

U.S. Department of Energy



2007 Day of Science

**October 28–29, 2007
Knoxville Convention Center
Knoxville, Tennessee**

FINAL REPORT

Submitted by

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Oak Ridge National Laboratory**

Contents

Executive Summary	iii
1. Introduction	1
2. Evaluation of the 2007 Day of Science.....	4
3. Success Story from the 2007 Day of Science: ORNL and Central State University—A Collaboration	6
4. “Science Accelerated” Photo Gallery	8
Appendices	
A. 2007 Day of Science Agenda	17
B. Sponsors	21
C. Leadership Team	22

Executive Summary

The U.S. Department of Energy (DOE) Day of Science provides DOE and its national laboratories and facilities with the opportunity to connect with college and university students and faculty throughout the nation. The purposes of this event are to introduce the participants to the scientific work taking place at DOE laboratories and facilities and to encourage collaborations between the academic community and DOE researchers, with the goal of building a technically trained workforce for the future.

The first Day of Science was held at DOE's Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee, in 2002, with an emphasis on outreach to students at Historically Black Colleges and Universities (HBCUs). Increasing interest in this event led to steady growth in attendance, and in 2007 the decision was made to hold it at the Knoxville Convention Center in Knoxville, Tennessee, and expand the involvement of DOE and its national laboratories and facilities.

The theme of the 2007 Day of Science, held October 28–29 and hosted by ORNL, was “Science Accelerated!” The 1483 participants included students and faculty from 127 colleges and universities, plus 150 high school students and teachers.

Students had opportunities to jumpstart their careers by presenting their résumés and expressing their interest in internships or employment at DOE laboratories and facilities. Faculty members were able to discuss summer research opportunities, sabbaticals, subcontracting opportunities, and other ways to collaborate with DOE researchers.

The event included presentations by DOE scientists, including posters and hands-on experiments. Dozens of exhibitors from DOE laboratories and facilities, along with colleges and universities, set up booths at a Career and Graduate School Fair. The featured speaker was General Lester Lyles (U.S. Air Force, Retired).

DOE sponsors of the event included the Office of Human Capital Management, the Office of Economic Impact and Diversity, the Office of Science, and the Oak Ridge Office (DOE-ORO). Other key sponsors were UT-Battelle, LLC, which manages ORNL for DOE, and Oak Ridge Associated Universities, which manages the Oak Ridge Institute for Science and Education for DOE.

1. Introduction

The U.S. Department of Energy (DOE) Day of Science, initiated in 2002 by DOE's Oak Ridge National Laboratory (ORNL), has become a major annual event that supports DOE goals of promoting a diverse workforce and increasing partnerships between academia and DOE researchers. In 2007, a decision was made to expand the involvement of DOE and its national laboratories and facilities in the Day of Science. To ensure that adequate space would be available, the event was held at the Knoxville Convention Center in Knoxville, Tennessee.

The theme of the 2007 Day of Science, held October 28–29, was “Science Accelerated!” The event attracted more than 1100 students and faculty from 127 colleges and universities. Also in attendance were 150 students and teachers from area high schools. Participating institutions are listed in Table 1. The distribution of participants (including exhibitors and presenters) is given in Table 2.

The Day of Science supports DOE's goal to attract talent and build human capital for its federal and contractor workforce. From across the DOE complex, 14 DOE laboratories and facilities (listed in Table 3) took part in the event. As DOE's Chief Human Capital Officer, Dr. Jeff Pon, said during the 2007 event, “We're trying to do something innovative—really building our workforce pipeline.” The Day of Science offered effective support for this effort.

The agenda for the event (see Appendix A) provided the academic participants with a first-hand look at science in action. Presentations on cutting-edge research at DOE laboratories were complemented by a science exposition, career fair, and graduate school fair that provided opportunities for participants to interact with about 70 exhibitors (listed in Table 4). The exhibitors included a wide range of representatives from graduate schools at major universities to other government agencies and private industry.

