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COMMUNICATION

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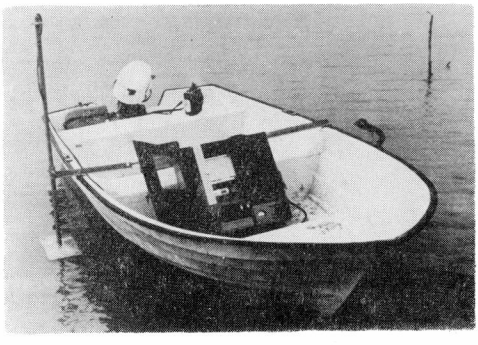
APPLICATION OF SP-405 ECHO-SOUNDER IN OBSERVATIONS OF DISTRIBUTION OF FLOTATION WASTES IN SETTLING PONDS

Bathymetric measurements of supernatant water by means of echo-sounder were undertaken by the Department of Environment Protection of the Research and Design Institute „Cuprum" in 1975, while working on the water balance for settling ponds.

These measurements had to be continued because of the inadequacy of the data provided by aerophotography, as such photographs do not present the distribution of wastes within the water area. A map of water area based on bathymetric measurements is a necessary completion of the map made by photogrametric methods. The way in which copper ore flotation wastes are distributed in settling ponds has some disadvantages. It appears namely that most part of waste material is sedimented in a close neighbourhood of the points of discharge and forms a large „beach", while the remaining wastes (about 20–25%) are deposited under the water (in the area of supernatant water).

This phenomenon together with a fairly hig retention of water, led to the formation of a large area of cleared water which takes a great part of the tank capacity. In order to make use of this capacity the investigations on the water balance of the pond and the observations of the distribution of various copper ore flotation wastes within supernatant water area have been undertaken. These investigations were carried



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out with the help of an SP-405 echo-sounder placed on a surveing boat. During the measurements the boat was propelled with a I. C. engine to ensure a constant speed in the given direction. The measurements were conducted continuously along constant cross-section lines, and the depth was recorded graphically. Cross--sections taken at every 0.5 m and marked on the graph had to be subsequently reduced according to the assumed scale of the map. The points obtained on the map allowed to draw isohypes of wastes within the water area. Bathymetric measurements made by an echo sounder, especially in final exploitation stage of the pond, provide a valuable information about actual reserve capacity of the whole pond and its separate parts.

The measurements of water depth in the tank taken so far by a sounder with weight, were random, labour-consumming and lacked accuracy. Due to the application of the echo-sounder the configuration of wastes under the water could be determined precisely, the time of measurements shortened, and the calculations of actual reserve of the pond made on the ODRA 1325 computer. The reduction of water area is also much important for the restriction of underground water pollution due to a lower infiltration through the bottom of the pond.

The Sanitary and Environmental Protection Engineering Institute of the Kraków Technical University is organizing an international Scientific Symposium: *Advanced Wastewater Treatment Technology*, on 14–16 September 1978.

The following topics will be represented in groups:

- methods o water recovery from wastewaters;
- high-rate biological wastewater treatment processes;
- tertiary treatment;
- removal of nutrients, refractory organics and specific pollutants minicipal and industrial wastewaters.

All interested professionals are invited. Inquiries should be addressed to the Sanitary and Engineering Institute, Kraków Technical University, Symposium Secretariat, 31-155 Kraków, Warszawska 24.