

Test of Two Inch Water Meter. July 1960.

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THE UNIVERSITY OF NEW SOUTH WALES
WATER RESEARCH LABORATORY



REPORT No. 22

Test of Two Inch Water Meter.

by

R.T. Hattersley

JULY, 1960.



The University of New South Wales

WATER RESEARCH LABORATORY

REPORT ON TEST OF TWO INCH WATER METER.

by

R.T.Hattersley

Report No.22
July 1960.

Description of Test

A two-inch enclosed type of used water meter was tested as received on 24th June 1960.

The test was carried out by connecting the meter into a three-inch diameter supply pipe with a two-inch gate valve on the upstream side of the meter. The downstream side was fitted with a three-inch hose outlet capable of discharging to a weigh tank. The discharge was weighed in batches varying between 367 lbs. and 417 lbs. approximately. The time for accumulation of each batch was timed by a stop watch. The periods of collection ranged from 22 seconds up to 265 seconds according to the rate being tested which was fixed by adjustment of the stop valve. The rates per hour calculated from the batch weights and times were averaged for each flow setting and the average was compared with the meter readings. The meter readings were taken from the dial system of the meter at timed intervals of about fifteen minutes. The time was measured within one second in each instance.

Accuracy

The timing of the weighed discharge is accurate to 1/10 of one second and the weight measurement to 1/2 pound. The temperature of the water which was constant throughout the test was read to 0.5° Fah. All volumetric readings have been converted to weight measurement on the basis that 1 imperial gallon equals 10.015 pounds of water at 53.5° Fah.

The overall accuracy of weight measurement is therefore expected to be between 0.1 per cent for lowest rates of flow up to 0.5 per cent for maximum rates of flow.

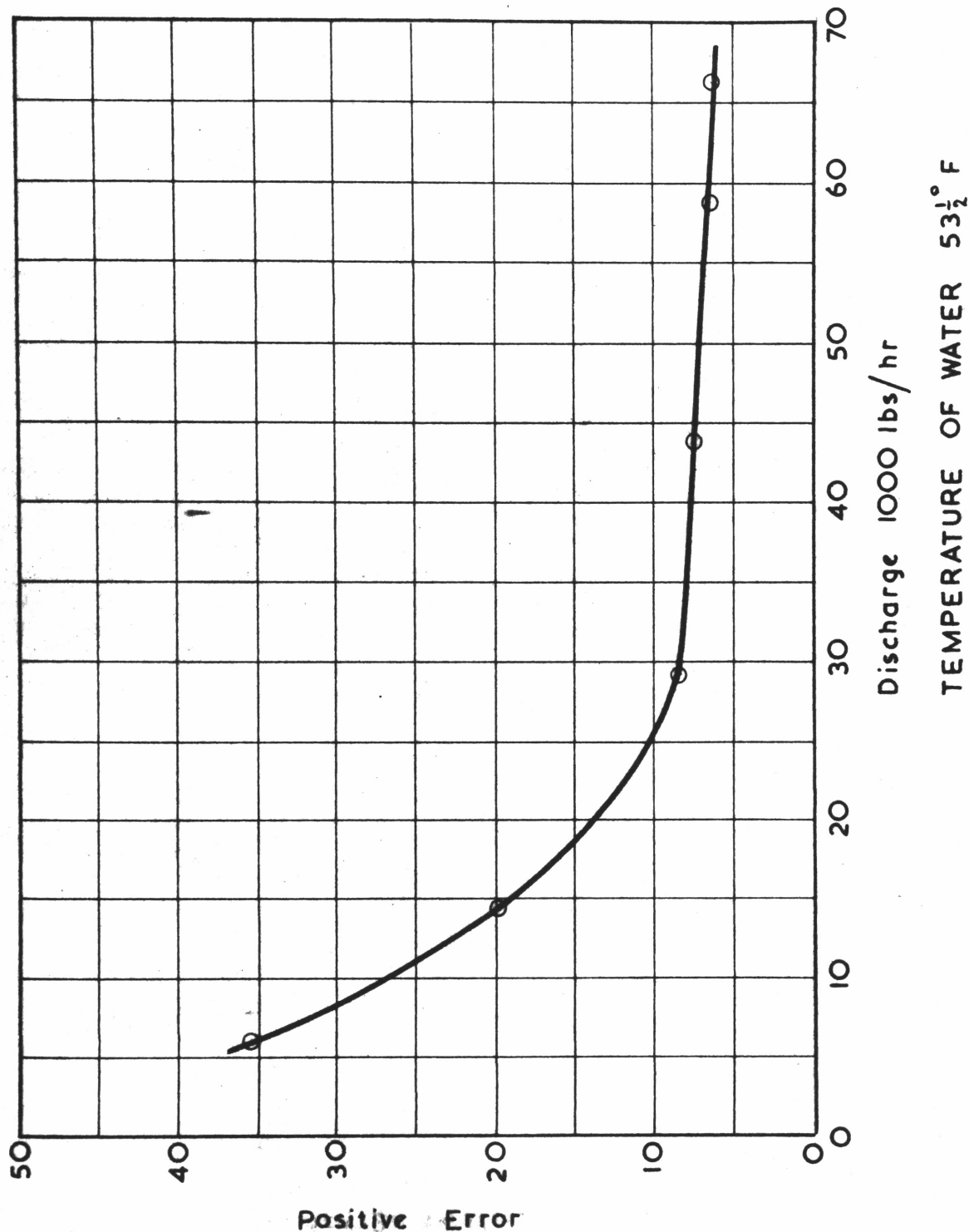
The meter was calibrated in gallons which were assumed to be imperial gallons. The dial of the meter was capable of being read on divisions to 10 gallons and by splitting divisions to an estimated 2 gallons. For each flow the meter was allowed to operate continuously for approximately 15 minutes. The readings ranged from 188 gallons to 1560 and the accuracy of reading is estimated to lie between 1.0 per cent for low rates of flow and 0.13 per cent at the maximum rate of flow. The percentage of inaccuracy of the meter based on the discharge as weighed, shown plotted in the accompanying graph, is estimated to be correct within 0.9 per cent at the lowest rate of flow and 0.4 per cent at the highest rate of flow.

At all times the meter readings were in excess of the quantities obtained by weighing the discharge and the error as given by the curve shown in the diagram is therefore shown as positive.

Remarks and Conclusions

It was noted during reading of the dial of the meter that mistaken readings on this meter were likely if the "100" digit dial was read without careful regard to the hand on the 10 digit dial there being no mechanism to move the "100" digit forward in a single step or jump.

The test showed excess readings on all flows in the range 5000 pounds per hour up to 70,000 pounds per hour. The percentage of excess recorded at 50,000 pounds per hour was 6.7 per cent.



THE UNIVERSITY OF NEW SOUTH WALES WATER RESEARCH LABORATORY		
FOR INTERNATIONAL COMBUSTION AUST. LTD. RYDALMERE. TEST OF 2" METER	Scale:	Date: 7.7.60
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	Traced: P.A.	
	Checked: <i>[Signature]</i>	