The agenda also included workshops for both students and faculty. Student workshops provided information about internships and career opportunities with DOE and its laboratories and facilities. Other presenters offered details on scholarships and student internship programs.

Faculty workshops featured presentations on developing collaborative relationships with DOE national laboratories. Faculty members also learned about the availability of loans and donations of research equipment to schools.

The keynote speaker, General Lester Lyles (U.S. Air Force, Retired), gave participants his views on science and technology opportunities. He also provided exclusive one-on-one question and answer time for a select group of students, sharing with them his experiences in math and science and in the military. He said that the Day of Science is important because “it reinforces that engineering, science, math and technology are vitally important for the future of our country.”

Table 1. Participating colleges, universities, and high schools

Alabama A&M University ^a	Medgar Evers College ^b
Albany State University ^a	Middle Tennessee State University
Albion College	University of Illinois, Chicago
Alcorn State University ^a	University of Illinois, Urbana-Champaign
Allen University ^a	Miles College, Birmingham ^a
Anderson University	Miles College, Fairfield ^a
Appalachian State University	Mississippi State University
Arkansas State University	Mississippi Valley State University ^a
Armstrong Atlantic University	Morehouse College ^a
Auburn University	Morgan State University ^a
Austin Peay University	Murray State University
Brown University	Norfolk State University ^a
Carson Newman College	North Carolina State University
Central State University ^a	Ohio State University
Claflin University ^a	Paine College ^a
Clark Atlanta University ^a	Pellissippi State Technical Community College
Clayton State University ^b	Pennsylvania State University
College of Charleston, Charleston	Polytechnic University of Puerto Rico, Hato Rey ^c
College of Charleston, Mount Pleasant	Polytechnic University of Puerto Rico, San Juan ^c
Colorado College	Princeton University
Denison University	Purdue University
Desert Research Institute	Rensselaer Polytechnic Institute
Duke University	Rhodes College
Earlham College	Rose-Hulman Institute of Technology
East Carolina State University	Rust College ^a
East Tennessee State University	Savannah State University ^a
Edward Waters College ^a	South Carolina State University ^a
Elizabeth City State University ^a	Southern Adventist University
Emory & Henry College	Southern Illinois University, Carbondale
Fisk University ^a	Southern University & A&M College ^a
Florida A&M University ^a	Southwest Tennessee Community College ^b
Fort Valley State University ^a	Southwestern Christian College ^a
Georgia Institute of Technology	Spelman College ^a
Georgia State University	Spring Hill College
Grinnell College	St. Philip's College ^a
Hope College	Tallahassee Community College
Illinois State University	Tennessee State University ^a
Iowa State University	Tennessee Technological University
Jackson State University ^a	Texas A&M University ^b
Knox College	Tougaloo College ^a
Knoxville College ^a	Tusculum College
Lane College ^a	Tuskegee University ^a
Lawson State Community College ^b	Union University
Lincoln University ^a	Universidad del Turabo ^c
Louisiana State University	University of Alabama
Marymount University	University of Cincinnati
Maryville College	University of Dayton
Massachusetts Institute of Technology	University of Evansville

Table 1. Participating colleges, universities, and high schools (continued)

University of Florida, Gainesville	University of Texas, El Paso ^c
University of Florida, Wimauma	University of Toledo
University of Georgia	University of Virginia
University of Houston, Downtown ^c	Valdosta State University
University of Kansas	Virginia Polytechnic Institute and State University
University of Maryland	Voorhees College ^a
University of Memphis	Walters State Community College
University of North Carolina, Pembroke ^d	Washington University
University of Pennsylvania, Lock Haven	Wayne State University
University of Puerto Rico, Mayaguez ^c	West Virginia State University
University of South Carolina	Whittier College
University of South Florida	Winston-Salem State University ^a
University of Tennessee, Chattanooga	Winthrop University
University of Tennessee, Knoxville	Wofford College
University of Tennessee Space Institute	Wright State University
University of Texas, Austin	
<i>High Schools</i>	
Bearden High School	
Berean Christian High School	
Carter High School	
Oak Ridge High School	

^aHistorically black college or university.

