....	.....	.....	8.87
5 5/8	.....	1.62	2.16	3.24	11 1/8	.....	.....	.....	9.02
5 3/4	.....	1.67	2.23	3.35	11 1/4	.....	.....	.....	9.17
5 7/8	.....	1.73	2.31	3.46	11 3/8	.....	.....	.....	9.33
					11 1/2	.....	.....	.....	9.48
6	.....	1.78	2.38	3.57	11 5/8	.....	.....	.....	9.63
6 1/8	.....	1.84	2.45	3.68	11 3/4	.....	.....	.....	9.79
6 1/4	.....	1.90	2.53	3.80	11 7/8	.....	.....	.....	9.94
6 3/8	.....	1.95	2.61	3.91					
6 1/2	.....	2.02	2.69	4.03	12	.....	.....	.....	10.10

To convert discharge to miner's inches, multiply discharge in cubic feet per second by 50.



Month of ..... 19 .....

NOTE—Figures to be given in cubic feet per second for 24-hour periods, or 24-hour second feet. Give name of owner of water rights, not tenant.

Name of Present Owner	Address	Water Right Ident. No.	Amount Second Feet (cfs)	DAYS OF MONTH 1	15	3 May 4	30 5	Acres Cultivated	Sec.	Twp.	Rge.
Middle Valley					1.35		1.45				
Allison-Jewett					.20		.30				
Cambridge Ditch					.00		.39				
Goodrich Ditch					~~1.10~~		~~.96~~				
Middle Fork					1.10		.96				
Haun Ditch					.00		.00				
T. J. Glenn					.00		.00				
Osborn-Groome					.00		.00				
Farmers Canal					.00		.00				
Robertson Sevey					.12		.39				
East Fork					.00		.00				

Month of ..... 19 .....

NOTE—Figures to be given in cubic feet per second for 24-hour periods, or 24-hour second feet. Give name of owner of water rights, not tenant.

Name of Present Owner	Water Right Ident.	Amount 2nd Feet (cfs)	DAYS OF MONTH 6	15	June	30	10	11	15	July	30	Acres Cultivated	Sec.	Twp.	Rge.
Middle Valley				1.43		1.38			1.78		1.80				
Allison Ferme				.52		.82			.89		.77				
Cambridge L				.98		1.09			1.29		1.17				
Goodrich L				.82		.82			1.18		.75				
Middle Fork				.79		.00+			.68		.62				
Haun Dit				.00+		.00+			.00+		.47				
T. J. Glen				.63		.80			.96		.72				
Osborn-G				.24		.32			.42		.35				
Farmers Co				.39		.55			.44		.40				
Robertson				.72		.81			.77		.98				
East Fork				.64		.61			.60		.68				

Month of ..... 19 .....

NOTE—Figures to be given in cubic feet per second for 24-hour periods, or 24-hour second feet. Give name of owner of water rights, not tenant.

DAYS OF MONTH

Name of Present Owner	Water Right Ident.	Amount (cfs)	16	15	Aug	30	20	21	22	23	24	25	Acres Cultivated	Sec.	Twp.	Rge.
Middle Valley				1.61		1.78										
Allison Ferve				.98		.76										
Cambridge L				1.30		1.12										
Goodrich L				.84		.61										
Middle Fork				.51		.60										
Haun Ditch				.605		.59										
T. J. Glen				.52		.49										
Osborn-G				.33		.20										
Farmers Ca				.33		.45										
Robertson				.96		.99										
East Fork				?*		.54										
				Fair, Not able to access												

Time of Water Master and Assistants

MONTH OF .....

NAMES	1	2	3	4	5	6	7	8
	9	10	11	12	13	14	15	16
	17	18	19	20	21	22	23	24
	25	26	27	28	29	30	31	Total

REMARKS

THE SUBMERGED ORIFICE

This form of measuring device is illustrated on page 19. The submerged orifice may be used where physical conditions or lack of fall in ditch make it impracticable to use a weir. The essential requirements in setting and the methods of using the submerged orifice are as follows:

1. The front should be set at right angles to the direction of the flow and in a perpendicular position.

2. The orifice opening should be rectangular and have sharp edges. It should have an area of one square foot or 144 square inches, or an easy multiple thereof, to conform to standard discharge tables.

3. The depth of submergence (the distance from the water surface to the top of the orifice opening) should not be less than the height of the orifice opening, and more is desirable.

4. The bottom of the orifice opening should be not less than the height of the orifice opening above the grade of the ditch—to prevent silt from obstructing the opening.

5. With the orifice two gages are required, indicating the level of water on each side of the orifice opening. The difference between these two elevations is called the effective head, which should not be less than one inch.

6. Care should be taken at all times to see that the submerged opening is not obstructed by trash or silt.

The discharge of the submerged orifice is found by first obtaining the effective head, then looking down the left-hand column of the table printed on page 18, till you find this particular effective head, and then across to the discharge column. As this discharge is computed for an opening of one square foot only, any other size opening must be computed as a fraction, or multiple of this discharge.

Discharge of Submerged Rectangular Orifices in Cubic Feet per Second

Discharge computed for head in inches

Effective Head in Inches	Discharge in Sec. Feet	Effective Head in Inches	Discharge in Sec. Feet	Effective Head in Inches	Discharge in Sec. Feet
½	.999	4⅜	2.956	8¼	4.059
⅝	1.117	4½	2.998	8⅜	4.090
¾	1.224	4⅝	3.039	8½	4.120
⅞	1.322	4¾	3.080	8⅝	4.150
		4⅞	3.120	8¾	4.180
1	1.413			8⅞	4.210
1⅛	1.499	5	3.160		
1¼	1.580	5⅛	3.200	9	4.239
1⅜	1.656	5¼	3.238	9⅛	4.269
1½	1.731	5⅜	3.276	9¼	4.298
1⅝	1.801	5½	3.314	9⅜	4.311
1¾	1.869	5⅝	3.352	9½	4.356
1⅞	1.935	5¾	3.388	9⅝	4.385
		5⅞	3.425	9¾	4.412
2	1.998			9⅞	4.440
2⅛	2.060	6	3.461		
2¼	2.120	6⅛	3.496	10	4.469
2⅜	2.178	6¼	3.533	10⅛	4.496
2½	2.235	6⅜	3.566	10¼	4.524
2⅝	2.289	6½	3.603	10⅜	4.551
2¾	2.343	6⅝	3.635	10½	4.579
2⅞	2.396	6¾	3.671	10⅝	4.606
		6⅞	3.706	10¾	4.633
3	2.448			10⅞	4.661
3⅛	2.498	7	3.739		
3¼	2.547	7⅛	3.772	11	4.686
3⅜	2.596	7¼	3.805	11⅛	4.713
3½	2.644	7⅜	3.838	11¼	4.739
3⅝	2.690	7½	3.870	11⅜	4.765
3¾	2.736	7⅝	3.913	11½	4.792
3⅞	2.782	7¾	3.934	11⅝	4.817
		7⅞	3.965	11¾	4.844
4	2.826			11⅞	4.869
4⅛	2.870	8	3.997		
4¼	2.913	8⅛	4.028	12	4.895

To convert discharge to miner's inches, multiply discharge in cubic feet per second by 50.

Above discharges are for an area of orifice of one square foot.