Head losses in irrigation outlets. December 1959.

Author:
Vallentine, H.R.

Publication details:
Report No. UNSW Water Research Laboratory Report No. 11

Publication Date:
1959

DOI:
https://doi.org/10.4225/53/5795a54bf20e8

THE UNIVERSITY OF NEW SOUTH WALES

WATER RESEARCH LABORATORY

REPORT No. 11

Head Losses in Irrigation Outlets

by

H.R. Vallentine.

https://doi.org/10.4225/53/5795a54bf20e8

DECEMBER, 1959.

THE UNIVERSITY OF NEW SOUTH WALES

WATER RESEARCH LABORATORY.

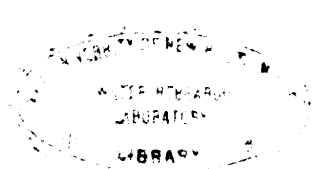
REPORT ON

HEAD LOSSES IN IRRIGATION OUTLETS

by

H.R. Vallentine

Report No. 11
December 1959.



REPORT ON

HEAD LOSSES IN IRRIGATION OUTLETS

INTRODUCTION:

Tests were undertaken at the Water Research Laboratory for James Hardie and Co.Pty.Ltd. to determine the head losses in flow through each of three types of irrigation outlet.

1. The type in current use.
2. Proposed type (A), with a 2" valve.
3. Proposed type (B), with a $2\frac{1}{2}$" valve.

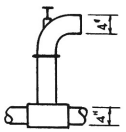
METHOD OF TEST:

Each outlet was tested separately, with the outlet valve wide open, the discharge being to atmosphere. The flow rate was controlled by a valve upstream in the 4" asbestos-cement supply line. The head loss was determined by deducting the discharge velocity head from the total static head (pressure head plus velocity head) measured by a piezometer tapping in the blanked off side of the "straight-through" portion of the outlet.

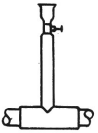
RESULTS:

The current model showed the lowest head loss over a range of flows from 50 to 300 gpm. Model A, with the 2" valve showed the greatest head loss and the losses for Model B were intermediate between those of the current model and Model A.

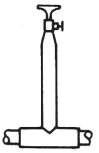
The test curves are shown on the attached graph.



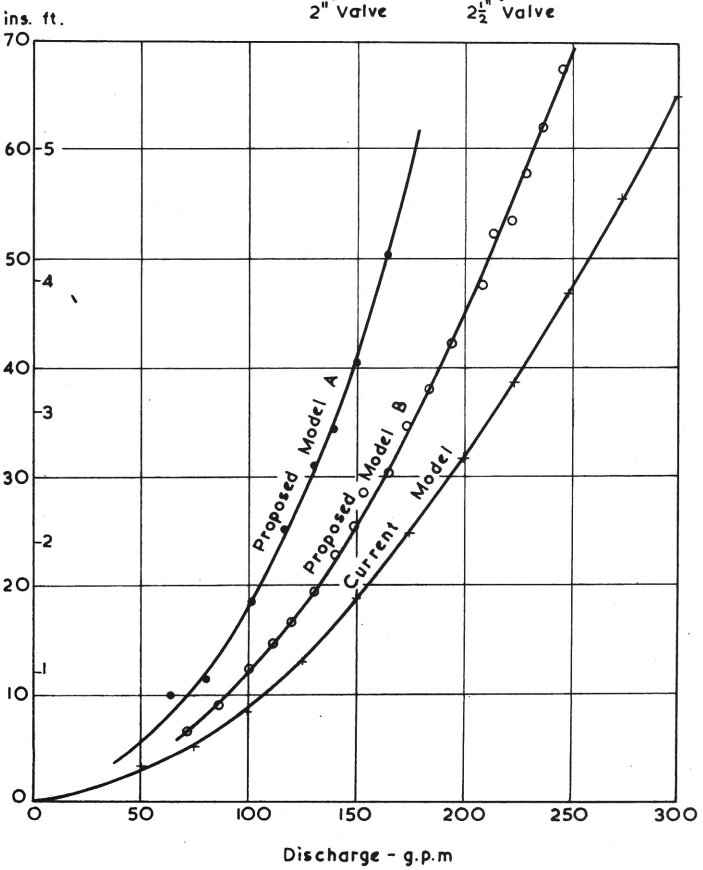
Current Model



Proposed Model (A) 2" Valve



Proposed Model (B) $2\frac{1}{2}$" Valve



TESTS CARRIED OUT FOR JAMES HARDIE & CO. PTY. LTD.

THE UNIVERSITY OF NEW SOUTH WALES
Water Research Laboratory

HEAD LOSSES IN IRRIGATION OUTLETS

Drawn : B.W.P.
Checked : [signature] 3-12-59

CE-E-631