^bOther minority institution.

^cHispanic-serving institution.

^dHistorically minority university (Native American population).

Table 2. Distribution of 2007 Day of Science participants

	Number
Colleges and universities	
Faculty	276
Students	872
High School	
Faculty	20
Students	130
Exhibitors	169
Presenters	16
Total	1483

Table 3. Participating DOE laboratories and facilities

Ames Laboratory	Oak Ridge National Laboratory
Argonne National Laboratory	Pacific Northwest National Laboratory
Brookhaven National Laboratory	Princeton Plasma Physics Laboratory
Idaho National Laboratory	Sandia National Laboratories
Los Alamos National Laboratory	Savannah River National Laboratory
Oak Ridge Institute for Science and Education	Y-12 National Security Complex

As indicated in Table 1, the attendees were a diverse group, made up of students and faculty from majority universities, historically black colleges and universities, Hispanic-serving institutions, and other minority educational institutions from as far away as Puerto Rico. They provided a number of positive comments on the Day of Science; a summary is presented in Section 2.

The 2007 Day of Science has already contributed to the development of new partnerships, as indicated by the success story presented in Section 3. The diversity of the activities and the excitement of the participants are evident in the photo gallery presented in Section 4.

The 2007 Day of Science was made possible by the support of DOE and other sponsors (listed in Appendix B) and the efforts of a skilled and dedicated leadership team (see Appendix C). The sharing of the knowledge, experience, new ideas, and enthusiasm of DOE-sponsored scientists and engineers with today's students is expected to generate increased participation by faculty and students in research and educational programs at DOE laboratories and facilities, with long-term positive impacts on the scientific workforce.

2. Evaluation of the 2007 Day of Science

Academic participants were surveyed on their views of the 2007 Day of Science. A summary of results and a selection of responses are provided below.

Survey results

In terms of their overall experience, 83.5% of participants indicated that they were "satisfied" or "very satisfied." Networking was rated as "good" to "outstanding" by 76.6% of participants, and information on internships was rated as "good" to "outstanding" by 83% of participants. Just over 77% of the participants indicated that the Day of Science met their expectations.

Comments

- "It gave me an opportunity to weigh my options after graduation, and what I want/need to focus on during my undergrad years."
- "The most helpful part was definitely the career and grad school fair."
- "I enjoyed the booths and how friendly the speakers were to students."
- "The Nuclear Fission and Supernova presentations were excellent."
- "Invite General Lyles back."
- "I liked the stuff that was given out. Nothing comes to mind that I didn't like, except for getting up so early!"
- "Most helpful – the brochures from each station explaining all of the career fields that are offered."
- (Regarding the speakers) "I liked how they all were interactive with the audience. Invite them all back."
- "It would be great if there were more advancements for international students."
- "Representing each area of the National Labs was very helpful in figuring out the organization."
- "Most, if not all, of the speakers were great."

- “The career and internship booths were most helpful and I would love to see more booths interested in biology students.”
- “I enjoyed the internship and career opportunity segment; however, I believe there could have been a little more time to ask questions.”
- “I particularly enjoyed the keynote speaker’s emphasis on national security, defense and success, as well as potential threats to the aforementioned.”
- “The meals were excellent! Thank you for everything.”
- “The most helpful feature about the Day of Science was all of the exhibitors. They helped me learn about all the various programs offered with the DOE.”
- “I found that the information about how to gain an internship very helpful. However, I was looking forward to more exhibits like the superconductor.”
- “It was all well done.”

