

MEMORANDUM

Date: June 4, 2009
To: Water Right File 22-7349
From: Aaron Marshall
Re: Licensing Review

IDWR approved application for permit 22-7349 on November 17, 1981, for irrigation of 919 acres at a maximum diversion rate of 5.00 cfs from the Teton River in the NW¼NE¼ Section 3, Twp 06N, Rge 44E. A condition of approval requires that, "a measuring device of a type approved by the Department shall be permanently installed and maintained as part of the diverting works."

IDWR received the permit holder's proof of beneficial use statement on May 16, 1985. The permit holder indicated that a measuring device was installed.

IDWR staff conducted a field examination for permit 22-7349 on August 20, 1999. A flow measurement was subsequently completed on June 9, 2003. The examiner found beneficial use for irrigation of 879.1 acres. The maximum instantaneous diversion rate observed by the examiner was 1.34 cfs, however, the ten-minute average flow measurement was 1.29 cfs. The examiner described the point of diversion from the Teton River as Lot 2 (NW¼NE¼) Section 3, Twp 06N, Rge 44E. The examiner noted that a measuring device was not installed as part of the diverting works. Since two separate pumps are connected to the same electricity meter, a power consumption coefficient is not adequate to determine the diversion rate for this system. The examiner recommended a license for irrigation of 879.1 acres at a maximum diversion rate of 1.34 cfs and an annual volume of 531.6 acre-feet. The examiner noted that the place of use also receives water under water right 22-7373 and from Fremont-Madison Irrigation District.

Infrared satellite imagery¹ taken in 1985 shows a total irrigated area of approximately 856.1 acres within the authorized place of use (see attached map). In 40-acre tracts with 10 or more irrigated acres, I rounded acreage values to the nearest whole acre, per IDWR standards, resulting in a total of 857 acres.

The maximum instantaneous rate of diversion observed by the examiner was 1.34 cfs. The average rate of diversion measured over a ten-minute period was 1.29 cfs. A minimum measurement period of ten minutes is necessary to compensate for measuring device inaccuracies and configuration variability in measuring closed-conduit flow.

The standard season of use for irrigation in this area is from April 15 through October 31, a period of 200 days. The annual diversion volume for this right should be limited to 512 acre-feet (1.29 cfs x 1.9835 af/cfs/day x 200 days) when rounding to three significant figures.

The permit holder provided evidence that a measuring device is permanently installed on the pipeline that delivers water from the river to the place of use (see attached data sheet). The measuring device, McCrometer model M0312, measures both the instantaneous diversion rate and total diversion volume.

The license for right 22-7349 should be issued with a maximum diversion rate of 1.29 cfs and a maximum annual diversion volume of 512 acre-feet for irrigation of 857 acres from April 15 through October 31. The place of use for water right 22-7349 is partially overlapped by ground water right 22-7373 and also receives water from the Fremont-Madison Irrigation District. Water right 22-7373 authorizes irrigation of 4 acres not developed under water right 22-7349 in the W½SE¼ of Section 34, Twp 07N, Rge 44E. Therefore, the license should be conditioned so the use of rights 22-7349 and 22-7373 when combined shall not exceed the irrigation of 861 acres.

¹ Imagery projection is offset approximately 500 feet west in relation to the overlying PLSS boundary lines

