

## **Curriculum Vitae of ROBERT T. BELL**

Failure Analyst Principal, Bell Evaluation Laboratory

Robert T. Bell has been a Failure Analyst with the firm of Bell Evaluation Laboratory since 1970. Bell Evaluation Laboratory, a failure analysis laboratory in its present location since 1980, uses a multi-disciplinary approach to determine the various roles that design, manufacture, material, specification and/or procedures may play in the cause of a failure or an unexpected event. Failure analyses performed at Bell Evaluation Laboratory may include testing and event reconstruction when feasible.

### **Education**

#### **Master of Science in Chemical Engineering**

University of Mississippi, Oxford, Mississippi, 1960

Thesis topic: Viscosity-Refractive Index Correlation of Binary Mixtures

#### **Bachelor of Science in Chemistry**

Mississippi College, Clinton, Mississippi, 1957

#### **Advanced Studies**

University of Houston, Houston, Texas

Washington University, St. Louis, Missouri

#### **Short courses sponsored by American Society for Metals and National Association of Corrosion Engineers**

Subjects: Corrosion Theory, Corrosion Control, Corrosion of Ferrous Metals, Stainless Steel, Metallurgy, Heat treating, and High Temperature Steel

#### **Short courses sponsored by American Institute of Chemical Engineers**

Subjects: Methods for Calculating of Fire & Explosion Hazards, Fundamentals of Fire, and Explosion Hazard Evaluation.

#### **Professional Society Memberships & Certifications**

American Institute of Chemical Engineers (AIChE)

National Association of Pipe Coating Applicators (NAPCA), Associate Member

American Society for Testing of Materials (ASTM), Associate Member

National Association of Corrosion Engineers (NACE), Associate Member

Engineering School Advisory Board (EAB) – University of Mississippi

## **Professional Activity**

Co-authored or presented technical papers at National Association of Corrosion Engineers (NACE) national symposiums on:

- 1) Failure Analysis of Coatings
- 2) Fusion Bonded Epoxy Powder-What Constitutes a Failure
- 3) Quality Control of Coatings
- 4) TE/GC/MS Characterization of Polymers

## **Work Experience**

### **Failure Analyst**

Bell Evaluation Laboratory, Houston, Texas, 1969-Present

In the role of Failure Analyst with Bell Evaluation Laboratory, the analyst conducts an investigation to determine the cause(s) of a wide variety of failures including mechanical devices, materials, processes and procedures. As a portion of the failure analysis, the subject's design is studied and evaluated. This analysis process generally utilizes a multi-disciplinary forensic approach to develop, test and prove a failure mechanism theory.

This process may include the use of standardized test procedures in conjunction with the use of physical and analytical testing and/or the custom design of a test or test apparatus to study an event or event sequence. The results of this analysis may then be modeled or otherwise reconstructed to validate the hypothesis, or for demonstrative purposes.

Mr. Bell's background, experience and education in chemistry, chemical engineering, metallurgy, petro-chemical processes and equipment, corrosion and corrosion control, protective coatings and extensive study and work in the fire sciences, provide the multi-disciplinary knowledge base on which the failure analysis can proceed. Mr. Bell is called upon regularly to offer expert testimony regarding the results of these failure analyses.

### **Technical Representative**

Reliance Universal, Houston, Texas, 1966-1969

As a Technical Representative for an industrial coatings manufacturer, Mr. Bell wrote material and application specifications for a wide variety of coating products. He responded to customer requests regarding technical information and provided technical support in the field to resolve application and material problems on the job site. Mr. Bell served as liaison between the field and the lab and aided with product formulation and improvement.

**Senior Engineer & Group Leader**

Monsanto Chemical Company, Texas City and Alvin, Texas, 1960-1966

Mr. Bell worked within the Corrosion and Metallurgy Department at Monsanto which functioned as the company's in house failure analysis laboratory. This department was responsible for determining how and why all material and equipment failures occurred in the plant(s). Mr. Bell's responsibilities included actual performance of inspection activities and development of inspection procedures and quality control measures.

Mr. Bell developed and wrote specifications regarding welding, heat treating, painting, heat exchanger component maintenance and material specifications for specific process related needs such as corrosion resistance and mitigation. Mr. Bell also conducted both laboratory and field tests to evaluate protective coating systems for internal (immersion) and external service. These tests were made the basis of Monsanto's paint selection criteria for the maintenance painting program.

This experience provided the opportunity to identify a problem or failure, determine the cause of the failure, recommend the necessary changes to correct the problem and follow through to insure that the remedy was ultimately effective.

**Process Development Engineer**

Thiokol Chemical Corporation, Solid Rocket Propellant Division Redstone Arsenal, Huntsville, Alabama, Summers 1957-1959

**Chemist**

Shell Oil Company Analytical & Experimental Laboratory, Deer Park, Texas, Summer 1956

**Contact Information**

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