Table 4. Exhibitors and graduate school fair participants

Arkansas State University
Battelle Memorial Institute
Brown University
Florida State University
Iowa State University
Middle Tennessee State University
National Consortium for Graduate Degrees for Minorities in Engineering and Science
North Carolina State University
Oak Ridge Associated Universities
Rose-Hulman Institute of Technology
Society of Hispanic Professional Engineers
U.S. Department of Energy

- Ames Laboratory
- Argonne National Laboratory
- Bonneville Power Administration
- Brookhaven National Laboratory
- Chicago Office
- Idaho National Laboratory
- Los Alamos National Laboratory
- National Energy Technology Laboratory
- Oak Ridge Institute for Science and Education
- Oak Ridge National Laboratory (several organizations)
- Oak Ridge Office
- Office of Energy Efficiency and Renewable Energy
- Office of Fossil Energy
- Office of Nuclear Energy
- Office of Scientific and Technical Information
- Pacific Northwest National Laboratory
- Princeton Plasma Physics Laboratory
- Sandia National Laboratories
- Savannah River National Laboratory
- Thomas Jefferson National Accelerator Facility
- Y-12 National Security Complex

U.S. Department of Homeland Security
U.S. Nuclear Regulatory Commission
University of Tennessee, Knoxville

- Challenge X Sustainable Vehicle Competition
- College of Engineering
- Department of Mathematics

University of Virginia
Vanderbilt University
Virginia Polytechnic Institute and State University
Wright State University

3. Success Story from the 2007 Day of Science:

Oak Ridge National Laboratory and Central State University – A Collaboration

“The feedback I have received since we returned has been overwhelmingly positive,” says Dr. Abayomi Ajayi-Majebi, a Professor in the Manufacturing Engineering Department of Central State University in Wilberforce, Ohio. He and 34 Central State University students traveled to Knoxville, Tennessee, for the 2007 Day of Science.

He says the event was an “eye-opener” for many of his students. “It exposed them to the many opportunities they could pursue regarding their career growth vectors,” Dr. Ajayi-Majebi says. “Some of those who did not show up regretted not going after hearing about what transpired.”

What transpired was an extraordinary event that brought together more than 1,200 students and faculty from colleges and universities around the country for a first-hand look at the science programs of the Department of Energy and Oak Ridge National Laboratory.

Dr. Ajayi-Majebi says for his students, the event was a thrill. “The Day of Science program gave them an opportunity to witness cutting-edge research work in many Department of Energy labs.”

In addition, the professor came away from the event with an exciting development of his own. He took the initiative to set up meetings with two ORNL scientists, Dr. Andrew Wereszczak and Dr. Paul Becher. This resulted in discussions about future research collaborations in the area of advanced high temperature ceramic materials research. In addition, Central State may be the recipient of some laboratory equipment—on loan from Oak Ridge National Laboratory. Discussions and fundraising efforts are under way to try to make this happen.

4. “Science Accelerated!” Photo Gallery



From left to right:

Mary Ann Fresco, Diversity and Outreach Manager, DOE National Nuclear Security Administration

Jeff Pon, Chief Human Capital Officer, Office of Human Capital Management, DOE

Ron Townsend, President, Oak Ridge Associated Universities

Gerald Boyd, Manager, Oak Ridge Office, DOE

Will Minter, Day of Science Project Manager, ORNL

Bill Valdez, Director, Office of Workforce Development for Teachers and Scientists, Office of Science, DOE

Lester Lyles, United States Air Force General (Retired)

Jeff Wadsworth, Executive Vice President, Global Laboratory Operations, Battelle

Jim Roberto, Deputy Director for Science and Technology, ORNL

Rufus Smith, Diversity Programs and Employee Concerns Manager, Oak Ridge Office, DOE

