

Terry Lynn Payne, Ph.D., P.E.

1316 Mark Joseph Lane
Knoxville, TN 37931-4999

865-604-8254 (cell)
PAYNETL@ORNL.GOV

Career Objective A position that utilizes my leadership, managerial and engineering skills to achieve mission critical objectives.

Management Maxims

- ❖ Have a bias for action.
- ❖ Set clear objectives, provide necessary resources, remove obstacles to success, hold people accountable, and get out of the way.
- ❖ It is more important to be respected than to be liked.
- ❖ Give employees the right to be wrong.
- ❖ Micro-management does not scale.

Education

**1987-1992 University of Tennessee, Knoxville, Tennessee
Ph.D., Strategic Management of Technology**

- Dissertation Committee: Michael J. Stahl (Chair and Associate Dean), Dudley H. Dewhirst, William Q. Judge, Clement C. Wilson (Lockheed Martin Chair in Mechanical and Aerospace Engineering)
- Dissertation Title: *The Strategic Importance and Effectiveness of Key Decision Criteria in the Selection of Research Areas*
- Research Topics: using linear additive models to simultaneously evaluate quantitative and qualitative factors, R&D strategy effectiveness by industry, impact of corporate R&D expenditures on profitability for low price strategies vs. product differentiation strategies, business ethics

**1983-1985 University of Tennessee, Knoxville, Tennessee
M.S., Industrial and Systems Engineering**

- Advisors: Douglas H. Hutchison (Chair), W. Wayne Claycombe, Kenneth Kirby
- Area of Concentration: Reliability and Quality Engineering
- Thesis: *A Computer Algorithm for Optimizing the Location of Inspection Points in a Manufacturing Process*

**1978-1982 University of Tennessee, Knoxville, Tennessee
B.S., Industrial and Systems Engineering**

Personal Traits

Thinking: Employs a rational, logical approach that sorts through the pros and cons of various options and points-of-view, leading to the best possible conclusion.

Complex Decision-Making: Knows how to tease apart a complicated issue and come to a workable and efficient solution, often utilizing mathematical decision models.

Judgment: Is able to accurately assess a situation making the optimal decision come into focus.

Active Listening: Fully receives what others are saying, asks questions for clarity, and confirms understanding.

Team Building: Acquires, organizes and motivates the best resources to achieve each goal.

Talent Management: Developing and utilizing staff to assure their future value.

Professionalism and Work Ethic: Possesses good judgment and commitment.

Positive Attitude and Energy: Exhibits an optimistic outlook and energetic, organized behavior.

Summary of Career Highlights and Accomplishments

2009-present Oak Ridge National Laboratory, Oak Ridge, Tennessee **Senior R&D Program Manager**

Current: Support the development of a cost-effective domestic centrifuge process for uranium enrichment. Also, special assignments associated with reliability analysis/management and intellectual property management.

From 2009-2013

- Managed, first as Deputy CRADA Manager and later as CRADA Manager, the ORNL-USEC CRADA. Managed (i.e., plan, organize, staff, direct, coordinate, review and budget) a team of 20-25 ORNL research staff supporting Centrus (formerly the United States Enrichment Corporation, aka USEC) in their quest to develop and deploy an economically competitive uranium enrichment centrifuge. Primary technology areas in which ORNL provided support are advanced materials, instrumentation and controls, system optimization, chemical analyses, and advanced computing. Authored Annual CRADA Reports per DOE requirements. Valued at more than \$500 million, this is the largest CRADA in DOE history.
- Managed the activities of the Centrifuge Machine Reliability and Risk Management Department and oversee all technical reliability/risk management work performed, e.g., development of centrifuge-health monitoring diagnostic tool, cataloging centrifuge operating data changes as indicators of specific failure modes, development of FMECAs, management of XFRACAS database, reliability/availability forecasts based upon Bayesian analyses and Monte Carlo simulations.
- Performed special analyses of centrifuge early failure rates used to prepare commercial plant maintenance budgets and staffing requirements.
- Developed, documented and implemented a process for systematically improving centrifuge reliability that includes configuration management principles and monitors the status of individual centrifuges and subassemblies.
- Managed all intellectual property activities, from preparation of invention disclosures through patent filing.
- Managed risks associated with centrifuge development, e.g., risk associated with foreign procurements.
- Developed, proposed, wrote and managed centrifuge test plans (and test result documents) for assessing centrifuge component reliability, including Verification Test Machines and aggressive failure tests.
- OTHER: Program Manager for the ORNL Grid Innovation Leaders (GIL) Fellowship Program.

