

# COMPRESSOR FIELD PERFORMANCE EVALUATION TECHNIQUES

by

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*John M. Beaty graduated from the State University of Iowa in 1962, with a B.S. degree in Mechanical Engineering. He joined Allis-Chalmers in the same year where he was assigned to various compressor design, test and site troubleshooting activities. He then joined Elliott Company (now United Technologies-Elliott) in Jeannette, Pennsylvania in 1967, where he is presently senior development engineer in the Compressor Development Department. His work is on new compressor stage development and testing programs. He spent six years in the Elliott Service Company as an aerodynamic engineering specialist assigned to worldwide aerodynamic troubleshooting. This background of service experience is particularly useful in his present compressor development position.*

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## ABSTRACT

During the course of this presentation on field perform-

ance evaluation techniques, a variety of turbomachinery field performance situations will be explored, including:

- Guarantee — acceptance tests,
- Benchmark tests, and
- Aerodynamic performance question tests.

For these tests, suggested ideas and guidelines for their preparation, implementation, and performance evaluation will be presented. Specific discussion topics will include:

- When to approach the manufacturer with performance questions, and where to go.
- Avoiding basic instrumentation pitfalls.
- Factors affecting field test accuracy.
- Gas sampling techniques for difficult gas mixtures.
- Understanding what process flow meters are indicating.
- Performance deterioration causes and means of preventing.
- Power balances and torquemeters.