Career and Graduate School Fair

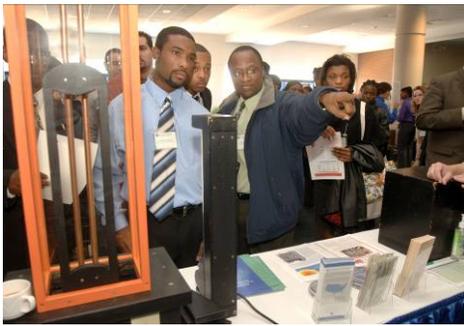


"Challenge X Cars" Exhibit





Career and Graduate School Fair



Faculty Workshop



Scientist Experiments and Presentations



Morning, Luncheon and Afternoon Sessions



Morning, Luncheon and Afternoon Sessions



**Featured Speaker
General Lester Lyles (U.S. Air Force, retired)**



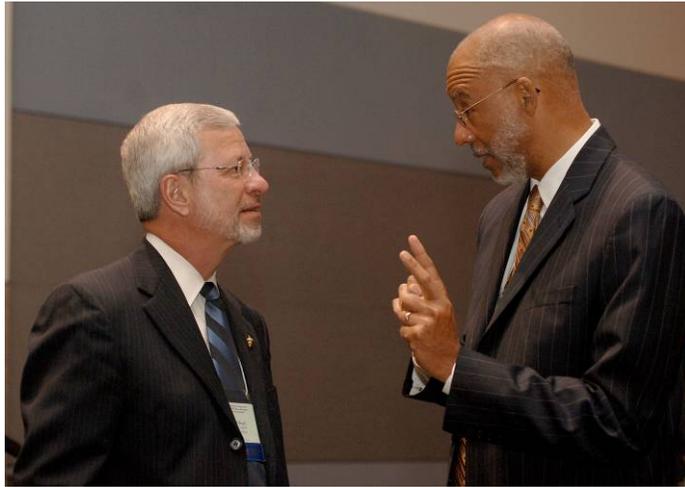
Scenes from the Exhibit Hall



Scenes from the Exhibit Hall



Scenes from the Exhibit Hall



Appendix A

2007 Day of Science Agenda

SUNDAY, OCTOBER 28, 2007

WELCOME RECEPTION

5:00 p.m.–7:00 p.m.

Early Registration

Welcome Remarks:

- Will Minter, Day of Science Project Manager, Oak Ridge National Laboratory
- Jeff Pon, Chief Human Capital Officer, Office of Human Capital Management, U.S. Department of Energy
- Rufus Smith, Diversity Manager, U.S. Department of Energy, Oak Ridge Office

Special Activities

MONDAY, OCTOBER 29, 2007

OPENING SESSIONS

7:30 a.m. – 8:15 a.m.

Continental Breakfast and Registration

8:15 a.m. – 8:30 a.m.

Welcome and Introduction of Speakers:

- James Roberto, Deputy Director for Science and Technology, Oak Ridge National Laboratory
- Bill Haslam, Mayor, City of Knoxville
- Gerald Boyd, Manager, U.S. Department of Energy, Oak Ridge Office

8:30 a.m.–9:10 a.m.

Introduction of Speakers: Ron Townsend, President, Oak Ridge Associated Universities

Introduction to the Department of Energy and DOE Laboratories:

Missions, Capabilities

- Bill Valdez, Associate Director, Workforce Development for Teachers and Scientists, Office of Science, U.S. Department of Energy

Department of Energy Human Capital Needs

- Jeff Pon, Chief Human Capital Officer, Office of Human Capital Management, U.S. Department of Energy

9:10 a.m.–10:40 a.m.

Science and Technology at the DOE Laboratories

- “Secrets of the Ancient Goatskin: X-rays Reveal Oldest Writings of Archimedes”
Uwe Bergmann, Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center
- “Nanoscience, Nanoengineering, and the Next Technology Revolution”
Duane Dimos, Sandia National Laboratories
- “Green Energy: Bioscience to Biofuels”
Niels Van Der Lelie, Brookhaven National Laboratory

- “Bringing a Star to Earth: ITER and the Promise of Nuclear Fusion”
Ned Sauthoff, Oak Ridge National Laboratory
- “Our Cosmic Origins: Exploring the Mysteries of Exploding Stars”
Tony Mezzacappa, Oak Ridge National Laboratory

10:40 a.m.–10:50 a.m.

BREAK

STUDENT TRACK

10:50 a.m. – 12:15 p.m.