2007-2009 Oak Ridge National Laboratory, Washington, DC **Detailee to the Department of Energy Fuel Cell Program**

- Project manager for DOE-funded Proton Exchange Membrane (PEM) fuel cell development projects performed at various companies, universities and DOE National Laboratories. Primary research areas of responsibility included alternatives to platinum as a catalyst, fuel cells for portable applications, development of cost-effective membranes, and, impurities management technologies.
- Developed and implemented the DOE Technology Readiness Level (TRL) Program for hydrogen production, delivery and conversion.
- Participated in quarterly briefings with automotive industry R&D teams researching technical barriers to the use of hydrogen fuel cells in vehicles.
- Developed DOE Fuel Cell Program-funded solicitations for the DOE Office of Science SBIR-STTR Program.
- Participated in joint-initiatives with other Federal agencies intended to demonstrate and validate use of fuel cells for novel applications. For example, collaborated with the Department of Homeland Security, et al, on potential miniaturization of fuel cells for use as a power supply for surveillance equipment and use of fuel cells as a power source in disaster areas.
- OTHER: Supported ORNL FEMP Program, specifically participated on technical assistance projects both domestic and foreign, as well as providing special analyses to a DOE FEMP request.

2001-2007 Oak Ridge National Laboratory, Oak Ridge, Tennessee **Director of Economic Development**

- Through the transfer of ORNL technology and assistance in securing funding, assisted in the start-up of 81 businesses in a 6-year period.
- Assisted in the regional recruitment of businesses, including establishment of a Roane Regional Industrial Park, presently home to a Volkswagen Parts Distribution Center and a major wholesale foods distributor, among others.

- Established contracts between ORNL researchers and small businesses pursuing SBIR-funded contracts, resulting in funds-in for ORNL.
- Managed (i.e., planned, organized, staffed, directed, coordinated, reviewed and budgeted) the ORNL Technical Assistance Program, which provided funding for ORNL researchers to assist businesses.
- Facilitated creation of the Tennessee SBIR Proposal Center and promoted SBIR opportunities by hosting conferences throughout Tennessee.
- Participated in growth of the Tennessee Valley Corridor Economic Summits to include 4 states.
- Assisted in creation of the Center for Entrepreneurial Growth at Technology 2020.

**1997-2001 Oak Ridge National Laboratory, Oak Ridge, Tennessee
Laboratory Technology Research Program Manager**

- Managed the DOE-SC Laboratory Technology Research Program at ORNL.
- Obtained DOE funding for competitively evaluated research collaborations between ORNL and industry partners. As LTR Program Manager, guidance (in the form of proposal reviews and critiques) was provided to ORNL researchers enabling ORNL proposals to win at a much higher rate than any other laboratory. Also, the LTR Program won R&D 100 Awards at a higher rate per \$1M of funding than any other DOE program.
- Grew the ORNL LTR Program budget, increasing every year, from \$2M in 1997 to more than \$12M in 2001.
- Managed an LTR Program-funded technical assistance-to-industry program that funded ORNL researchers to provide up to 40 hours of technical assistance to industry.
- The LTR Program funded several multi-division projects including R&D in materials science, manufacturing processes, robotics, life sciences, sensors, et al.

**1995-1996 Oak Ridge National Laboratory, Oak Ridge, Tennessee
ORCMT Pollution Prevention Center Manager**

- Managed the Pollution Prevention Center for the Oak Ridge Centers for Manufacturing Technologies (ORCMT).
- Developed processes and technologies for minimizing the waste produced by manufacturing operations.
- Managed the hugely successful Navy Best Manufacturing Practices review of ORCMT capabilities.
- Catalogued ORNL and Y-12 capabilities germane to pollution prevention.

**1989-1995 Oak Ridge National Laboratory, Oak Ridge, Tennessee
Associate Director, Space and Defense Technology Program**

- Based on matches between special ORNL research capabilities and Air Force technology needs, developed ORNL business with the United States Air Force resulting in a growth in the technical support ORNL provided to the Air Force from <\$4M/year in 1989 to >\$20M/year in 1995.
- Utilized Work-for-Others contracts to supply the Air Force with technical solutions that met their needs.
- Projects included applications of technologies from the areas of advanced materials, lithium batteries, optics development, pollution prevention, et. al.

**1987-1989 Oak Ridge National Laboratory, Oak Ridge, Tennessee
Environmental Protection Engineer**

- Engineered and oversaw implementation of an Environmental Monitoring System that monitored all sources of ORNL liquid and gaseous effluents to the environment, including monitoring systems on stacks, ambient air monitors across the DOE reservation, and water monitors on streams. Data was collected by and stored on a central computer system located on the ORNL site.
- Program Manager for ORNL full compliance with RCRA Subtitle I requirements for monitoring, leak testing and remediation of underground storage tanks (USTs) containing petroleum products (approximately 30 USTs).
- Co-authored ORNL Annual Environmental Protection Report.

**1979-1987 Oak Ridge Gaseous Diffusion Plant and Y-12 Weapons Plant, Oak Ridge, Tennessee
Engineering Co-Op/Reliability and Systems Engineer**

- Served as engineering co-op for 6 quarters in the centrifuge recycle/assembly department performing tasks such as specialized tooling design and assembly stand optimization.
- Reliability engineering portion of assignment involved tracking and providing monthly and quarterly reports on centrifuge statistics derived from test facilities, development of failure mode effects and criticality analyses, fault tree analyses, classification of centrifuge incidents into appropriate categories based on the root cause of the incident, defined requirements for the Centrifuge Organization Management Information System, and reviewed corrective action plans for efficacy.
- When the centrifuge program was cancelled in 1985, served 2 years as a systems engineer at the Y-12 Plant.

Teaching Experience

Employers

- ❖ King University
- ❖ Lincoln Memorial University
- ❖ University of Tennessee (Graduate Teaching Assistant)
- ❖ Tennessee Wesleyan College (Adjunct Faculty)
- ❖ Tusculum College (Adjunct Faculty)
- ❖ South College (Adjunct Faculty)
- ❖ Pellissippi State Technical Community College (Adjunct Faculty)
- ❖ Roane State Community College (Adjunct Faculty)

Courses Taught

- ❖ STRATPLAN – A Computer-Based Competitive Business Decision-Making Course
- ❖ Business Policy
- ❖ Operations Management
- ❖ Strategic Management
- ❖ Business Ethics
- ❖ Human Resource Management
- ❖ Statistics
- ❖ College Algebra

Technical
PublicationsJournals

- Terry Payne, Thomas Benjamin, Nancy Garland, and John Kopasz, “Research Strategies for Development of an Efficient and Effective Electrocatalyst for Polymer Electrolyte Membrane Fuel Cells and Progress Summary”, *Electrochemical Society Transactions*, Oct. 2008, Issue 16, pages 3-8.
- Numerous Classified, Work-Related, Journal-Quality Reports, e.g., “Expected Number of Early Centrifuge Failures in the First Four Years of Centrifuge Plant Operation (U)”.

