

Paper No. 6302

**The use of the freezing process in the construction of a pumping station
and storm-water overflow at Fleetwood, Lancashire †**

by

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and

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Discussion

Mr C. M. Strachan (Manager, The Northern Civil Engineering and Harbour Construction Co. Ltd) observed that a contractor who priced a job under the present British system of competitive tendering was in a dilemma. His price must be lower than that of other contractors in order to secure him the work and yet high enough to allow for something going wrong.

90. Assuming that the price of £43,046 (§ 15) was a truly competitive one then the contractor had presumably based his estimate on the programme proposed and had been glad to find that the excavation of the pumping chamber could be carried out very much as expected with only a few minor snags. It was when he had come to tackle the storm-overflow chamber that "the estimate of these difficulties was grossly exceeded" (§ 12). In fact, it would seem that instead of taking 3 months (from the 17th to 30th week (§ 17)) the operation had, in fact, taken about 15 months. The Paper showed a commendable co-operation between clients, consultants, and contractors to tackle the difficulties as they arose.

91. Had the contractors been paid in accordance with their priced bill of quantities or had some allowance been made to them for delays and the extra difficulties encountered under I.C.E. General Conditions of Contract Clause 12 (2)? What was the final cost of the freezing and civil engineering work compared with the contract figures of £14,000 and £43,046 (§ 15)?

The Authors, in reply, stated that the civil engineering contractors, Harbour and General Works Ltd, had been paid for all work in the pumping chamber in accordance with their priced Bill of Quantities. The difficulties which had arisen in the overflow chamber had been taken into account by paying the civil engineering contractors on a cost-plus basis for the additional works and delays which had been involved. The freezing contractors, Foraky Boring and Shaft Sinking Co., Ltd, had also been paid for the extra length of freezing which had proved to be necessary as a result of the difficulties encountered.

93. The total amounts paid to the civil engineering contractors and to the freezing contractors were respectively £70,400 and £26,900.

† Proc. Instn civ. Engrs, vol. 12, p. 175 (Feb. 1959).