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^a Discussion period closed for this paper. Any other discussion received during this discussion period will be published in subsequent Journals.

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INFORMATION RETRIEVAL

The key words, abstract, and reference "cards" for each article in this Journal represent part of the ASCE participation in the EJC information retrieval plan. The retrieval data are placed herein so that each can be cut out, placed on a 3 x 5 card and given an accession number for the user's file. The accession number is then entered on key word cards so that the user can subsequently match key words to choose the articles he wishes. Details of this program were given in an August, 1962 article in CIVIL ENGINEERING, reprints of which are available on request to ASCE headquarters.

5705 REVIEW OF CAVITATION RESEARCH ON VALVES

KEY WORDS: cavitation; hydraulics; pipes (tubes); valves

ABSTRACT: Critical cavitation indices are presented for a 12-in. ball and a 12-in. butterfly valve installed in a closed conduit system with a sudden expansion downstream of the valves. Tests were conducted under normal operating conditions. In addition, tests were conducted to find the effect of injecting air and water at various locations on the critical cavitation index. It was found that injecting water into the sudden expansion below the valves does not affect the cavitation. However, injecting small quantities of air into the separation zones below the valves does materially reduce the cavitation intensity and hence the critical cavitation index.

REFERENCE: Tullis, J. Paul, and Marschner, B. W., "Review of Cavitation Research on Valves," Journal of the Hydraulics Division, ASCE, Vol. 94, No. HY1, Proc. Paper 5705, January, 1968, pp. 1-16.

5707 BRIDGE PIERS—HYDRODYNAMIC FORCE COEFFICIENTS

KEY WORDS: bridge piers; coefficients; drag; hydraulics; lift; models; open channel flow

ABSTRACT: The forces experienced by models of three different types of bridge piers have been measured for angles of inclination between the stream flow and the pier axis in the range 0° to 50° , and the results are presented in the form of drag coefficients and lift coefficients. The types of pier tested were a plate pier, dumb-bell piers, and twin cylinder piers. The values obtained for the lift coefficient for the first two types were large, their magnitudes generally falling between one and two for angles of inclination in excess of 10° , whereas those obtained for the third type were relatively small. The forces measured for all pier types possessed fluctuating components the characteristics of which are described. The fluctuating components experienced by the dumb-bell and twin cylinder piers were generally quite large and complex. The relevance of the model results to prototype conditions is discussed and it is concluded that the force coefficients obtained can be used for preliminary design calculations.

REFERENCE: Apelt, Colin J., and Isaacs, Lewis T., "Bridge Piers—Hydrodynamic Force Coefficients," Journal of the Hydraulics Division, ASCE, Vol. 94, No. HY1, Proc. Paper 5707, January, 1968, pp. 17-30.

5717 SUCCESSFUL ICE DUSTING AT FAIRBANKS, ALASKA, 1966

KEY WORDS: dusting; flood control; hydraulics; ice; solar radiation; snow

ABSTRACT: The ice and snow cover of the Chena River was dusted with coal dust and fly ash in the spring of 1966 to increase the absorption of solar energy and hasten melting. Because of a near-record snowfall during the winter of 1965-1966, a good deal of concern was felt for the flood damage which would result if an ice jam were to form at the mouth of the Chena River just downstream from Fairbanks. It was hoped that dusting would increase the absorption of the solar radiation to sufficiently weaken and melt the ice to prevent a jam. Theoretically, dusting could increase the radiation absorbed at breakup time in Fairbanks enough to melt an additional 2 cm of ice per day. Measurements of melting rates made in the dusted and clean sections of the river and observations of the river during breakup showed that dusting apparently had a significant beneficial effect. Because of its specific nature and lack of control, this experiment cannot be considered conclusive.

REFERENCE: Cook, R. Gordon, and Wade, Mason D., Jr., "Successful Ice Dusting at Fairbanks, Alaska, 1966," Journal of the Hydraulics Division, ASCE, Vol. 94, No. HY1, Proc. Paper 5717, January, 1968, pp. 31-41.