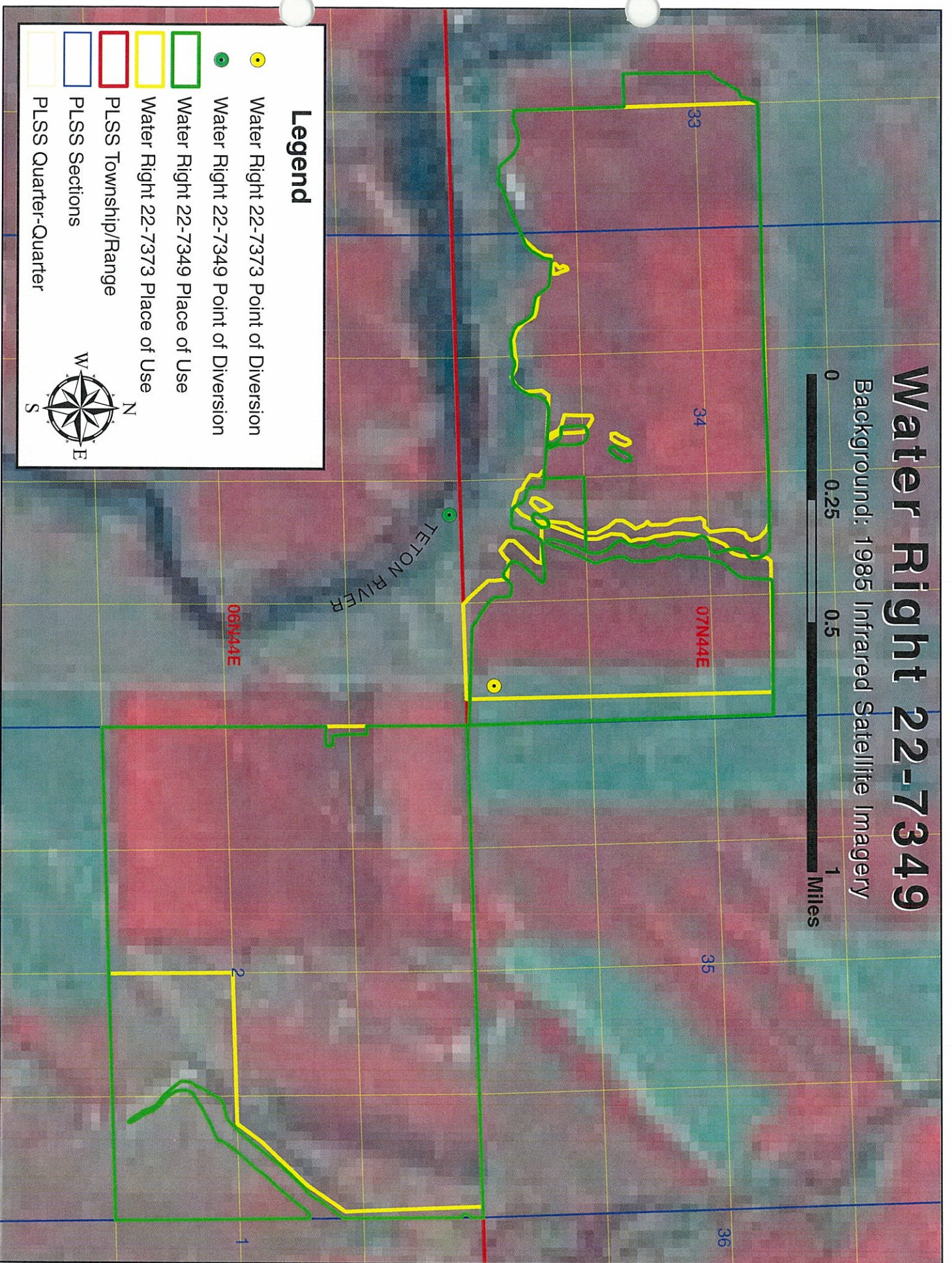
Water Right 22-7349

Background: 1985 Infrared Satellite Imagery



Legend

- Water Right 22-7373 Point of Diversion
- Water Right 22-7349 Point of Diversion
- Water Right 22-7349 Place of Use
- Water Right 22-7373 Place of Use
- PLSS Township/Range
- PLSS Sections
- PLSS Quarter-Quarter



MODEL M0300

CONFIGURATION SHEET BOLT-ON SADDLE FLOWMETER

DESCRIPTION

The M0300 Bolt-On Saddle Flowmeter features a fabricated stainless steel saddle with McCrometer's unique drive and register design. The stainless steel saddle eliminates the fatigue-related breakage common to cast iron and aluminum saddles and provides unsurpassed corrosion protection. Fabricated stainless steel construction offers the additional advantage of being flexible enough to conform to out-of-true pipe. The Model M0300 is manufactured to comply with applicable provisions of American Water Works Association Standard No. C704-02 for propeller-type flowmeters. As with all McCrometer propeller flowmeters, standard features include a magnetically coupled drive, instantaneous flowrate indicator and straight reading, six-digit totalizer.

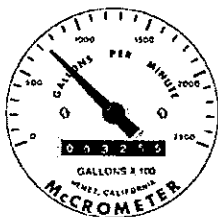
Impellers are manufactured of high-impact plastic, capable of retaining their shape and accuracy over the life of the meter. Each impeller is individually calibrated at the factory to accommodate the use of any standard McCrometer register, and since no change gears are used, the M0300 can be field-serviced without the need for factory recalibration. Factory lubricated, stainless steel bearings are used to support the

impeller shaft. The shielded bearing design limits the entry of materials and fluids into the bearing chamber providing maximum bearing protection.

The instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units. The register is driven by a flexible steel cable encased within a protective vinyl liner. The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flowrate indicator and totalizer.

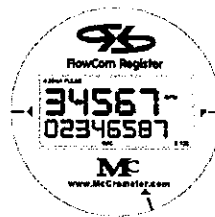
INSTALLATION

Standard installation is horizontal mount. If the meter is to be mounted in the vertical position, please advise the factory. A straight run of full pipe the length of ten pipe diameters upstream and two diameters downstream of the meter is recommended for meters without straightening vanes. Meters with optional straightening vanes require at least five pipe diameters upstream and two diameters downstream of the meter.



