Summary of Discussion Session G-1 on Automation

C.T. ZEHNDER, Recorder, Chemetron Process Equipment Inc., PO Box 35600, Louisville, KY 40232

Discussion session chaired by S. Bruin; the panel consisted of K. Jokinen, C.B.C. von Klosterlein and C.T. Zehnder.

A three-part question was submitted relative to Mr. Jokinen's paper on automation of an extraction plant.

(a) What degree of success was achieved in the automation as related to quality improvement and control and reliability to produce continuously good quality?

It is felt that they have been able to produce quality product on a more consistent basis with reduced operator attention.

(b) What cost improvements have been realized and how was the initial capital investment affected by automation?

The initial capital investments for the new facility were not appreciably higher due to automation. However, there was no actual investigation made as to a comparison of plant costs based on a nonautomated plant. Further, insufficient time and effort has been spent to evaluate direct operating costs but they feel these have improved.

(c) Is there an opinion as to the minimum capacity plant for which automation can be justified?

The automated plant was a 500 MTD soybean plant, which was a first, and the general feeling was that size of plant would not be the only criterion for justifying automation. Other discussions emphasized that retrofitting existing plants with automation should consider such things as needs for replacement of old instrumentation, process improvements, and upgrading plant operating practices for quality reasons.

It was acknowledged that lack of on-line sensing/analyzing equipment was one of the greatest detriments to full-scale automation. It was reported that work is being carried out to seek ways to arrive at alternate condition controls for known variables and translate these to substitute for the desired control function. Sensor needs requiring development were generally suggested as on-line fatty acid determination, clarity, color, refractive index, cis-trans isomers, flavor, odor, etc.

General discussions ensued as to the best approach and/or procedures to follow in embarking on automation within a particular facility: i.e., "bottom up" or "top down" philosophy. The general consensus was for quality control/process-engineering to identify needs, initiate investigations, arrive at advantages, disadvantages, costs, etc., then review and/or sell to production. This can take many steps and of course needs the general blessings of management before the final commitment.