Book Contributions

- Terry Payne, Gilbert Brown, David Bogomolny, “Chapter 5: Hydrogen PEM Fuel Cells: A Market Need Provides Research Opportunities”, *The Future of the Chemical Industry*, Roger Jones, Editor, Oxford University Press, December 2009.
- Terry L. Payne, “Technology Assessment”, *Encyclopedia of Healthcare Management*, Michael J. Stahl, Editor, Sage Publications, Thousand Oaks, California, 2004.
- Terry L. Payne, “Technology Change”, *Encyclopedia of Healthcare Management*, Michael J. Stahl, Editor, Sage Publications, Thousand Oaks, California, 2004.
- Terry L. Payne, “Selecting Cooperative Research and Development Partners”, *Management of Technology V – Technology Management in a Changing World*, Robert M. Mason, Louis A. Lefebvre, and Tarek M. Khalil, Editors, Elsevier Science Ltd., Oxford, UK, 1996. (This article was also presented at the Fifth International Conference on the Management of Technology, 2/27/96 – 3/1/96, Miami, Florida.)
- T. L. Payne and M. J. Stahl, “The Strategic Importance and Effectiveness of Key Decision Criteria in the Selection of Research Areas – A Summary”, *Management of Technology IV – Volume 1*, Tarek M. Khalil and Bulent A. Bayraktar, Editors, Industrial Engineering and Management Press, Norcross, Georgia, 1994. (This article was also presented at the Fourth International Conference on the Management of Technology, 2/27/94-3/4/94, Miami, Florida.)
- Terry L. Payne, “Productivity Validation Test Beds”, *Productivity and Quality Management Frontiers III*, David J. Sumanth, Johnson A. Edosomwan, D. Scott Sink, and William B. Werther, Jr., Editors, Industrial Engineering and Management Press, Norcross, GA, 1991. (This refereed paper was presented at the Third International Conference on Productivity and Quality Research, February 20-22, 1991 in Miami, Florida.)
- Terry L. Payne, “A Master’s Concentration in Productivity”, *Productivity and Quality Management Frontiers III*, David J. Sumanth, Johnson A. Edosomwan, D. Scott Sink, and William B. Werther, Jr., Editors, Industrial Engineering and Management Press, Norcross, GA, 1991. (This refereed paper was presented at the Third International Conference on Productivity and Quality Research, February 20-22, 1991 in Miami, Florida.)
- Terry Lynn Payne, “A Decision Model Which Considers Qualitative Factors”, *Management of Technology I*, Tarek M. Khalil, Bulent A. Bayraktar, and Johnson A. Edosomwan, Editors, Inderscience Enterprises Ltd., Geneva, Switzerland, 1988.

Invited Talks

- Terry L. Payne, “Leveraging SBIR/STTR with T2 in a Cohesive Environment”, given at the Federal Lab Consortium National Meeting, Nashville, TN, May 2011.
- Terry Payne, “Energy: The Future of Federal Energy Funding”, presented at the SBIR National Conference, Oklahoma City, Oklahoma, May 2010.
- Nancy Garland and Terry Payne, “DOE Fuel Cell R&D Activities: Transportation, Stationary, and Portable Power Applications” presented at the 4th International Conference on Fuel Cells Durability and Performance, Las Vegas, NV, December 2008. (Paper was published in conference proceedings.)
- Terry L. Payne, “DOE PEM Fuel Cell R&D Activities”, Keynote Address, presented at the 10th Annual Small Fuel Cells International Conference, Atlanta, GA, April 2008.
- Terry L. Payne, “DOE Hydrogen Fuel Cell Program”, presented at the Rochester Institute of Technology, Rochester, NY, April 18, 2007.
- “DOE SBIR Program”, a presentation on the Department of Energy SBIR/STTR Program, was given at the request of the DOE SBIR Program Manager at numerous national and regional events, including participation with SBIR Program Managers from other Federal agencies on annual bus tours of select regions of the United States. The bus tours (known as “SBIR Where Innovation Focuses Technology”, or SWIFT, bus tours) were intended to increase the number of SBIR and STTR proposals received from under-represented regions of the country. SWIFT Tour events in which Terry Payne represented the DOE include:

SWIFT VI (2006)