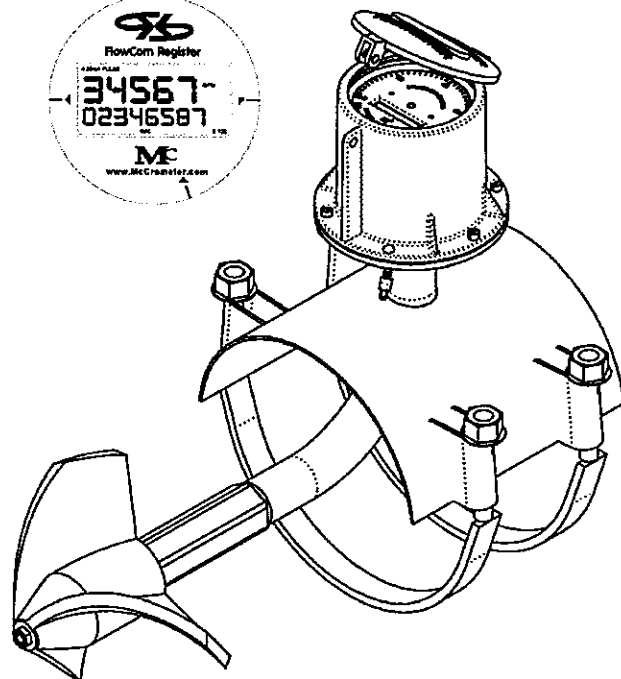
The McCrometer Propeller flowmeter comes with a standard instantaneous flowrate indicator and straight-reading totalizer. An optional FlowCom register is also available.

Typical face plates.



APPLICATIONS

- Center pivot systems
- Sprinkler irrigation systems
- Drip irrigation systems
- Golf course and park water management
- Gravity turnouts from underground pipelines
- Commercial nurseries
- Water and wastewater management



SPECIFICATIONS**PERFORMANCE**

ACCURACY/REPEATABILITY: $\pm 2\%$ of reading guaranteed throughout full range; $\pm 1\%$ over reduced range; Repeatability 0.25% or better

MAXIMUM TEMPERATURE: (Standard Construction) 160°F constant

PRESSURE RATING: 150 psi

MATERIALS

BEARING ASSEMBLY: Impeller shaft is 316 stainless steel. Ball bearings are 440C stainless steel.

MAGNETS: (Permanent type) Cast or sintered Alnico

BEARING HOUSING: Brass; Stainless Steel optional

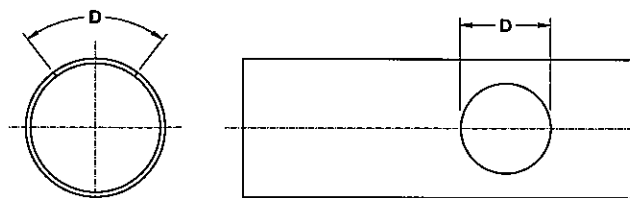
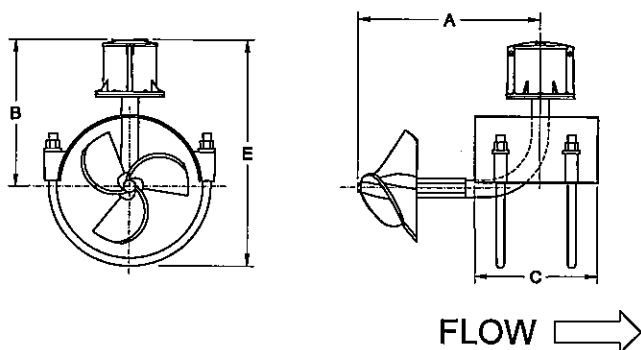
SADDLE: 304 stainless steel construction

REGISTER: An instantaneous flowrate indicator and six-digit straight-reading totalizer are standard. The register is hermetically sealed within a die cast aluminum case. This protective housing includes a domed acrylic lens and hinged lens cover with locking hasp.

IMPELLER: Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter. High temperature impeller is optional.

OPTIONS

- Saddle can be constructed to fit any outside diameter pipe dimensions, including metric sizes
- Can be used on a variety of pipe materials such as steel, plastic, cast iron, cement or asbestos cement
- Register extensions
- All stainless steel bearing assembly
- High temperature construction
- "Over-Run" bearing assembly for higher than normal flowrates
- Electronic propeller meter available in all sizes of this model
- A complete line of flow recording / control instrumentation
- Blank repair saddle



Meter Tube Installation Cut-Out Detail

M0300	DIMENSIONS						
Meter and Nominal Pipe Size	4"	6"	8"	10"	12"	14"	16"
Maximum Flow U.S. GPM	600	1200	1500	1800	2500	3000	4000
Minimum Flow U.S. GPM	50	90	100	125	150	250	275
Approx. Head Loss in Inches at Max. Flow	23.00	17.00	6.75	3.75	2.75	2.00	1.75
Approx. Shipping Weight-lbs.	18	22	26	30	34	38	44
A (inches)	7 5/8	15	15	15	15	15	15
B (inches)	8 1/4	10 3/4	10 3/4	10 3/4	11 3/4	13 3/4	13 3/4
C (inches)	7	8	8	9 1/2	9 1/2	9 1/2	9 1/2
D (inches)	4*	5 1/8*	6*	7*	7 1/4	7 1/4	7 1/4
E (inches)	10 3/4	14	15	17	19	20 5/8	21 5/8

For larger sizes see Model M1400.

McCrometer reserves the right to change design or specification without notice.

*Standard pipe only. For other than standard pipe, consult factory for cutout dimensions. Please specify the inside diameter of the pipe when ordering.

FOR MORE INFORMATION CONTACT: