

Instructions for the nominees: The Senate Committee on Commerce, Science, and Transportation asks you to provide typed answers to each of the following questions. It is requested that the nominee type the question in full before each response. Do not leave any questions blank. Type "None" or "Not Applicable" if a question does not apply to the nominee. Return printed answers to Committee. Begin each section (i.e., "A", "B", etc.) on a new sheet of paper.

A. A. BIOGRAPHICAL INFORMATION AND QUALIFICATIONS

1. Name (Include any former names or nicknames used):
Willie Eugene May
2. Position to which nominated:
Under Secretary of Commerce for Standards and Technology
3. Date of Nomination:
28 July, 2014
4. Address (List current place of residence and office addresses):
Residence:

Work:
National Institute of Standards and Technology
100 Bureau Drive
Gaithersburg, Maryland 20899-1000
5. Date and Place of Birth:
10 September, 1947
Dozier (Covington County), Alabama
6. Provide the name, position, and place of employment for your spouse (if married) and the names and ages of your children (including stepchildren and children by a previous marriage).

<u>Spouse</u>	Jeannie Tramble May, Retired
Daughter	Jeanniece Michele May (44)
Son	Eric Jermaine May (42)
7. List all college and graduate degrees. Provide year and school attended.
1968 B.S. Chemistry, Knoxville College, TN
1977 Ph.D. Analytical Chemistry, University of Maryland, College Park, MD
8. List all post-undergraduate employment, and highlight all management-level jobs held and any non-managerial jobs that relate to the position for which you are nominated.

* indicates management level positions relate to the position for which I am nominated.

16 June 2014 – Present

Acting Under Secretary of Commerce for Standards and Technology*, Department of Commerce and Acting Director, NIST

01 August 2011- 16 June, 2014

Associate Director for Laboratory Programs* and Deputy Director*, NIST

2010 – 2011

Director*, Material Measurement Laboratory, NIST

2004 – 2010

Director*, Chemical Science and Technology (CSTL), NIST

1994 – 2004

Chief*, Analytical Chemistry Division, CSTL, NIST

1983 – 1994

Chief*, Organic Analytical Research Division, CSTL, NIST

1976 – 1983

Leader, Liquid Chromatography Group, Organic Analytical Research Division, Center for Analytical Chemistry, NIST

1971 – 1976

Research Chemist, Bioorganic Standards Section Analytical Chemistry Division, NIST

1968 – 1971

Senior Laboratory Analyst, Oak Ridge Gaseous Diffusion Plant, Oak Ridge, TN

9. Attach a copy of your resume.

(Attachment A)

10. List any advisory, consultative, honorary, or other part-time service or positions with Federal, State, or local governments, other than those listed above, within the last five years.

None.

11. List all positions held as an officer, director, trustee, partner, proprietor, agent, representative, or consultant of any corporation, company, firm, partnership, or other business, enterprise, educational, or other institution within the last five years.

- Vice President*, International Committee on Weights and Measures (CIPM), 2010 - present
- President*, CIPM Consultative Committee on Metrology for Chemistry and Biology, 2012 - present
- Chair*, Executive Board, Hollings Marine Laboratory 2005 - 2011

- Adjunct Faculty*, Department of Chemistry and Biochemistry, University of Maryland – College Park, 2005 - present
- Member, Board of Visitors, College of Computer, Math and the Natural Sciences, University of Maryland at College Park, 2008 – present

* Served in this capacity as part of official duty.

12. Please list each membership you have had during the past ten years or currently hold with any civic, social, charitable, educational, political, professional, fraternal, benevolent or religious organization, private club, or other membership organization. Include dates of membership and any positions you have held with any organization. Please note whether any such club or organization restricts membership on the basis of sex, race, color, religion, national origin, age, or handicap.

- Goshen United Methodist Church, Gaithersburg, MD, 1975 – present
- American Chemical Society (ACS), 1980 – present
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), 1985 – present

13. Have you ever been a candidate for and/or held a public office (elected, non-elected, or appointed)? If so, indicate whether any campaign has any outstanding debt, the amount, and whether you are personally liable for that debt.

No

14. Itemize all political contributions to any individual, campaign organization, political party, political action committee, or similar entity of \$500 or more for the past ten years. Also list all offices you have held with, and services rendered to, a state or national political party or election committee during the same period.

None

15. List all scholarships, fellowships, honorary degrees, honorary society memberships, military medals, and any other special recognition for outstanding service or achievements.

- Academic Scholarship, Knoxville College, 1964-1968
- Department of Commerce Bronze Medal Award, 1981
- National Bureau of Standards Equal Employment Opportunity (EEO) Award, 1982
- Department of Commerce Silver Medal Award, 1985
- Arthur Flemming Award for Outstanding Federal Service, 1986
- NOBCChE Percy Julian Award for Outstanding Research in Organic Analytical Chemistry and Presidential Rank Award of Meritorious Federal Executive, 1992
- Department of Commerce Gold Medal, 1992
- American Chemical Society Distinguished Service in the Advancement of Analytical Chemistry Award, 2001
- Keynote Speaker for the 2002 Winter Commencement Ceremonies, University of Maryland, College of Life Sciences
- Council for Chemical Research Diversity Award, the NOBCChE Henry Hill Award for exemplary work and leadership in the field of chemistry, Science Spectrum Magazine Emerald Award, 2005

- 2007 Alumnus of the Year Award from the College of Chemical and Life Sciences at the University of Maryland
- Member of first class of inductees into the Knoxville College Alumni Hall of Fame, 2010
- Fellow of the American Chemical Society, 2011
- Honorary Doctor of Science and Speaker at Graduate School of Arts and Sciences Commencement Exercises, Wake Forest University, 2012.

16. Please list each book, article, column, or publication you have authored, individually or with others. Also list any speeches that you have given on topics relevant to the position for which you have been nominated. Do not attach copies of these publications unless otherwise instructed.

I have done my best to identify all books, articles, columns, or other publications and relevant speeches, including a thorough review of my personal files and searches of publicly available electronic databases. Despite my searches, there may be other materials that I have been unable to identify, find or remember. I have located the following representative examples. A more comprehensive list is included as Attachment B.

- Meeting Tomorrow's Challenges Today at the 99th Annual Meeting of the National Conference of Weights and Measures (NCWM). Detroit, Michigan. July, 2014.
- Entrepreneurship Pathways at NIST: Taking Ideas from the Lab to the Market. NIST Colloquium. March, 2014.
- Facilitating Innovation in the Regulatory Environment. Hong Kong, Government Laboratory Centenary Conference. Hong Kong, China. December, 2013.
- Testimony before the Committee on Science, Space and Transportation, Subcommittee on Technology, United States House of Representatives on "the NIST Laboratory Programs" March, 2013.
- Metrology for "Stuff" – Chemistry, Biology, and Materials – and its impact on commerce, innovation and quality of life. Helmholtz-Symposium celebrating the 125th anniversary of the German National Metrology Institute (PTB). March, 2012.
- Commencement Address: Graduate School of Arts and Sciences Commencement Exercises, Wake Forest University. May, 2012.
- Why is the Sky Blue? Goshen United Methodist Church. May, 2010.
- Testimony before the U.S. House of Representatives, Committee on Science and Technology on the "the Potential Need for Measurement Standards to Facilitate Research and Development of Biologic Drugs." September, 2009
- Keynote Address: University of Maryland, College of Life Sciences Winter 2002 Commencement Ceremonies, College Park, MD. December, 2002.
- Briefing of John. H. Marburger III, Science Advisor to the President Director, Office of Science and Technology Policy on NIST Measurement and Standards for Facilitating Sound Medical Decision-Making and Reducing Healthcare Costs," to the Senate Committee on Commerce Science, and Transportation, Subcommittee on Science, Technology and Space in Hearing on E-Health and Technology: Empowering Consumers in a Simpler, More Cost Effective Health Care System. July, 2001.

I have authored and co-authored more than 85 peer reviewed publications in general areas of analytical chemistry, clinical chemistry, and physic-chemical properties of chemical compounds.

See below the 10 most recent publications. A complete list is included as Attachment C.

- Welch, M.J., Parris, R.M., Sniegoski, L.T., and May, W.E., "CCQM-K6: Key Comparison on the Determination of Cholesterol in Serum," *Metrologia*, Tech. Suppl., 39, 08001 (2002).
- Welch, M.J., Sniegoski, L.T., Parris, R.M., May, W.E., Heo, G.S., and Henrion, A., "CCQM-K11: The Determination of Glucose in Serum," *Metrologia*, 40, Tech. Suppl., 08003 (2003).
- Welch, M.J., Phinney, C.P., Parris, R.M., May, W.E., Heo, G.S., Henrion, A., O'Conner, G., and Schimmel, H., "CCQM-K12: The Determination of Creatinine in Serum," *Metrologia*, 40, Tech. Suppl., 08005 (2003).
- Duewer, D.L., Parris, R.M., White V, E., May, W.E., and Elbaum, H., "An Approach to the Metrologically Sound Traceable Assessment of the Chemical Purity of Organic Reference Materials," NIST Special Publication 1012 (2004).
- Jackson, C.M., Wielgosz, R.I., and May, W.E., "An International Effort to Achieve Comparability of Test Results," *IVD Technology Commentary*, 12(2), 24-25 (2006).
- May, W.E., "Part B Measurement Methods for Composition and Structure," in: *Springer Handbook of Materials and Measurement Methods*, Czichos, H., Saito, T., and Smith, L. (eds.), Springer Verlag GmbH and Co., Heidelberg, Germany, pgs. 103-138 (2006).
- W. E. May, M. D. Amos, J. Pellegrino, "Measurement Challenges to Innovation in the Biosciences: Critical Roles for NIST" OTHER 903034, (01-Jun-2009)
- W. E. May, R. R. Cavanagh, D. L. Poster, M. D. Amos, "Chemical Science and Technology Laboratory (CSTL) 2009 Annual Report" NIST Interagency/Internal Report (NISTIR), 114 pp., (17-Nov-2009)
- W. E. May, J. Hunter-Cevera, "Conference Report: Accelerating Innovation in 21st Century Biosciences: Identifying the Measurement, Standards, and Technological Challenges" NIST Special Publication 1097, 98 pp., (01-Dec-2009)
- Plant, A. L., Locascio, L. E., May, W. E., Gallagher, P. D., "Improved Reproducibility by Assuring Confidence in Measurements in Biomedical Research" *Nature Methods Commentary*, 11(9) (Sep – 2014). In Press.

17. Please identify each instance in which you have testified orally or in writing before Congress in a governmental or non-governmental capacity and specify the date and subject matter of each testimony.

- Testimony before the U.S. House Committee on Science, Space and Technology Subcommittee on Technology on "NIST Laboratory Programs." March 20, 2013
- Testimony before the U.S. House Committee on Science and Technology Subcommittee on Technology and Innovation on "The Potential Need for Measurement Standards to Facilitate Research and Development of Biologic Drugs." September 24, 2009
- Testimony before the U.S. Senate Committee on Commerce, Science, and Transportation Subcommittee on Science, Technology and Space on E-Health and

Technology: Empowering Consumers in a Simpler, More Cost-Effective Health Care System: "The Role of Chemical Measurement Standards for Facilitating Sound Medical Decision-Making and Reducing Healthcare Costs." July 23, 2001

18. Given the current mission, major programs, and major operational objectives of the department/agency to which you have been nominated, what in your background or employment experience do you believe affirmatively qualifies you for appointment to the position for which you have been nominated, and why do you wish to serve in that position?
- I have extensive leadership experience, having managed at all levels within NIST (Group, Division, Laboratory, and Agency-levels) and having served on many professional boards both domestic and international.
 - I have wide-ranging supervisory experience at various levels of the organization and a track record for providing effective budgetary oversight and internal controls.
 - My managerial and technical performance has been recognized by awards from the Department of Commerce, NIST and many external organizations.
 - I have selected five of the seven NIST Laboratory Directors and the Directors of the NIST Standards Coordinating Office and Office of Special Programs. I believe in open communications, selecting strong and capable leaders, clearly identifying and agreeing upon expectations, providing necessary authorities and holding leaders accountable for achieving goals.

 - I have led the Agency on a day-to-day basis for the past year while former NIST Director (Dr. Patrick Gallagher) was carrying out the responsibilities of the Deputy Secretary of Commerce on an Acting basis. I have formally served as Acting Director since June of this year.
 - In my capacity as Associate Director for Laboratory Programs, I have been directly responsible for NIST's world-class research and measurement service programs, with budgets exceeding \$800M and ~3000 Federal employees. During my time in this position, I have selected and appointed the Directors of five of the seven NIST Laboratory Programs.
 - In my dual role as Principal Deputy Director for NIST, I have also been responsible for NIST's growing government-wide responsibilities in advanced manufacturing, and oversight of NIST's 3.2 million square feet of facilities in Gaithersburg and Boulder as well as its human resources, budgeting and financial management activities.

 - My scientific training and progressive leadership experience(s) at all levels within NIST coupled with my extensive leadership in international partnerships and broad interactions with industry, universities and colleges, other federal agencies, and the public make me highly qualified to lead NIST.

- I am deeply honored to be considered for this role to lead NIST, using my in-depth background and understanding of NIST, gained over several decades, which will enable me to effectively advance the agency's mission, if confirmed. I am excited about the opportunity before me, and I will work closely with Congress, industry and other stakeholders to position NIST in the best possible way during this time of heightened expectations for federal scientific organizations in promoting domestic economic development and promoting scientific and technological innovation
19. What do you believe are your responsibilities, if confirmed, to ensure that the department/agency has proper management and accounting controls, and what experience do you have in managing a large organization?
- Former NIST Director Dr. Patrick Gallagher did an excellent job of positioning NIST as the Nation's go-to Agency for measurements, standards, and technology to underpin and facilitate innovation, foster U.S. industrial competitiveness, and improve our quality of life.
 - If confirmed, I see my primary responsibilities as:
 - Completing the successful implementation of programs that NIST has initiated in response to pressing national needs (e.g., in advanced manufacturing, cybersecurity, advanced communications, forensic science).
 - Improving NIST's operational excellence and effectiveness of NIST's intramural and extramural programs and the efficiency of its internal operations at a time of growing challenges.
 - Leading and strengthening NIST's career senior management team in its focus on scientific *and* management excellence and organizational integrity during a time of transition -- including Identifying and equipping a new Associate Director for Laboratory Programs and Principal Deputy to lead the organization through the next transition.
 - I have over 35 years of experience managing at all levels within NIST; Project, Group, Division, Laboratory and Senior Leadership, such as Associate Director for Laboratory Programs and Acting Director positions.
 - In my position as the Associate Director for Laboratory programs, I was responsible for oversight and direction of NIST's seven laboratory programs and served as the principal deputy to the NIST Director. Prior director positions included, Director of the Material Measurement Laboratory and Chemical Science and Technology Laboratory. I held two positions as Chief, for the Analytical Chemistry Division and the Organic Analytical Research Division. I also held a Leader position for the Liquid Chromatography Group, Organic Analytical Research Division in the Center for Analytical Chemistry.
 - If confirmed, I believe my combined experience has prepared me to successfully perform the duties of the office to which I have been nominated.
20. What do you believe to be the top three challenges facing the department/agency, and why?
- Under Dr. Gallagher's leadership, NIST has established a very strong safety culture and realized significant budget growth. The challenges/priorities that remain for NIST that I will focus on are:

- Filling four key Senior Executive vacancies (Associate Director for Laboratory Programs and the Directors of the Physical Measurement Laboratory, Engineering Laboratory, and Standards Coordinating Office);
- Continuing to strengthen the NIST Safety Culture; both our Recordable Cases (injuries requiring medical treatment beyond first aid) and our DART Cases (cases that resulted in lost work time) have continued their downward trend. But we are not resting on our laurels since our goal is Zero incidents; we don't want to have anyone hurt at work! We have recently launched our 2014 Safety Climate Assessment to give staff the opportunity to help us better understand our current safety culture and for us to learn how we can improve the way we manage safety issues.
- Providing the measurement, technology, and standards support essential for the success of national efforts in advanced manufacturing - to build our prosperity and create better, high quality jobs for American workers;
- Providing the Cybersecurity standards and technology - required to protect our Nation's critical infrastructure against increasing risks;
- Strengthening forensic science measurements to provide greater transparency and rigor in forensic evidence used in the Criminal Justice System. I am committed to establishing and strengthening the needed scientific programs at NIST that will provide the underlying science to help develop standards in key areas of forensics science. To that end, we are working actively with state and local forensic laboratories and standardization experts to establish a formal process for developing scientifically sound and validated forensics standards that can help lay to rest many of the current questions about the rigor of current forensic science approaches. At the same time, I am also working to grow NIST's laboratory programs to support these areas such that NIST can continue to provide the measurement tools in support of these standardization activities
- Implementing the joint NTIA/NIST Center for Advanced Communications, and the National Advanced Spectrum and Communications Test Network, to create a trusted capability to facilitate spectrum sharing studies, optimize access to engineering capabilities, and engage spectrum users in collaborations;
- Strengthening the NIST Manufacturing Extension Partnership (MEP) program and establishing the infrastructure to coordinate the NNMI Network if/when legislation is approved;
- Addressing long-term sustainability of the Baldrige Program. A recent economic impact study found that the ratio of benefits for the U.S. economy to Baldrige program costs was 820 to 1. According to a survey conducted by Truven Health Analytics, more than 60% of U.S. hospitals and 80% of teaching hospitals are now using Baldrige principles. This program has been emulated in many countries around the world.

B. POTENTIAL CONFLICTS OF INTEREST

1. Describe all financial arrangements, deferred compensation agreements, and other continuing dealings with business associates, clients, or customers. Please include information related to retirement accounts.

None

2. Do you have any commitments or agreements, formal or informal, to maintain employment, affiliation, or practice with any business, association or other organization during your appointment? If so, please explain.

Pursuant to my Ethics Agreement and upon confirmation, I will resign from my position with the Board of Visitors of the College of Computer, Mathematical and Natural Sciences at the University of Maryland, College Park.

3. Indicate any investments, obligations, liabilities, or other relationships, which could involve potential conflicts of interest in the position to which you have been nominated.

In connection with the nomination process, I have consulted with the Office of Government Ethics and the Department of Commerce's designated agency ethics official to identify potential conflicts of interest. Any potential conflicts of interest will be resolved in accordance with the terms of an ethics agreement that I have entered into with the Department's designated agency ethics official and that has been provided to this Committee. I am not aware of any other potential conflicts of interest.

4. Describe any business relationship, dealing, or financial transaction which you have had during the last ten years, whether for yourself, on behalf of a client, or acting as an agent, that could in any way constitute or result in a possible conflict of interest in the position to which you have been nominated.

In connection with the nomination process, I have consulted with the Office of Government Ethics and the Department of Commerce's designated agency ethics official to identify potential conflicts of interest. Any potential conflicts of interest will be resolved in accordance with the terms of an ethics agreement that I have entered into with the Department's designated agency ethics official and that has been provided to this Committee. I am not aware of any other potential conflicts of interest.

5. Describe any activity during the past ten years in which you have been engaged for the purpose of directly or indirectly influencing the passage, defeat, or modification of any legislation or affecting the administration and execution of law or public policy.

None

6. Explain how you will resolve any potential conflict of interest, including any that may be disclosed by your responses to the above items.

In connection with the nomination process, I have consulted with the Office of Government Ethics and the Department of Commerce's designated agency ethics official to identify potential conflicts of interest. Any potential conflicts of interest will be resolved in accordance with the terms of an ethics agreement that I have entered into with

the Department's designated agency ethics official and that has been provided to this Committee. I am not aware of any other potential conflicts of interest.

C. LEGAL MATTERS

1. Have you ever been disciplined or cited for a breach of ethics by, or been the subject of a complaint to any court, administrative agency, professional association, disciplinary committee, or other professional group? If so, please explain.

No

2. Have you ever been investigated, arrested, charged, or held by any Federal, State, or other law enforcement authority of any Federal, State, county, or municipal entity, other than for a minor traffic offense? If so, please explain.

No

3. Have you or any business of which you are or were an officer ever been involved as a party in an administrative agency proceeding or civil litigation? If so, please explain.

No

4. Have you ever been convicted (including pleas of guilty or *nolo contendere*) of any criminal violation other than a minor traffic offense? If so, please explain.

No

5. Have you ever been accused, formally or informally, of sexual harassment or discrimination on the basis of sex, race, religion, or any other basis? If so, please explain.

While serving in my official capacity as Chief of the Analytical Chemistry Division, I conducted a reduction in force action in 2002. Years later, two of the affected employees filed a discrimination claim against NIST. No wrongdoing was found on my part or the Agency's part.

6. Please advise the Committee of any additional information, favorable or unfavorable, which you feel should be disclosed in connection with your nomination.

None to my knowledge.

D. RELATIONSHIP WITH COMMITTEE

1. Will you ensure that your department/agency complies with deadlines for information set by congressional committees?

Yes

2. Will you ensure that your department/agency does whatever it can to protect congressional witnesses and whistle blowers from reprisal for their testimony and disclosures?

Yes

3. Will you cooperate in providing the Committee with requested witnesses, including technical experts and career employees, with firsthand knowledge of matters of interest to the Committee?

Yes

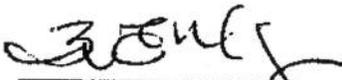
4. Are you willing to appear and testify before any duly constituted committee of the Congress on such occasions as you may be reasonably requested to do so?

Yes

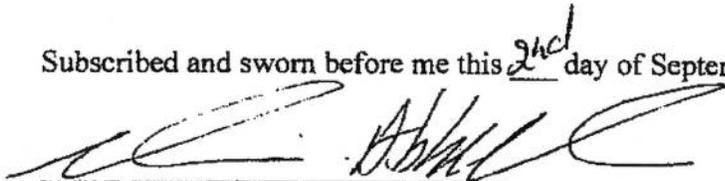
(Nominee is to include this signed affidavit along with answers to the above questions.)

F. F. Affidavit

Willie E. May being duly sworn, hereby states that he/she has read and signed the foregoing Statement on Biographical and Financial Information and that the information provided therein is, to the best of his/her knowledge, current, accurate, and complete.


Signature of Nominee

Subscribed and sworn before me this 2nd day of September, 2014.


Notary Public

NAJIA ABBASZADEH
NOTARY PUBLIC STATE OF MARYLAND
My Commission Expires November 21, 2017

Attachment B**Presentations conducted by Dr. Willie E. May 1978 – August 2014**

1. "Gas and Liquid Chromatographic Analysis of Energy and Environmental Samples," Baltimore-Washington Section of the SAS, NBS, Gaithersburg, MD, November 6, 1978. Invited
2. "Environmental Applications of High-Performance Liquid Chromatography," University of the District of Columbia, Washington, DC, January 29, 1979. Invited
3. "Impact of HPLC on the Monitoring Requirements and Standards for Trace Organics," 1979 Pittsburgh Conference, Cleveland, OH, March 5, 1979 (Keynote address to symposium). Invited
4. "Quality Assurance in Environmental Trace Organic Analysis," Waters Associates, Milford, MA, February 11, 1980. Invited
5. "The Development of a PAH/Water SRM," EPA, Cincinnati, OH, March 5, 1980. Invited
6. "Quantitative Analysis of Trace Organics in a Shale Oil by Sequential Liquid Chromatographic Analysis," 1980 Pittsburgh Conference, Atlantic City, NJ, March 11, 1980.
7. "Use of Fluorescence in HPLC Analysis," 1980 Pittsburgh Conference, Atlantic City, NJ, March 12, 1980. Invited
8. "Interlaboratory Comparison of Environmental Analyses Associated with Synfuel Production," 1980 Spring ACS Meeting, Houston, TX, March 25, 1980. Invited
9. "Use of High-Performance Liquid Chromatography in Trace Organic Analysis," Chemistry Department, University of Arkansas at Pine Bluff, Pine Bluff, AR, March 28, 1980. Invited
10. "Quality Assurance in Environmental Trace Organic Analysis," Chemistry Department, University of Maryland, College Park, MD, September 12, 1980. Invited
11. "High-Performance Liquid Chromatographic Methods for Trace Organic Analysis," Chemistry Department, Howard University, Washington, DC, January 23, 1981. Invited
12. "Analysis of Polycyclic Aromatic Hydrocarbons in Water: Standards Methods or Standard Reference Materials," 1981 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March 12, 1981. Invited
13. "Analysis of Selected Organics in Alternate Fuels Using Multidimensional HPLC Techniques," Perkin-Elmer Corporation, Norwalk, CT, April 21, 1981. Invited
14. "Verification of Analytical Results Through Use of Several Independent Techniques for Quantitation," Chemical Characterization of Hazardous Substances in Synfuels Workshop, Battelle Pacific Northwest Laboratory, Richland, WA, November 6, 1981. Invited

15. "Analytical Methods and Standards for the Determination of PAH in Environmental Samples," Second International Congress on Analytical Techniques in Environmental Chemistry, Barcelona, Spain, November 27, 1981. Invited
16. "Use of HPLC in the Determination of Potentially Toxic Compounds in Alternate Fuels," Alabama A&M University, Huntsville, AL, December 10, 1981. Invited
17. "Multidimensional HPLC Analysis Applied to the Determination of PAH and Related Compounds in Complex Mixtures," Ohio Valley Chromatography Forum, Oxford, OH, June 18, 1982. Invited
18. "First-Line Supervision of an Analytical Research Group," 1982 Fall ACS Meeting, Kansas City, MO, September 13, 1982. Invited
19. "Liquid Chromatographic Methods for the Determination of Polycyclic Aromatic Hydrocarbons in Air Particulate Extracts," 1982 Fall ACS Meeting, Kansas City, MO, September 15, 1982.
20. "On-Line Multidimensional Liquid Chromatographic Determination of PAH in Complex Samples," ASTM E-19 Committee on Chromatography, New Orleans, LA, October 12, 1982. Invited
21. "On-Line Multidimensional Liquid Chromatography," Eastern Analytical Symposium, New York, NY, November 18, 1982. Invited
22. "Multidimensional HPLC Techniques Applied to the Determination of Poly-cyclic Aromatic Compounds in Complex Mixtures," Emory University, Atlanta, GA, February 22, 1983. Invited
23. "Multidimensional HPLC Techniques Applied to the Determination of Polycyclic Aromatic Compounds in Complex Mixtures," Alcorn State University, Lorman, MS, February 24, 1983. Invited
24. "HPLC Determination of Nitrated-PAH in Complex Mixtures," 34th Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March 7, 1983.
25. "Trace Organic Analytical Applications of HPLC," Bishop College, Dallas, TX, March 21, 1983. Invited
26. "Liquid Chromatographic Methods for Determination of Physico-chemical Properties of Organic Compounds," Bishop College, Dallas, TX, March 21, 1983. Invited
27. "Trace Organic Analytical Applications of HPLC," Prairie View University, Prairie View, TX, March 22, 1983. Invited
28. "Liquid Chromatographic Methods for Determination of Physico-chemical Properties of Organic Compounds," Prairie View University, Prairie View, TX, March 22, 1983. Invited
29. "Trace Organic Analytical Applications of HPLC," Huston-Tillotson College, Austin, TX, March 24, 1983. Invited
30. "Liquid Chromatographic Methods for Determination of Physico-chemical Properties of Organic Compounds," Huston-Tillotson College, Austin, TX, March 24, 1983. Invited
31. "Trace Organic Analytical Applications of HPLC," Alabama A&M University, Huntsville, AL, March 25, 1983. Invited

32. "Liquid Chromatographic Methods for Determination of Physico-chemical Properties of Organic Compounds, Alabama A&M University, Huntsville, AL, March 25, 1983. Invited
33. "Liquid Chromatographic Methods for the Determination of Polynuclear Aromatic Hydrocarbons (PAH) and Nitro-PAH in Environmental Samples," Florida A&M University, Tallahassee, FL, April 14, 1983. Invited
34. "Liquid Chromatographic Methods for the Determination of Polynuclear Aromatic Hydrocarbons (PAH) and Nitro-PAH in Environmental Samples," Florida A&M University, Tallahassee, FL, April 14, 1983. Invited
35. "Environmental Applications of High-Performance Liquid Chromatography," ACS, Norfolk, VA, April 22, 1983. Invited
36. "Liquid Chromatographic Determination of Nitrated Polynuclear Aromatic Hydrocarbons in Complex Mixtures," Tenth Annual Meeting of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Knoxville, TN, May 27, 1983.
37. "Liquid Chromatographic Determination of Physico-chemical Properties of Hydrophobic Substances," Tenth Annual Meeting of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Knoxville, TN, May 27, 1983.
38. "HPLC Determination of Nitrated-PAH in Complex Mixtures," 35th Southeast Regional Meeting of the American Chemical Society, Charlotte, NC, November 9, 1983. Invited
39. "Organic Analytical Research at the National Bureau of Standards," Department of Chemistry, Hampton Institute, Hampton, VA, March 16, 1984. Invited
40. "Liquid Chromatographic Methods for the Determination of Polycyclic Aromatic Hydrocarbons and Their Nitrated Derivatives in Environmental Samples," Environmental Chemistry Division, Johns Hopkins University, Baltimore, MD, April 6, 1984. Invited
41. "NBS: Its History, Mission, and Organizational Structure," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 17, 1984. Invited
42. "Overview of the Organic Analytical Research Division," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 18, 1984. Invited
43. "HPLC: Basic Principles and Instrumentation," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 18, 1984. Invited
44. "GC: Basic Principles and Instrumentation," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 19, 1984. Invited
45. "Qualitative and Quantitative Analysis," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 19, 1984. Invited
46. "Quantitative Analysis of Complex Mixture by Selective Detection I," Chromatography Science Division, Shanghai Institute for Testing Technology, Shanghai, China, September 20, 1984. Invited
47. "Quantitative Analysis of Complex Mixture by Selective Detection II," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 21, 1984. Invited

48. "Results from Several Interlaboratory Comparison Studies," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 21, 1984. Invited
49. "Multidimensional Chromatographic Analyses of Complex Mixtures," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 22, 1984. Invited
50. "Preparation and Certification of Standard Reference Materials," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 24, 1984. Invited
51. "Determination of Physico-chemical Properties by HPLC," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai Institute for Testing Technology, Shanghai, China, September 24, 1984. Invited
52. "Determination of Trace Organic Constituents in Complex Mixture by HPLC," Chromatography Science Seminar, Shanghai Institute of Organic Chemistry, Shanghai, China, September 25, 1984. Invited
53. "Selectivity Differences Among Liquid Chromatographic Phases," Chromatography Science Seminar, Shanghai Institute for Testing Technology, Shanghai, China, September 26, 1984. Invited
54. "Liquid Chromatographic Methods for the Analysis of Nitro-Polycyclic Aromatic Hydrocarbons," NBS/DOE Analytical Characterization Group Meeting, Battelle Conference Facilities, Seattle, WA, November 8, 1984.
55. "Analytical Methods and Standards for the Determination of PAH and Nitro-PAH in Complex Mixtures," Chemical Characterization of Diesel Exhaust Emissions Workshop II, Hyatt Regency Dearborn Hotel, Dearborn, MI, March 5, 1985. Invited
56. "Analytical Standards and Methods for the Analysis of Nitrated Polycyclic Aromatic Hydrocarbons," 189th National Meeting of the American Chemical Society, Miami, FL, April 29, 1985. Invited
57. "Analytical Methods and Standards for the Determination of Trace Organic Species in Complex Mixtures," Department of Chemistry, South Carolina State University, Orangeburg, SC, October 14, 1985. Invited
58. "Standard Reference Materials and their Uses in the Determination of PAH and Related Compounds in Complex Mixtures," Tenth Anniversary of the International Symposium on Polynuclear Aromatic Hydrocarbons," Columbus, OH, October 21, 1985.
59. "Establishment of Interlaboratory Comparability for Trace Organic Environmental Measurements," 2nd Annual DOE Contractors Meeting on Health & Environmental Effects of Complex Chemical Mixtures," Lake Lawn Lodge, Delavan, WI, June 17, 1986. Invited
60. "An Overview of the NBS Quality Assurance Program for Trace Organic Analytical Measurements Associated with the NOAA National Status and Trends Program," The U.S./Canada Joint Commission on the Water Quality of the Great Lakes, Windsor, Ontario, Canada, April 1, 1987. Invited
61. "Approaches to the Accurate Analysis of Organic Micronutrients in Serum," 39th National Meeting of the American Association for Clinical Chemistry, San Francisco, CA, July 19-24, 1987. Invited
62. "The Determination of PAH and N-PAH in Complex Environmental Mixtures: State of the Art and State of the Practice," Eleventh International Symposium on Polynuclear Aromatic Hydrocarbons, Gaithersburg, MD, September 25, 1987. Invited

63. "Development of SRM's for Environmental Trace Organic Analysis," First International Symposium on Trace Analysis in Environmental Samples and SRM's, Honolulu, HI, January 6, 1988. Invited
64. "The Aqueous Solubility Behavior of Polycyclic Aromatic Hydrocarbons," University of Maryland, College Park, MD, February 4, 1988. Invited
65. "NBS: What is it?? Where is It?? and What do they do??" Alabama A&M University, Chemistry Department, Huntsville, AL, February 5, 1988. Invited
66. "Reference Materials for Drugs of Abuse in Urine," Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, February 25, 1988. Invited
67. "Fundamental and Applied Research Activities in Liquid Chromatography at the National Bureau of Standards," 15th Annual National Conference, National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Philadelphia, PA, April 5, 1988. Invited
68. "Reflections on the Arthur S. Flemming Award from a Recent Recipient," Fortieth Annual Arthur S. Flemming Awards Program, Washington, DC, May 6, 1988. Invited
69. "Development of a Marijuana in Urine SRM", University of Maryland, College Park, MD, May 6, 1988. Invited
70. "Role of the NBS Center for Analytical Chemistry in Assuring the Quality of Chemical Measurements in the U.S.," Ohio Valley Chromatography Symposium, Miami University, Oxford, OH, June 15, 1988. Invited
71. "International Collaborative Study to Evaluate Bioassay Methods," NESCAUM, Symposium on the Use of Biological Tests in Evaluation of Ambient Air Pollutants: Implications for Regulatory Agencies, Princeton, NJ, September 14, 1988. Invited
72. "NIST: Where is it? What is It? What Does it Do?," Chemistry Department, Knoxville College, Knoxville, TN, October 21, 1988. Invited
73. "Trace Organic Analysis", Chemistry Department, Knoxville College, Knoxville, TN, October 21, 1988. Invited
74. "The Role of Certified Reference Materials in Improving the Accuracy of Trace Organic Analyses", 1989 Pittsburgh Conference, Atlanta, GA, March 8, 1989. Invited
75. "State-of-the-Art Techniques in Trace Organic Analysis Applied to Health Related Measurements", 16th Annual NOBCCHE Meeting, Chicago, IL, March 21, 1989. Invited
76. "NIST Quality Assurance Program", Accuracy in Fat-Soluble Vitamin Measurements Workshop in conjunction with AACC meeting, Atlanta, GA, July 26, 1989. Invited
77. "Investigations of Selectivity Differences Among C-18 Columns that are Generically Identical", 17th Annual NOBCCHE Meeting, San Diego, CA, April 10, 1990.
78. "Standard Reference Materials for Chemical and Biological Studies of Complex Environmental Samples", International Programme on Chemical Safety (IPCS) Meeting, Rome, Italy, November 5, 1990. Invited
79. "Environmental Monitoring and Support: NIST Research and Service Activities", EPA/Las Vegas, March 1, 1993.