- ❖ Denver, Colorado
- ❖ Casper, Wyoming
- ❖ Bozeman, Montana

SWIFT V (2004)

- ❖ Detroit, Michigan
- ❖ Indianapolis, Indiana
- ❖ Chicago, Illinois
- ❖ St. Louis, Missouri
- ❖ Memphis, Tennessee
- ❖ Louisville, Kentucky

SWIFT IV (2003)

- ❖ Seattle, Washington
- ❖ Portland, Oregon
- ❖ Sacramento, California
- ❖ Reno, Nevada
- ❖ Salt Lake City, Utah
- ❖ Boise, Idaho

SWIFT III (2002)

- ❖ San Antonio, Texas
- ❖ Baton Rouge, Louisiana
- ❖ Little Rock, Arkansas
- ❖ Jackson, Mississippi
- ❖ Birmingham, Alabama
- ❖ Atlanta, Georgia

Sample of Conference Presentations

- Terry Payne, “Potential Nanotechnology Benefits to Energy Production from Hydrogen”, presented at the From Discovery to Commercialization Conference, Philadelphia, PA, October 2008.
- Serguie Lvov and Terry Payne, “New Proton Conductive Composite Materials with Inorganic and Styrene Grafted and Sulfonated VDF/CTFE Fluoropolymers”, presented at the Fall 2008 American Chemical Society National Conference, Philadelphia, PA, August 2008.

Sample of Conference Presentations (continued)

- Dr. Terry L. Payne and Gary Coxon, “Partnership Opportunities with the Oak Ridge National Laboratory”, presented at the 9th International Conference on Management of Technology, Miami, FL, February 21-25, 2000. (Abstract of talk was published in conference proceedings.)
- Terry L. Payne, “An Advanced Modelling Technique for Production Facilities”, presented at the American Society of Engineering Management 12th Annual Conference, October 20-23, 1991, Chattanooga, Tennessee. (Paper was published in the conference proceedings.)

National Conferences Co-Chaired

- Terry Payne and John Ujvari, Co-Chairs, 2007 Spring National SBIR Conference, Research Triangle Park, North Carolina.

Numerous Regional and State Conferences/Meetings Organized and Hosted.

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| Professional Affiliations | <ul style="list-style-type: none"> ▪ 2012-2013 Chairman of the American Institute of Chemical Engineers Transport and Energy Processes Division ▪ Registered Professional Engineer in State of Tennessee |
| External Boards | <ul style="list-style-type: none"> ▪ Industrial Advisory Board of the University of Tennessee Industrial and Systems Engineering Department ▪ Corporate Board of Directors for the Boys and Girls Clubs of the Tennessee Valley ▪ East Tennessee Regional Leadership Association Board of Directors ▪ Roane Alliance Board of Directors ▪ Past Chairman of the Anderson County Chamber of Commerce Board of Directors ▪ Past President Alzheimer’s Tennessee Board of Directors ▪ Past Chairman of the Roane County Chamber of Commerce Board of Directors ▪ Past Member of East Tennessee Technology Council Board of Directors ▪ Past Member of Northeast Tennessee Technology Council Board of Directors |
| National Awards | <ul style="list-style-type: none"> ▪ United States Small Business Administration’s 2002 Tibbetts Award |
| Computer Skills | <ul style="list-style-type: none"> ▪ Proficient in <i>Microsoft Office</i> products |
| Balances to Work-Life | <ul style="list-style-type: none"> ▪ Worship ▪ Chaired Anderson County Fund-Raising for a \$65M expansion of the East Tennessee Children’s Hospital and exceeded the Anderson County Goal of \$1,000,000. ▪ Chairman of the 2011, 2012 and 2013 Five-County Alzheimer’s Walks, raising more than \$300,000 for Alzheimer’s Tennessee. ▪ Travel |

“If your actions inspire others to dream more, learn more, do more and become more, you are a leader.” – John Quincy Adams

“Think like a man of action, and act like a man of thought.” – Henri L. Bergson