80. "NIST Research Programs in Organic Analytical Chemistry," Morgan State University, Chemistry Department, January 1994. [Invited](#)
81. "NIST Research, Measurement Services, and Quality Assurance Activities in Support of NCI Cancer Chemoprevention Studies," First International Symposium on the Role of Soy in Preventing and Treating Chronic Disease, Mesa, AZ, February 20, 1994. [Invited](#)
82. "Organic Analytical Research Activities at the National Institute of Standards and Technology", Chemistry Department, Villanova University, Villanova, PA, March 22, 1994. [Invited](#)
83. "NIST Research and Measurement Activities in Support of the AIGER CRADA", Society of Automotive Engineers Meeting, Washington, DC, March 29, 1994. [Invited](#)
84. "NIST Measurement Capabilities: Modes for Interaction", 1994 Analytical and Testing Conference sponsored by Dow Chemical, Holiday Inn Convention Center, Midland, MI, May 25, 1994. [Invited](#)
85. "NIST Research and New Technology Development in Support of AIGER", AIGER Headquarters, Detroit, MI, May 26, 1994. [Invited](#)
86. "Opportunities for Collaboration Between NIST and the Mayo Clinic in the Area of Health Care Technology", Mayo Clinic, Rochester, MN, June 30, 1994. [Invited](#)
87. "Career Opportunities in the Chemical Sciences: The Need for More African American Involvement", Bowie State University Summer Emerging Scholars Program, Bowie, MD, July 27, 1994. [Invited](#)
88. "NIST Portfolio of Programs and Research Activities for Promoting U.S. Industrial Competitiveness", Louisiana State University, Department of Chemistry, October 30, 1994. [Invited](#)
89. "NIST Portfolio of Programs and Research Activities for Promoting U.S. Industrial Competitiveness", Knoxville College, Knoxville, TN, October 31, 1994. [Invited](#)
90. "NIST Research Programs in Organic Analytical Chemistry," Morgan State University, Chemistry Department, January 25, 1994. [Invited](#)
91. "NIST Research, Measurement Services, and Quality Assurance Activities in Support of NCI Cancer Chemoprevention Studies," First International Symposium on the Role of Soy in Preventing and Treating Chronic Disease, Mesa, AZ, February 10, 1994. [Invited](#)
92. "Organic Analytical Research Activities at the National Institute of Standards and Technology", Chemistry Department, Villanova University, Villanova, PA, March 22, 1994. [Invited](#)
93. "NIST Research and Measurement Activities in Support of the AIGER CRADA", Society of Automotive Engineers Meeting, Washington, DC, March 29, 1994. [Invited](#)
94. "NIST Measurement Capabilities: Modes for Interaction", Analytical and Testing Conference, Holiday Inn Convention Center, Midland, MI, May 25, 1994. [Invited](#)
95. "NIST Research and New Technology Development in Support of AIGER", AIGER Office, General Motors Research Center, Detroit, MI, May 26, 1994. [Invited](#)

96. "NIST Portfolio of Programs and Research Activities for Promoting U.S. Industrial Competitiveness", Department Seminar, Louisiana State University, Baton Rouge, LA, October 28, 1994. Invited
97. "Quality Assurance for the North American Free Trade Agreement (NAFTA)", CENAM, Queretaro, Mexico, November 15-17, 1994. Invited
98. "Development and/or Critical Evaluation of Techniques for Real-Time Chemical Analysis of Auto Exhaust", Environmental Research Council Meeting, Detroit, MI, January 19, 1995. Invited
99. "NIST Research and Service Activities in Chemical Metrology", Chemical Instrumentation Program for Developing Countries; Orientation Workshop, Hampton University, Hampton, VA, February 18, 1995. Invited
100. "Cooperative Chemical Analysis, Training, and Standards Development within NORAMET", National Conference of Standards Laboratories Meeting, Dallas, TX, July 21, 1995. Invited
101. "Development and/or Critical Evaluation of Technologies for Real-Time Chemical Analysis of Automotive Exhaust," Annual Meeting of the Automotive Industry Environmental Research Consortium, Auburn Hills, MI, January 30, 1996. Invited
102. "Research Careers in the Chemical Sciences," American Chemical Society Headquarters, Washington, DC, February 20, 1996. Invited
103. "Establishment of an Environmental Reference Materials Traceability Program Through Government-Private Sector Partnership," The Semi-Annual Meeting of the Chemical Reference Materials Manufacturers Association, Chicago, IL, March 3, 1996. Invited
104. "Chemical Measurement Systems for Establishing Traceability to NIST," J. K. Taylor Memorial Workshop, Pittsburgh Conference '96, Chicago, IL, March 4, 1996. Invited
105. "NIST Activities in Support of Accuracy, Traceability and Comparability in Chemical Measurement Systems," Symposium on Global Traceability and Quality of Chemical Measurement, Pittsburgh Conference '96, Chicago, IL, March 5, 1996. Invited
106. "NIST Research and Service Activities in Chemical Metrology," U.S.-Egypt Bilateral Workshop on Metrology, Standards and Conformity Assessment, Alexandria, Egypt, June 9, 1996. Invited
107. "Chemical Science and Technology at NIST in the 21st Century: Role of the Analytical Chemistry Division," Symposium on Analytical Chemistry: A Twenty-Year View of A Half-Centurian, Baton Rouge, LA, July 19, 1996. Invited
108. "NIST Activities in Support of Accuracy, Traceability, and Comparability in Chemical Measurement Systems," Highlands in Chemistry Seminar Series, Virginia Polytechnical University, Blacksburg, VA, February 14, 1997. Invited
109. "The Role and Availability of Reference Materials for Measurement Quality and Data Comparability," Pittsburgh Conference, Atlanta, GA, March 19, 1997. Invited
110. "National Traceability and International Comparability of Chemical Measurements: NIST Role," Pittsburgh Conference, Atlanta, GA, March 20, 1997. Invited

111. "The Role and Availability of NIST Reference Materials for Assuring Measurement Quality and Data Comparability," National Metrology Week-Conference on Chemical Metrology, Pretoria, South Africa, August 27-28, 1997. Invited
112. May, W.E., "NIST Activities in Support of Accuracy, Traceability, and Comparability in Chemical Measurement Systems," Spellman College, Chemistry Seminar Series, Atlanta, GA, October 23, 1997. Invited
113. "Reference Materials and Their Impact on a World Trade," Chemical Metrology: A New Challenge for the Americas, Rio de Janeiro, Brazil, November 3, 1997. Invited
114. "Measurement and Standards Needs for the Health-Care and Pharmaceuticals Industries," Chemical Metrology: A New Challenge for the Americas, Rio de Janeiro, Brazil, November 4, 1997. Invited
115. May, W.E., "How to Establish a Chemical Metrology Program," National Institute for Industry and Trade, Buenos Aires, Argentina, November 5, 1997. Invited
116. "Standards R Us: NIST Role in Providing National Traceability and International Comparability of Chemical Measurements," Virginia Section of American Chemical Society Seminar Series, Petersburg, VA, December 5, 1997. Invited
117. "Standards R Us: NIST Role in Providing National Traceability and International Comparability of Chemical Measurements," Bundesanstalt für Materialforschung und -prüfung (BAM), February 17, 1998. Invited
118. "NIST Research Program in Analytical Chemistry Division: What we do, why we do it; and who cares," National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) National Meeting, Dallas, TX, April 14, 1998. Invited
119. May, W.E., "Study on the Purity Determination of Organic Reference Materials," Symposium on U.S.-Japan Cooperative Research Opportunities, Ann Arbor, MI, May 18, 1998. Invited
120. May, W.E., "Being the Best in the World on Measurement of the Mole," NIST Director's Workshop Series, NIST, Gaithersburg, MD, July 29, 1998. Invited
121. May, W.E., "NIST Research Program in Analytical Chemistry: What We Do, Why We Do It, and Who Cares," U.S. EPA, Office of Pesticides Program, Arlington, VA, September 8, 1998. Invited
122. May, W.E., "Certified Reference Materials for Chemical Measurements: Recent Developments at NIST," Co-Operation on International Traceability in Analytical Chemistry (CITAC) Symposium, Sydney, Australia, October 16, 1998. Invited
123. May, W.E., "NIST Research Program in Analytical Chemistry: What We Do, Why We Do It, and Who Cares," Laboratory of the Government Chemist, Teddington, United Kingdom, October 27, 1998. Invited
124. May, W.E., "Metrology: Impact on National Economy and International Trade," Middle East - Africa Workshop on Chemical Metrology, Sharm El Sheikh, Egypt, November 10, 1998. Invited
125. May, W.E., "NIST Tools for Providing National Traceability and Regional Comparability for Chemical Measurements," Middle East - Africa Workshop on Chemical Metrology, Sharm El Sheikh, Egypt, November

- 10, 1998. Invited
126. May, W. E., "Research in Chemical Science and Technology Opportunities at NIST," Louisiana DoE/EPSCoR and Louisiana Alliance for Minority Participation, Southern University, Baton Rouge, LA, March 5, 1999. Invited
127. May, W.E., "Providing Links Between National Standards and Commercial Reference Materials," The Pittsburgh Conference, Orlando, FL, March 11, 1999. Invited
128. May, W.E., "Chemical Metrology at NIST," National Conference of Standards Laboratories, Baltimore, MD, April 26, 1999. Invited
129. May, W.E., "Chemical Metrology and Its Impact on the U.S. Economy and Social Well-Being," Brazilian National Committee on Chemical Metrology, Sao Paulo, Brazil, May 12, 1999. Invited
130. May, W.E., "Achieving International Comparability for Chemical Measurements: A Myth or A Milestone for the New Millennium," Frontiers of Science and Measurement Conference, Teddington, Middlesex, UK, June 23, 1999. Invited
131. May, W.E., "NIST Program in Chemical Metrology: Impact on National Economy, Trade, and Social Well-Being," Metrosul'99 II South American Congress of Metrology, Foz do Iguassu, Parana, Brazil, August 10, 1999. Invited
132. May, W.E., "Chemical Measurements Methods and Standards to Facilitate Healthcare and Environmental Decision-Making," Metrosul'99 II South American Congress of Metrology, Foz do Iguassu, Parana, Brazil, August 10, 1999. Invited
133. May, W.E., "NIST Program in Chemical Metrology: Economic and Social Impact," Forum on Metrology SIM – INEN, Republica de El Salvador, Quito, Ecuador, September 21, 1999. Invited
134. May, W.E., "Establishing International Comparability Through Key Comparisons and Other Information," Co-Operation on International Traceability in Analytical Chemistry (CITAC) Symposium, Tsukuba, Japan, November 7, 1999. Invited
135. May, W.E., "CCQM Intercomparison Studies: Framework and Operational Plans," Asian Pacific Metrology Program, Technical Committee on Quantity of Material, Tsukuba, Japan, November 8, 1999. Invited
136. May, W.E., "NIST SRMs: What They Are, What They Are Not, and Their Impact on the U.S. Economy, International Trade, and Quality of Life," CITAC 99 Japan Symposium on Practical Realization of Metrology in Chemistry for the 21st Century, Tsukuba International Congress Center, Tsukuba, Japan, November 9, 1999. Invited
137. May, W.E., "NIST Program and Research Activities for Providing National Traceability and International Comparability for Chemical Measurements," PTB, Germany, December 6, 1999. Invited
138. May, W.E., "NIST Research Program in Chemical Measurement Science: What We Do, How We Do it, and Who Cares," University of Maryland, Baltimore County, Chemistry Department, Baltimore, MD, December 16, 1999. Invited
139. May, W.E., "NIST Activities In Chemical Measurement Science and Their Impact," Mallinckrodt, MBI,

Phillipsburg, NJ, February 15, 2000. Invited

140. May, W.E., "NIST Program for Addressing Health-Care Measurement and Standards Needs," Consultative Meeting on Measurement and Standards Needs for Addressing EU IVD Directive, Delft, The Netherlands, May 8-9, 2000. Invited
141. May, W.E., "Measurement Methods and Standards for Health Care Markers," European Committee for Standardization, Gaithersburg, MD, May 26, 2000. Invited
142. May, W.E., "Achieving International Comparability for Chemical Measurements: A Myth or a Milestone for the New Millennium," 1st International Meeting on Metrology, Mexico City, Mexico, June 14, 2000. Invited
143. May, W. E., "Status of Chemical Measurements in the World; Between Chemical and Physical Metrology," UME-NIST Chemical Metrology Workshop, Istanbul, Turkey, June 19, 2000. Invited.
144. May, W.E., "Achieving International Comparability for Chemical Measurements: A Myth or a Milestone for the New Millennium," UME-NIST Chemical Metrology Workshop, Istanbul, Turkey, June 19, 2000. Invited.
145. May, W.E., "Measurement Methods and Standards for Health Care Markers," UME-NIST Chemical Metrology Workshop, Istanbul, Turkey, June 20, 2000. Invited.
146. May, W.E., "NIST Programs and Activities for Providing National Traceability and International Comparability for Chemical Measurements," National Conference of Standards Laboratories, Toronto, Canada, July 17, 2000. Invited
147. May, W.E., "The Changing Landscape of Reference Materials: Development and Delivery," 8th International Symposium on Biological and Environmental Reference Materials (BERM-8), Bethesda, MD, September 18, 2000. Invited
148. May, W.E., "Reference Methods and Standards for Health-Status Markers," Seminar on Measurement, the Key to Global Trade, Ocho Rios, Jamaica, September 27, 2000. Invited
149. May, W.E., "Comparability of Chemical Measurement: A Myth or Milestone for the 21st Century," Seminar on Measurement, the Key to Global Trade, Ocho Rios, Jamaica, September 27, 2000. Invited
150. May, W.E., "The Changing Landscape for Reference Materials Development and Delivery," Eighth International Symposium on Biological and Environmental Reference Materials (BERM-8), The National Institutes of Health, Bethesda, MD, September 18, 2000. Invited
151. May, W.E., "NIST Program in Analytical Chemistry: What We Do, Why We Do It, and Who Cares," University of California-Davis, Chemistry Department Seminar, Davis, CA, November 16, 2000. Invited
152. May, W.E., "Science and Science Careers at NIST," University of California-Davis, Chemistry Department Seminar, Davis, CA, November 17, 2000. Invited
153. May, W.E., "Chemical Metrology: Impact on Competitiveness, Equity in Trade, and Quality of Life," MetroChem 2000, Sao Paulo, Brazil, December 4, 2000. Invited
154. May, W.E., "NIST SRMs: Historical Perspectives and Trends," MetroChem 2000, Sao Paulo, Brazil, December 5, 2000. Invited

155. May, W.E., "Chemical Metrology Within the Americas: History and Recent Development," MetroChem 2000, Sao Paulo, Brazil, December 5, 2000. [Invited](#)
156. May, W.E., "The EU IVD Directive: What It Is, What It Is Not, and What Is NIST Doing?," Mayo-Clinic Rochester, MN, December 18, 2000. [Invited](#)
157. May, W.E., "NIST: What We Do, Why and How We Do It, and Why You Should Care," Hampton University, Department of Chemistry Research Symposium, Hampton, VA, February 3, 2001. [Invited](#)
158. May, W.E., "NIST's Analytical Chemistry Division: Helping to Meet the Nation's Measurements and Standards Needs," Pittsburgh Conference 2001, Morial Convention Center, New Orleans, LA, March 5, 2001.
159. May, W.E., "NIST: What We Do, Why and How We Do It, and Why You Should Care," National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) Annual Conference, Baltimore, MD, April, 12, 2001. [Invited](#)
160. May, W.E., "NIST Program in Chemical Metrology: It's Impact on Competitiveness, Equity in Trade and Quality of Life," Elaboration of a Concept for the Development of the Metrology in Chemistry in Chile Workshop, Santiago, Chile, May 2, 2001. [Invited](#)
161. May, W.E., "The Changing Landscape for Reference Materials Development and Delivery," ISO/REMCO MEETING, Gaithersburg, MD, May 22, 2001. [Invited](#)
162. May, W.E., "The Role of Chemical Measurement Standards for Facilitating Sound Medical Decision-Making and Reducing Healthcare Costs," Testimony before the Senate Committee on Commerce, Science, and Transportation, Subcommittee on Science, Technology and Space in a Hearing on [E-Health and Technology: Empowering Consumers in a Simpler, More Cost Effective Health Care System](#), July 23, 2001. [Invited](#)
163. May, W.E., "NIST Chemical Measurement Quality Assurance and Proficiency Testing Programs," NCSL Conference, Washington, DC, July 30, 2001. [Invited](#)
164. May, W.E., "NIST SRMs and Their Role in Providing Traceability for Chemical Measurements," NCSL Conference, Washington, DC, July 31, 2001. [Invited](#)
165. May, W.E., "NIST's Analytical Chemistry Program and It's Impact on U.S. Industrial Competitiveness, Trade, and Quality of Life," American Chemical Society, Division of Analytical Chemistry Award Symposium, McCormick Place, North, Chicago, IL, August 28, 2001. [Invited](#)
166. May, W.E., "Chemical Measurements for Healthcare," Visiting Committee on Advanced Technology Semi-Annual Meeting, Boulder, CO, September 11, 2001. [Invited](#)
167. May, W.E., "NIST Reference Methods and Standards for Health Status Markers and Their Impact on Medical Decision-Making and Healthcare Cost," Department of Chemistry, Washington and Lee University, Lexington, VA, November 9, 2002. [Invited](#)
168. May, W.E., "NIST's Program in Analytical Chemistry and Its Impact on U.S. Industrial Competitiveness, Trade, and Quality of Life," Department of Chemistry, Washington and Lee University, Lexington, VA, November 9, 2002. [Invited](#)
169. May, W.E., "NIST Activities in Chemical Metrology and Their Impact on Productivity, Trade, and the Quality of Life," IV Symposium of the Latin American and the Caribbean Section of AOAC International, Montevideo,

Uruguay, November 22, 2002. [Invited](#)

170. May, W.E., "NIST Program in Chemical Metrology and It's Impact on U.S. Industrial Competitiveness, Trade, and Quality of Life," Northeastern Section American Chemical Society (NEACS), Boston, MA, February 14, 2002. [Invited](#)
171. May, W.E., "Impact on NIST SRMs on the Accuracy of Medical Test Results," HER2 Standard Assessment Workshop, Gaithersburg, MD, April 30, 2002. [Invited](#)
172. May, W.E., "Economic Consequences to Health Care of Poorly Standardized Laboratory Testing" 2nd NCI/EORTC International Meeting on Cancer Diagnostics, Washington, DC, June 28, 2002. [Invited](#)
173. Briefing of John. H. Marburger III, Science Advisor to the President Director, Office of Science and Technology Policy on NIST Measurement and Standards for Facilitating Sound Medical Decision-Making and Reducing Healthcare Costs," to the Senate Committee on Commerce Science, and Transportation, Subcommittee on Science, Technology and Space in Hearing on E-Health and Technology: Empowering Consumers in a Simpler, More Cost Effective Health Care System. July, 2001.
174. May, W.E., "Measurements and Standards for Clinical Diagnostics," NCSL, San Diego, CA, August 6, 2002. [Invited](#)
175. May, W.E., "NIST's Program in Chemical Metrology: Addressing Current Needs and Meeting Future Challenges," NCSL, San Diego, CA, August 6, 2002. [Invited](#)
176. May, W.E., "Chemical Metrology Program Within the Americas: History and Recent Developments," METRUSOL III, Curitiba-PR-Brazil, October 1, 2002. [Invited](#)
177. May, W.E., "NIST Program and Practices for Providing Chemical Measurement Traceability: or Mandate and the Impact of Our Work," METRUSOL III, Curitiba-PR-Brazil, October 2, 2002. [Invited](#)
178. May, W.E., "NIST Program and Practices for Providing Chemical Measurement Traceability: Our Mandate and the Impact of Our Work," INMETRO, Rio De Janeiro, Brazil, October 7, 2002. [Invited](#)
179. May, W.E., "Standards for Clinical Diagnostics," Chemical Metrology and It's Impact on Trade and Quality of Life, SIM Metrology Seminar, Santiago, Chile, October 29, 2002. [Invited](#)
180. May, W.E., "International Infrastructure for Facilitating Traceability and Comparability of Chemical Measurements," SADC MET Workshop on the Role of Metrology in Monitoring Food, Health and the Environment in Southern Africa, Pretoria, South Africa, November 20, 2003. [Invited](#)
181. May, W.E., "SIM Program in Chemical Metrology: Current Activities and Future Plans," SADC MET Workshop on the Role of Metrology in Monitoring Food, Health and the Environment in Southern Africa, Pretoria, South Africa, November 20, 2002. [Invited](#)
182. May, W.E., "University of Maryland, College of Life Sciences Commencement Address," University of Maryland, Adelphi, MD, December 21, 2002. [Invited](#)
183. May, W.E., "NIST Measurement and Standards Programs to Support Climate Change Research," Visit of John H. Marburger III, Science Advisor to the President Director, Office of Science and Technology Policy, NIST, Gaithersburg, MD, January 14, 2003. [Invited](#)

184. May, W.E., "Overview of NIST Program in Chemical Metrology," Visit of NMU – Japan, National Institute of Public Health – Japan, and Tokyo Metropolitan University – Japan, NIST, Gaithersburg, MD, March 7, 2003. Invited
185. May, W.E., "NIST Programs and Practices for Providing Chemical Measurement Traceability: Our Mandate and the Impact of our Work," AOAC Board of Directors Meeting, NIST, Gaithersburg, MD, March 24, 2003.
186. May, W.E., "Measurements and Standards for Clinical Diagnostics," Healthcare Round Table, NIST, Gaithersburg, MD, March 31, 2003. Invited
187. May, W.E., "NIST Programs and Practices for Providing Chemical Measurement Traceability: Our Mandate and the Impact of our Work," COPANT/SIM Regional Standardization and Metrology Workshop and Symposium, Kingston, Jamaica, May 7, 2003. Invited
188. May, W.E., "Requirements for Improved Quality in Clinical Measurements: Role of Standards," COPANT/SIM Regional Standardization and Metrology Workshop and Symposium, Kingston, Jamaica, May 7, 2003. Invited
189. May, W.E., "Higher Order of Reference Methods and Reference Materials for Clinical Diagnostics," 9th International Symposium on Biological and Environmental Reference Materials (BERM-9), Berlin, Germany, June 16, 2003. Invited
190. May, W.E., "Summary of Resources Available as a Result of JCTLM Activities," Manufacturer's Update on the Activities of the Joint Committee for Traceability in Laboratory Medicine, AACC Conference, Philadelphia, PA, July 22, 2003. Invited
191. May, W.E., "Chemical Metrology and Its Importance, Scope, and Impact on Trade, Industrial Productivity, and Quality of Life," Metrology in the Americas, Panama City, Panama, September 16, 2003. Invited
192. May, W.E., "NIST Activities for Underpinning Industrial Compliance with U.S. Regulations Regarding Nutrients and Contaminants in Food," Chemical Metrology School, Rio De Janeiro, Brazil, November 20, 2003. Invited
193. May, W.E., "Critical Evaluation of Isotope Dilution Mass Spectrometry as a Primary Methods for Organic Chemical Analysis," Rio De Janeiro, Brazil, November 21, 2003. Invited
194. May, W.E., "Chemical Metrology and Its Impact in Trade, Productivity and Quality of Life," International Week of Chemical Metrology, Caracas, Venezuela, November 24, 2003. Invited
195. May, W.E., "New Traceability Requirements in Clinical Chemistry," International Week of Chemical Metrology, Caracas, Venezuela, November 25, 2003. Invited
196. May, W.E., "New Traceability Requirements for Clinical Chemistry: Activities of the Joint Committee on Traceability in Laboratory Medicine," International Week of Chemical Metrology, San Jose, Costa Rica, February 3, 2004. Invited
197. May, W.E., "SIM Program in Chemical Metrology: Current Activities and Future Plans," International Week of Chemical Metrology, San Jose, Costa Rica, February 3, 2004. Invited
198. May, W.E., "Publication of the List of Higher Order Reference Materials and Methods," JCTLM Executive Meeting, Sevres, France, February 27, 2004. Invited
199. May, W.E., "NIST Program in Chemical Metrology and Its Impact on U.S. Industrial Productivity, Trade, and Quality of Life," 2004 Lloyd N. Ferguson Distinguished Lecturer at California State University, Los Angeles, CA, March 11, 2004. Invited

200. May, W.E., "NIST Activities in Support of New Standardization and Traceability Requirements in Laboratory Medicine," 2004 Lloyd N. Ferguson Distinguished Lecturer at California State University, Los Angeles, CA, March 12, 2004. Invited
201. May, W.E., "Overview of NIST Measurement and Standards Activities in Support of Clinical Diagnostics," Visit to Beckman Coulter, Los Angeles, CA, July 22, 2004.
202. May, W.E., "Overview of NIST Measurement and Standards Activities in Support of Clinical Diagnostics," Visit to Praxair Distribution, Inc., Los Angeles, CA, July 27, 2004.
203. May, W.E., "Overview of NIST Measurement and Standards Activities in Support of Clinical Diagnostics," Visit to Beckman Coulter, Los Angeles, CA, July 22, 2004.
204. May, W.E., "Overview of NIST Measurement and Standards Activities in Support of Clinical Diagnostics," Visit to Praxair Distribution, Inc., Los Angeles, CA, July 27, 2004.
205. May, W.E., "Overview of NIST Measurement and Standards Activities in Support of Clinical Diagnostics," Visit to Roche Diagnostics, Inc., Indianapolis, IN, August 6, 2004.
206. May, W.E., "NIST Activities in Support of New Standardization and Traceability Requirements in Laboratory Medicine," III Congress on Quality in Clinical Laboratories, Buenos Aires, Argentina, September 17, 2004. Invited
207. May, W.E., "New Requirements for Quality and Traceability in Laboratory Medicine: Activities of the JCTLM Working Group on Reference Materials and Reference Laboratory Procedures," III Congress on Quality in Clinical Laboratories, Buenos Aires, Argentina, September 17, 2004. Invited
208. May, W.E., "SIM Activities in Chemical Metrology," SIM Chemical Metrology Awareness Seminar, INTI, Buenos Aires, Argentina, September 20, 2004.
209. May, W.E., "Traceability Structure for Chemical Measurements in the USA," SIM Chemical Metrology Awareness Seminar, INTI, Buenos Aires, Argentina, September 21, 2004.
210. May, W.E., "New Measurement Traceability Requirements in Laboratory Medicine – Global Situation: Activities of the JCTLM," SIM Chemical Metrology Awareness Seminar, INTI, Buenos Aires, Argentina, September 21, 2004.
211. May, W.E., "Activities at the National Institute of Standards and Technology in Support of New Standardization and Traceability Requirements in Laboratory Medicine and Research in Forensic Science," Mount St. Mary's University, Emmitsburg, MD, October 5, 2004. Invited
212. May, W. E., "New Requirements for Quality and Traceability in Laboratory Medicine: New Activities at NIST and of the JCTLM," MIC Symposium, NRCCRM, Beijing, China, October 19, 2004.
213. May, W.E., "Overview of NIST Measurement and Standards Activities in Support of Clinical Diagnostics," Abbott Laboratories, Abbott Park, IL, October 26, 2004. Invited
214. May, W.E., "Chemical Metrology in the Fossil Fuel, Health, and Environmental Industry and Their Economic Impact," SENCAMER, Margarita Island, Venezuela, November 3, 2004. Invited

215. May, W.E., "NIST Program in Chemical Metrology and It's Impact, Alabama State University, Montgomery, AL, November 22, 2004. [Invited](#)
216. May, W.E., "Activities of the NIST Chemical Science and Technology Laboratory What We Do, Why We Do It, and Why You Should Care," Henry Hill Lecture, Sponsored by the American Chemistry Society Northeast Section, March 21, 2005. [Invited](#)
217. May, W.E., "Activities of the NIST Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," Science and Engineering Alliance (SEA) Guest Lecture Series, Alabama A&M University, Huntsville, AL, April 20, 2005. [Invited](#)
218. May, W.E., "Chemical Metrology and It's Impact in Trade, Productivity, and Quality of Life," International Week of Chemical Metrology, INDECOPi, Lima, Peru, June 20, 2005. [Invited](#)
219. May, W.E., "SIM Activities in Chemical Metrology," International Week of Chemical Metrology, INDECOPi, Lima, Peru, June 21, 2005. [Invited](#)
220. May, W.E., "Report on the Activities of the SIM Chemical Metrology Working Group," 2005 NCSL International Workshop and Symposium, Washington, DC, August 9, 2005.
221. May, W.E., "Activities of the NIST Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," Lerner Research Institute of the Cleveland Clinic Foundation Meeting, Cleveland, OH, September 28, 2005. [Invited](#)
222. May, W.E., "The Role of NIST in Support of U.S. Industry and Global Comparability," Restricted Substances in Materials: Testing and Reporting Procedures Workshop, NIST, Gaithersburg, MD, October 5, 2005. [Invited](#)
223. May, W.E., "Chemical Metrology and Its Impact on Trade, Innovation and Quality of Life" International Week of Chemical Metrology, Trinidad and Tobago Bureau of Standards (TTBS), Trinidad and Tobago, October 12, 2005. [Invited](#)
224. May, W.E., "What is a Leader?," NIST New Leader Program, Gettysburg, PA, February 8, 2006. [Invited](#)
225. May, W.E., "Activities in the Americas, NIST's role, US Regulations, SME-related Issues for the US," International Symposium and Workshop on Metrology in Chemistry APMP-DEC and TCQM Working Group, Shah Alan, Malaysia, February 20, 2006. [Invited](#)
226. May, W.E., "Activities of the NIST Chemical Science and Technology Laboratory What We Do, Why We Do It, and Why You Should Care," Department of Chemistry Seminar, St. Mary's College of Maryland, St. Mary's City, MD, March 9, 2006. [Invited](#)
227. May, W.E., "Measurement and Standards needs in Proteomics," Measurement Challenges in Proteomics Workshop, Boston, MA, March 12, 2006. [Invited](#)
228. May, W.E., "Measurement and Standards Needs to Enable Drug Discovery," Validating Modeling & Experimental Methods to Enable Drug Discovery Conference, Gaithersburg, MD, April 19, 2006. [Invited](#)
229. May, W.E., "NIST Standard Reference Materials to Support Biological and Environmental Measurements" Tenth International Symposium on Biological and Environmental Reference Materials (BERM 10), Charleston, SC, May 1, 2006, Charleston, SC. [Invited](#)

230. May, W.E., "Chemical Metrology and Its Impact on Trade, Innovation and Quality of Life," SIM International Week of Chemical Metrology, Montevideo, Uruguay, May 24, 2006. Invited
231. May, W.E., "SIM Activities In Chemical Metrology," SIM International Week of Chemical Metrology, Montevideo, Uruguay, May 25, 2006. Invited
232. May, W.E., "Welcome and Introductory Remarks," 16th Symposium on Thermophysical Properties," Boulder, CO, USA, July 31, 2006. Invited
233. May, W.E., "Activities of the NIST, Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," NIM, Beijing, China, November 6, 2006.
234. May, W.E., "NIST Activities and Evolving Role for Providing Traceability for Chemical Measurements," VCAT, Gaithersburg, MD, December 12, 2006.
235. May, W.E., "New Cooperation Between NIST and AspenTech," Cambridge, MA, January 31, 2007. Invited
236. May, W.E., "NIST at the Hollings Marine Laboratory," DIR-AG, Charleston, SC, February 16, 2007
237. May, W.E., "New Opportunities for NIST in Bioscience and Health: Defining the Sweet Spots," VCAT, Gaithersburg, MD, March 6, 2007.
238. May, W.E., "Activities of the NIST, Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," Department of Chemistry, Tennessee State University, Nashville, TN, March 23, 2007. Invited
239. May, W.E., "NIST: Promoting U.S. Innovation and Industrial Competitiveness," NOBCChE Conference, Orlando, FL, April 4, 2007.
240. May, W.E., "NIST: Promoting U.S. Innovation and Industrial Competitiveness," College of Chemical and Life Sciences, University of Maryland, College Park, MD, April 25, 2007. Invited
241. May, W.E., "Activities of the NIST, Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," Department of Chemistry, Louisiana State University, Baton Rouge, LA, April 27, 2007. Invited
242. May, W.E., "Activities of the NIST, Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," SIM CMWG, Quito, Ecuador, May 7, 2007.
243. May, W.E., "Activities of the NIST, Chemical Science and Technology Laboratory: What We Do, Why We Do It, and Why You Should Care," NIM China, Beijing, China, June 12, 2007.
244. May, W.E., "Next Generation Chemical Measurement and Standards Needs," 2nd APMP DEC and TCQM Workshop and Symposium on Metrology in Chemistry," Xian, China, June 14, 2007. Invited
245. May, W.E., "NIST Role and Capabilities for Supporting Expanded Use of Biofuels," INMETRO/NIST Sponsored Workshop on Biofuels, Washington, DC, June 29, 2007. Invited
246. May, W.E., "Next Generation Chemical Measurement and Standards Needs," IV International Congress on Chemical Measurement Traceability and Quality Assurance, Sao Paulo, Brazil, July 18, 2007. Invited

247. May, W.E., "The CCQM and the Metre Convention: A mid 2007 update," IV International Congress on Chemical Measurement Traceability and Quality Assurance, Sao Paulo, Brazil, July 18, 2007. Invited
248. May, W.E., "Joint Committee on Traceability in Laboratory Medicine," CITAC Members Meeting, IV International Congress on Chemical Measurement Traceability and Quality Assurance, Sao Paulo, Brazil, July 17, 2007. Invited
249. May, W.E., "NIST Activities and Evolving Role for Providing Traceability for Chemical Measurements," IV International Congress on Chemical Measurement Traceability and Quality Assurance, Sao Paulo, Brazil, July 18, 2007. Invited
250. May, W.E., "Overview of NIST's Programs in Biosciences and Health," Mayo Clinic. St. Paul, Minnesota. October 29, 2007. Invited
251. May, W.E., "NIST Activities in Bioscience and Health," Institute for Reference Materials and Measurements. Geel, Belgium. December 17, 2007. Invited
252. May, W.E., "Internationally Compatible Biofuel Standards." Tripartite Task Force, Brazil, European Union, and the United States of America, International Biofuels Forum, Washington, D.C. March 3, 2008. Invited
253. May, W.E., "Advancing Innovation for Economic Growth, Safety, & Security," President's FY2009 Budget Request for the National Institute of Standards and Technology. April, 2008. Invited
254. May, W.E., "Brazil, EC and U.S. Tripartite Work on Standards," International Atomic Energy Agency, Oslo, Norway. May 14, 2008.
255. May, W.E., "Standards for Global Biofuels Trade," III Latin American and the Caribbean Biofuels Seminar. Boca Chica, Dominican Republic. May 27, 2008. Invited
256. May, W.E., "Role, Production, and Certification of CRMs," Seminar on Metrology in Chemistry East African sub-region of AFRIMETS. Nairobi, Kenya. August 25, 2008. Invited
257. May, W.E., "Chemical Metrology: What For?" , Seminar on Metrology in Chemistry East African sub-region of AFRIMETS. Nairobi, Kenya. August 25, 2008. Invited
260. May, W.E., "Metrology for Chemical and Biochemical Measurements: NIST's Roles, Services, Impacts, and Planning for Future Needs." USP Pharmacopoeia, Kansas City, Missouri. September 23, 2008. Invited
261. May, W.E., "NIST and its Role, Current Activities and Plans for Program Expansion in the Biosciences," University of Maryland, Biotechnology Institute. Rockville, MD. September 25, 2008. Invited
262. May, W.E., "Clinical Diagnostics Standards Development at NIST." 17th Meeting of Secretary's Advisory Committee on Genetics, Health, and Society. U.S. Department of Health and Human Services, Washington, D.C. December 1, 2008.
263. May, W.E., "Chemical Metrology and its Impact on Quality of Life." SIM Chemical Metrology Working Group Meeting. Paraguay. May 12, 2009. Invited
264. May, W.E., "Metrology for the Clinical Laboratory, The Role of National Metrology Institutes." American Association for Clinical Chemistry. Chicago, Illinois. July 19, 2009.

265. Testimony before the U.S. House of Representatives, Committee on Science and Technology on the "the Potential Need for Measurement Standards to Facilitate Research and Development of Biologic Drugs." September, 2009.
266. May, W.E., Measurement Science and Standards to Support Innovation in Healthcare: NIST Plans for Bioprogram Expansion, PTB, Germany, October 2009. Invited
267. May, W.E., "Chemical Metrology and its Impact on Innovation, Trade and Quality of Life." Bangkok, Thailand. October, 2009. Invited
268. May, W.E., "Measurement Science and Measurement Standards to Support Innovation in Healthcare," Singapore. October, 2009. Invited
269. May, W.E., Measurement Science and Measurement Standards to Support Innovation in Healthcare, 4th CNCTI, Conference on Science Technology and Innovation, Salvador, Brazil, November 2009. Invited
270. May, W.E., Chemical Metrology and its Impact on Innovation, Trade and Quality of Life, Metrochem V, Sao Paulo, Brazil, November 2009. Invited
271. May, W.E., Establishing the International Equivalence of CRMs for Chemical Analysis, Metrochem V, Sao Paulo, Brazil, November 2009. Invited
272. May, W.E., Overview of NIST's Environment-Related Activities, EPA Headquarters, Washington, D.C., November 9, 2009.
273. May, W.E., Overview of NIST Chemical Science and Technology Laboratory, USA-BRAZIL S&T Meeting, Washington, DC, November 20, 2009.
274. May, W.E., Chemical Metrology: What It Is and Why It's Important, SIM Summer School, December 15, 2009
275. May, W.E., Measurement Science and Measurement Standards to Support Innovation in Healthcare, Mayo Clinic. Rochester, Minnesota, March 23, 2010.
276. May, W.E., NIST Plans for Bioscience and Health Program Expansion, Commercial Dialogue, April 2010
277. May, W.E., Measurement Science and Measurement Standards to Support Innovation in Healthcare, Hunter College, City University of New York, Manhattan, NY, April, 2010. Invited
278. May, W.E., "Activities of the NIST Chemical Science and Technology Laboratory – What We Do, Why We Do It, and Why You Should Care," University of Toledo. April, 2010.
279. May, W.E., Measurement Science and Measurement Standards to Support Innovation in Healthcare, 4th CNCTI, Conference on Science Technology and Innovation, Brasilia, Brazil, May 2010. Invited
280. May, W.E., General Responsibilities and Activities of a National Metrology Institute, SIM Workshop, Chile, August 16, 2010.
281. May, W.E., NIST Reorganization and Realignment of Its Laboratory Structure, ACS Corporate Associates, Boston, MA. Aug 23, 2010.
282. May, W.E., NIST: Who We Are and What We Do, University of Maryland, College Park, August 31, 2010

283. May, W.E., Lecture: International Infrastructure to Support Metrology, Department of Chemistry, College Park, MD, October 2010.
284. May, W.E., NIST Programs in Support of Pollution Control and Climate Change Monitoring, Symposium: Metrology in chemistry – Essential for Pollution Control and Climate Change Monitoring, Singapore November 3, 2010
285. May, W.E., "Why is the Sky Blue?" Goshen United Methodist Church. May, 2010. [Invited](#)
286. May, W. E., "Innovation and Commerce," Groundbreaking Ceremony for the Center for Advanced Science, Auburn University, Auburn, AL, November 18, 2011. [Invited](#)
287. May, W.E., Metrology for "Stuff" – Chemistry, Biology, and Materials – and its impact on commerce, innovation and quality of life. Helmholtz-Symposium celebrating the 125th anniversary of the German National Metrology Institute (PTB). March, 2012. [Invited](#)
288. May, W.E., Commencement Address: "Now that You're Graduating, What Lies Ahead." Graduate School of Arts and Sciences Commencement Exercises, Wake Forest University. May 19, 2012. [Invited](#)
289. May, W. E., Dedication and remarks for the Laboratory for Ocean Sensors and Observing Systems (LOSOS), Woods Hole Oceanographic Institution Woods Hole, Mass., September 20, 2012. [Invited](#)
290. May, W. E., Metrology for "Stuff" – chemistry, Biology and Materials – and its Impact on Commerce, Innovation and Quality of Life, Metrologio Simposio 2012, Queretaro, Mexico, October 2012. [Invited](#)
291. May, W. E., Introduction to NIST and its role in "Promoting U. S. Innovation and Industrial Competitiveness", 2013 Frontiers of Characterization and Metrology for Nanoelectronics, NIST, Gaithersburg, MD, March 25, 2013. [Invited](#)
292. May, W. E., STEM: What it Is and why You Should Care, 7th Annual STEM Day: Advancing STEM in the Global society, AAMU, Normal, Alabama, April 12, 2013. [Invited](#)
293. May, W.E., Overview of NIST Laboratories and where the Agency's measurement research efforts will be focused, DuPont Experimental Station, Wilmington, Delaware. May 6, 2013. [Invited](#)
294. May, W.E., Welcome to NIST: Who We Are and What's New?, VAMAS Steering Committee and Workshop on advanced Manufacturing, NIST, Gaithersburg, MD, May 20, 2013. [Invited](#)
295. May, W.E., Welcome to NIST: Who We Are – and What's New?, Center for automotive Lightweighting Workshop, NIST, Gaithersburg, MD, May 23, 2013. [Invited](#)
296. May, W.E., NIST Supporting Measurements for Clinical Diagnostics, Lyme Disease Workshop, NIST, Gaithersburg, MD, June 6, 2013. [Invited](#)
297. May, W. E., Remarks at the Dedication of the Marine Ecosystem Sensing, Observation and Modeling (MESOM) Laboratory, Scripps Institution of Oceanography, University of California, San Diego, San Diego, Calif., June 14, 2013. [Invited](#)
298. May, W.E., The National Institute of Standards and Technology: A Unique Federal Agency – Leading the World in Measurement Science and Technology. July 2013. [Invited](#)

299. May, W.E., NIST Update, 98th National Conference on Weights and Measures, Louisville, Kentucky, July, 2013. Invited
300. May, W.E., NIST: Who We Are and What We Are Doing to Promote U. S. Innovation and Industrial Competitiveness, Micron, August 2013. Invited
301. May, W.E., Remarks for Ribbon-Cutting for Auburn's Center for Advanced Science, Innovation and Commerce. Auburn University, Auburn, AL, September, 2013. Invited
302. May, W.E., Welcome and Remarks, 7th Annual Minority Serving Institutions Technical Assistance – National Training Conference, Rockville, MD, September 23, 2013. Invited
303. May, W.E., "Metrology for Stuff" and Its Increasingly Critical Role in Supporting Economic Security, Innovation, and Quality of Life, NMISA Workshop on Measurement challenges in chemistry for a developing economy. Pretoria, South Africa, November 7, 2013. Invited
304. May, W.E., "Metrology for Stuff" and Its Increasingly Critical Role in supporting Economic Security, Innovation, and Quality of Life. Hong Kong, Government Laboratory Centenary Conference. Hong Kong, China. December 2, 2013. Invited
305. May, W.E., Facilitating Innovation in the Regulatory Environment. Hong Kong, Government Laboratory Centenary Conference. Hong Kong, China. December, 2013. Invited.
306. May, W. E., NIST: Who We Are and What We are Doing to Promote U.S. Innovation and Industrial Competitiveness, Brewer Science, Rolla, Missouri, January 13, 2014. Invited
307. May, W. E., Conference on Undergraduate Women in Physics, NIST, Gaithersburg, MD, January 17, 2014. Invited
308. May, W. E., African American Contributions to NIST: a Historical Perspective, NIST Black History Month Breakfast, February 21, 2014. Invited
309. May, W. E., My Journey at the National Institute of Standards and Technology (NIST): A Unique Federal Agency -- Leading the World in Measurement Science, Research and Technology, Black History Month Colloquium Lecture, Johns Hopkins University Applied Physics Laboratory, February 28, 2014. Invited
310. May, W.E., Entrepreneurship Pathways at NIST: Taking Ideas from the Lab to the Market. NIST Colloquium. March, 2014. Invited
311. May, W. E., "My Journey at the National Institute of Standards and Technology" NIST: A Unique Federal Agency, Leading the World in Measurement Science, Research and Technology, Ohio State University, April 2, 2014. Invited
312. May, W. E., NIST: Who We Are and What We are Doing to Promote U.S. Innovation and Industrial Competitiveness, Rolls Royce Manufacturing Facility, Crosspointe, Virginia, May 16, 2014. Invited
313. May, W. E., Testimony at House Science, Space and Technology Committee Hearing on NIST Budget, DC, May 30, 2014. Invited

314. May, W. E., Meeting Tomorrow's Challenges Today at the 99th Annual Meeting of the National Conference of Weights and Measures (NCWM). Detroit, Michigan. July, 2014. Invited

315. May, W. E., The Mole: Its History, Definition, Redefinition, and Realization, American Chemical Society National Meeting, San Francisco, CA. Aug 11, 2014. Invited

Attachment C**PUBLICATIONS**

1. Freeman, D. H., Angeles, R. M., Enagonio, D. P., and May, W. E., Interactive Gel Networks--Chromatographic and Analytical Properties with a Pyridine Type Functional Group, *Anal. Chem.* 45 (4), 768-774 (1973).
2. Hertz, H. S., Chesler, S. N., May, W. E., Gump, B. H., Enagonio, D. P., and Cram, S. P., Methods for Trace Organic Analysis in Sediments and Marine Organisms, *Proc. Of The Marine Poll. Monitoring Sym. and Workshop*, NBS SP 409, 197 (1974).
3. Gump, B. H., Hertz, H. S., May, W. E., Chesler, S. N., Dyszel, S. M., and Enagonio, D. P., Drop Sampler for Obtaining Fresh and Sea Water Samples for Organic Compound Analysis, *Anal. Chem.* 47 (7), 1223 (1975).
4. May, W. E., Chesler, S. N., Cram, S. P., Gump, B. H., Hertz, H. S., Enagonio, D. P., and Dyszel, S. M., Chromatographic Analysis of Hydrocarbons in Marine Sediments and Sea Water, *J. Chromatog. Sci.* 13, 535-540 (1975).
5. Hertz, H. S., May, W. E., Chesler, S. N., and Gump, B. H., Petroleum Analysis: Methodology for the Quantitative and Qualitative Assessment of an Oil Spill, *Environ. Sci. Technol.* 10, 900-903 (1976).
6. Chesler, S. N., Gump, B. H., Hertz, H. S., May, W. E., and Wise, S. A., Methods for Analysis of Trace Levels ($\mu\text{g}/\text{kg}$) of Hydrocarbons in the Marine Environment, *Methods And Stds. For Environ. Meas.*, W. Kirchoff, ed., NBS SP 464, 81-85 (1977).
7. Gump, B. H., Hertz, H. S., May, W. E., and Chesler, S. N., Hydrocarbon Burden in the Marine Environment Surrounding a Refinery Tanker Jetty, *J. Environ. Sci. Health A12* (3), 105-113k (1977).
8. Hertz, H. S., Chesler, S. N., May, W. E., Wise, S. A., Hilpert, L. R., Brown, J. M., Fatiadi, A. J., and Guenther, F. R., The NBS Program for Standards for Trace Organic Analysis in the Marine Environment, *Proc. Of The Environ. Effects Of Energy-Related Activities On Marine/Estuarine Ecosystems*, U. S. EPA, No. OEMI-77-025, 227-242 (1977).
9. Wise, S. A., Chesler, S. N., Gump, B. H., Hertz, H. S., and May, W. E., Interlaboratory Calibration for the Analysis of Petroleum Levels in Sediments, *Fate And Effects of Petroleum Hydrocarbons In Marine Organisms and Ecosystems*, D. Wolfe, ed., Pergamon Press, New York, NY, 345-350 (1977).
10. Wise, S. A., Chesler, S. N., Hertz, H. S., Hilpert, L. R., and May, W. E., A Chemically Bonded Aminosilane Stationary Phase for the High-Performance Liquid Chromatographic Separation of Polynuclear Aromatic Compounds, *Anal. Chem.* 49 (14), 2306-2310 (1977).
11. Wise, S. A. and May, W. E., Unusual Experimental Detectors for Liquid Chromatography, *Res. Dev.* 28 (10), 54 (1977).
12. Chesler, S. N., Gump, B. H., Hertz, H. S., May, W. E., and Wise, S. A., Determination of Trace Level Hydrocarbons in Marine Biota, *Anal. Chem.* 50 (6), 805-810 (1978).
13. Chesler, S. N., Hertz, H. S., May, W. E., Wise, S. A., and Guenther, F. R., Organic Marker Compounds for Environmental Analysis, *Intern. J. Environ. Anal. Chem.* 5 259-271 (1978).

14. Christensen, R. G. and May, W. E., Detectors for Liquid Chromatographic Analysis of Polynuclear Aromatic Hydrocarbons, *J. Liq. Chromatog.* 1 (3), 385-399 (1978).
15. Hertz, H. S., May, W. E., Wise, S. A., and Chesler, S. N., Trace Organic Analysis, *Anal. Chem.* 50 (4), 428A-436A (1978).
16. Hilpert, L. R., May, W. E., Wise, S. A., Chesler, S. N., and Hertz, H. S., Interlaboratory Comparison of Determinations for Trace Level Petroleum Hydrocarbons in Marine Sediments, *Anal. Chem.* 50 (3), 458-463 (1978).
17. May, W. E., Chesler, S. N., Gump, B. H., Hertz, H. S., and Searl, T. D., An Analysis of Petroleum Hydrocarbons in the Marine Environment: Results of an Interlaboratory Comparison Exercise, *J. Environ. Sci. Health A13* (5&6) 403-410 (1978).
18. May, W. E., and Wasik, S. P., Determination of Aqueous Solubility of Polynuclear Aromatic Hydrocarbons by a Coupled-Column Liquid Chromatographic Technique, *Anal. Chem.* 50, 175 (1978).
19. May, W. E., Wasik, S. P., and Freeman, D. H., The Aqueous Solubility Behavior of Polycyclic Aromatic Hydrocarbons, *Anal. Chem.* 50, 997 (1978).
20. Wise, S. A., Chesler, S. N., Hertz, H. S., Hilpert, L. R., and May, W. E., Methods for Polynuclear Aromatic Hydrocarbon Analysis in the Marine Environment, *Carcinogenesis 3: Polynuclear Aromatic Hydrocarbons*, P. W. Jones and R. I. Freudenthal, eds., Raven Press, New York, NY, 175-182 (1978).
21. Hertz, H. S., Hilpert, L. R., May, W. E., Wise, S. A., Brown, J. M., Chesler, S. N., and Guenther, F. R., Interlaboratory Comparison of Environmental Analyses Associated with Increased Energy Production, *Meas. Of Org. Poll. In Water And Wastewater*, ASTM STP 686, C. E. Van Hall, ed., 291-301 (1979).
22. May, W. E., Brown, J. M., Chesler, S. N., Guenther, F. R., Hilpert, L. R., Hertz, H. S., and Wise, S. A., Development of an Aqueous Polynuclear Aromatic Hydrocarbon Standard Reference Material, *Trace Org. Anal.: A New Frontier In Anal. Chem.*, NBS SP 519, U. S. Gov't Printing Office, Washington, DC, 219-224 (1979).
23. May, W. E., Brown, J. M., Chesler, S. N., Guenther, F. R., Hilpert, L. R., Hertz, H. S., and Wise, S. A., Development of an Aqueous Polynuclear Aromatic Hydrocarbon Standard Reference Material, *Polynuclear Aromatic Hydrocarbons*, P. W. Jones and P. W. Jones and P. Leber, eds., Ann Arbor Science Publishers, Inc., Ann Arbor, MI (1979).
24. Brown, J. M., Wise, S. A., and May, W. E., Determination of Benzo(a)pyrene in Recycled Oils by a Sequential HPLC Method, *J. Environ. Sci. Health A15* (6), 613-623 (1980).
25. Hertz, H. S., Brown, J. M., Chesler, S. N., Guenther, F. R., Hilpert, L. R., May, W. E., Parris, R. M., and Wise, S. A., Determination of Individual Organic Compounds in Shale Oil, *Anal. Chem.* 52 (11), 1650-1657 (1980).
26. May, W. E., The Solubility Behavior of Polycyclic Aromatic Hydrocarbons in Aqueous Systems, *Petroleum In The Marine Environ.* 7, 143-192 (1980).
27. Wise, S. A., Bonnett, W. J., and May, W. E., Normal- and Reversed-Phase Liquid Chromatographic Separations of Polycyclic Aromatic Hydrocarbons, *Polynuclear Aromatic Hydrocarbons: Chem. And Biol. Effects*, A. Bjorseth and A. J. Dennis, eds., Battelle Press, Columbus, OH, 791-806 (1980).

28. Wise, S. A., Chesler, S. N., Guenther, F. R., Hertz, H. S., Hilpert, L. R., May, W. E., and Parris, R. M., Interlaboratory Comparison of Determinations of Trace Level Hydrocarbons in Mussels, *Anal. Chem.* 52 (12), 1828-1833 (1980).
29. Wise, S. A., Chesler, S. N., Hertz, H. S., May, W. E., Guenther, F. R., and Hilpert, L. R., Determination of Trace Level Hydrocarbons in Marine Biota, *Anal. Tech. In Environ. Chem.*, J. Albaiges, ed., Pergamon Press, New York, NY, 41-51 (1980).
30. May, W. E., Brown-Thomas, J. M., Hilpert, L. R., and Wise, S. A., Certification of Selected Polynuclear Aromatic Hydrocarbons in SRM 1580, "Organics in Shale Oil," *Anal. Methods And Biol. Fate Of Polynuclear Aromatic Hydrocarbons*, M. Cooke and A. J. Dennis, eds., Battelle Press, Columbus, OH, 1-16 (1981).
31. Konash, P. L., Wise, S. A., and May, W. E., Selective Quenchofluorometric Detection of Fluoranthenic Polycyclic Aromatic Hydrocarbons in High-Performance Liquid Chromatography, *J. Liq. Chromatog.* 4, 1339-1349 (1981).
32. Wise, S. A., Bonnett, W. J., Guenther, F. R., and May, W. E., A Relationship Between Reversed-Phase C18 Liquid Chromatographic Retention and the Shape of Polycyclic Aromatic Hydrocarbons, *J. Chromatog. Sci.* 19, 457-465 (1981).
33. Chesler, S. N., Guenther, F. R., May, W. E., and Parris, R. M., SRM's for Accurate Analyses of PCB's in Oil, *ASTM Standardization News* 10 (6), 15-20 (1982).
34. Kline, W. F., Enagonio, D., Reeder, D. J., and May, W. E., Liquid Chromatographic Determination of Valproic Acid in Human Serum, *J. Liq. Chromatog.* 5 (9), 1697-1709 (1982).
35. May, W. E., Chesler, S. N., Hertz, H. S., and Wise, S. A., Analytical Standards and Methods for the Determination of Polycyclic Aromatic Hydrocarbons in Environmental Samples, *Intern. J. Environ. Anal. Chem.* 12, 259-275 (1982).
36. Sonnefeld, W. J., Zoller, W. H., May, W. E., and Wise, S. A., On-Line Multidimensional Liquid Chromatographic Determination of Polycyclic Aromatic Hydrocarbons, *Anal. Chem.* 54 (4), 723-727 (1982).
37. Sonnefeld, W. J., Zoller, W. H., May, W. E., and Wise, S. A., On-Line Multidimensional High-Performance Liquid Chromatographic Determination of Polycyclic Organic Material in Energy Related Fuel Oils, *Polynuclear Aromatic Hydrocarbons: Phys. And Biol. Chem.*, M. Cooke and A. J. Dennis, eds., Battelle Press, Columbus, OH, 755-764 (1982).
38. Wise, S. A., Bowie, S. L., Chesler, S. N., Cuthrell, W. F., May, W. E., and Rebbert, R. E., Analytical Methods for the Determination of Polycyclic Aromatic Hydrocarbons on Air Particulate Matter, *Polynuclear Aromatic Hydrocarbons; Phys. And Biol. Chem.*, M. Cooke and A. J. Dennis, eds., Battelle Press, Columbus, OH, 919-929 (1982).
39. May, W. E., Brown-Thomas, J. M., Chesler, S. N., Guenther, F. R., Hilpert, L. R., Parris, R. M., Richie, K. L., Sonnefeld, W. J., Wise, S. A., and Hertz, H. S., Interlaboratory Comparisons of Quantitative Analyses of Individual Compounds in Simple and Complex Mixtures, in *Advanced Techniques in Synthetic Fuels Analysis*, C. W. Wright, W. C. Weiner, and W. D. Felix, eds., Technical Information Center, U.S. Department of Energy, 381-404 (1983).
40. May, W. E., Miller, M. M., Tewari, Y. B., Brown-Thomas, J. M., and Goldberg, R., The Solution Thermodynamics of Some Slightly Soluble Hydrocarbons in Water, *J. Chem. Eng. Data* 28, 197 (1983).

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Dr. Willie E. May is currently serving as the Acting Under Secretary of Commerce for Standards and Technology, a new position created in the America COMPETES Reauthorization Act of 2010. He also serves as the Director of the National Institute of Standards and Technology (NIST). Prior to this assignment, Dr. May served as Associate Director for Laboratory Programs, where he was responsible for oversight and direction of NIST's seven laboratory programs and served as the principal deputy to the NIST Director.

As Acting NIST Director, Dr. May provides high-level oversight and direction for NIST. The agency promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. NIST's FY 2014 resources total \$850.0 million indirect appropriations, an estimated \$47.3 million in service fees, and \$107.0 million from other agencies. The agency employs about 3,000 scientists, engineers, technicians, support staff, and administrative personnel at two main locations in Gaithersburg, Md., and Boulder, Colo. NIST also hosts about 2,700 associates from academia, industry, and other government agencies, who collaborate with NIST staff and access user facilities. In addition, NIST partners with more than 1,300 manufacturing specialists and staff at more than 400 MEP service locations around the country.



Other National and International Responsibilities: Dr. May has several leadership responsibilities in addition to those at NIST. He is Vice President of the 18-person International Committee on Weights and Measures (CIPM), President of the CIPM's Consultative Committee on Metrology in Chemistry and Biology; Executive Board Member for the Joint Committee on Traceability in Laboratory Medicine; Board of Visitors for the University of Maryland College Park's College of Computer, Mathematical, and Natural Sciences.

Honors and Awards: Department of Commerce Bronze Medal Award, 1981; National Bureau of Standards (NBS) Equal Employment Opportunity (EEO) Award, 1982; Department of Commerce Silver Medal Award, 1985; Arthur Flemming Award for Outstanding Federal Service, 1986; NOBCCHE Percy Julian Award for Outstanding Research in Organic Analytical Chemistry and Presidential Rank Award of Meritorious Federal Executive, 1992; Department of Commerce Gold Medal, 1992; American Chemical Society Distinguished Service in the Advancement of Analytical Chemistry Award, 2001; Keynote Speaker for the 2002 Winter Commencement Ceremonies, University of Maryland, College of Life Sciences; Council for Chemical Research Diversity Award, the NOBCCHE Henry Hill Award for exemplary work and leadership in the field of chemistry, Science Spectrum Magazine Emerald Award in 2005, the 2007 Alumnus of the Year Award from the College of Chemical and Life Sciences at the University of Maryland, member of first class of inductees into the Knoxville College Alumni Hall of Fame in 2010 and Fellow of the American Chemical Society in 2011; Honorary Doctor of Science and Speaker at Graduate School of Arts and Sciences Commencement Exercises, Wake Forest University in 2012.