SCIENCE EXPOSITION, CAREER FAIR, GRADUATE SCHOOL FAIR,
DEPARTMENT OF ENERGY INTERVIEWS, AND NETWORKING

12:15 p.m.–1:30 p.m.

LUNCH

Welcome:

- James Roberto, Deputy Director for Science and Technology, Oak Ridge National Laboratory

Introduction of Speaker:

- Jeff Wadsworth, Executive Vice President for Global Laboratory Operations, Battelle

Keynote Speaker:

- “Science and Technology Opportunities: Perspectives of a Technology Leader,”
General Lester Lyles, USAF (Retired)

1:30 p.m.– 2:30 p.m.

SCIENCE EXPOSITION, CAREER FAIR, GRADUATE SCHOOL FAIR,
DEPARTMENT OF ENERGY INTERVIEWS, AND NETWORKING

2:30 p.m.–3:30 p.m.

Student Track Facilitator:

- Wayne Stevenson, Director and Vice President, Oak Ridge Institute for Science and Education/Oak Ridge Associated Universities

Internships and Career Opportunities

- Marcus A. Huggans, Senior Recruiter and Programs Specialist, National GEM Consortium
- Jeff Pon, Chief Human Capital Officer, Office of Human Capital Management, U.S. Department of Energy
- Noel Blackburn, Educational Programs Administrator, Brookhaven National Laboratory

3:30 p.m.–4:00 p.m.

STUDENT PANEL: OPPORTUNITIES AT DOE AND DOE LABORATORIES

- Moderator: Sarah Cousineau, Staff Physicist, Spallation Neutron Source, Oak Ridge National Laboratory
- Ariel Ruffin, Master's Graduate Student in Physics, Fisk University Dual enrollment Fisk-Vanderbilt University Masters to Ph.D. Bridge Program
- Adam Carroll, Engineer, Nuclear Science and Technology Division, Oak Ridge National Laboratory
- Edwin Luevanos, Human Capital Specialist, Office of Human Capital Management, U.S. Department of Energy
- Steven Saavedra, Research Associate, Nuclear Technology Program Office, Oak Ridge National Laboratory
- Stan Fears, Jackson State University

4:00 p.m.

CLOSING

FACULTY TRACK

Faculty Track Facilitator:

- Rufus Smith, Diversity Manager, U.S. Department of Energy, Oak Ridge Office

10:50 a.m.–11:40 p.m.

DEPARTMENT OF ENERGY SCIENCE & TECHNOLOGY

MISSION AND OPPORTUNITIES

- Bill Valdez, Associate Director, Workforce Development for Teachers and Scientists, Office of Science, U.S. Department of Energy
- Kent Hibben, Procurement Specialist/COR, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy
- Tom Ballard, Interim Director, Technology Transfer and Economic Development, Oak Ridge National Laboratory

11:45 a.m.–12:15 p.m.

COLLABORATING WITH THE DEPARTMENT OF ENERGY AND DOE LABORATORIES, PART I

Building Enduring Partnerships: Universities and Laboratories

- Wendy Cieslak, Senior Manager, Sandia National Laboratories

Mentor Protégé Programs

- Gloria Mencer, Manager for the Office of Socioeconomic Programs, BWXT Y12

12:15 p.m. – 1:30 p.m.

LUNCH

1:30 p.m.–2:30 p.m.

**COLLABORATING WITH THE DEPARTMENT OF ENERGY AND DOE
LABORATORIES, PART II**

Writing Winning Proposals and Grants Management

- Malika Hobbs, Diversity Program Manager, National Nuclear Security Administration, U.S. Department of Energy

Subcontracting Process

- Al Guidry, Subcontract Administrator, Spallation Neutron Source, Oak Ridge National Laboratory

Government Property – Loans and Donations to Educational Institutions

- Cheri Cross, Group Leader, Property Management, Oak Ridge National Laboratory
- Marcia Whitson, Property Disposal Manager, Property Management, Oak Ridge National Laboratory

Wise Strategies in Working with DOE

- Larry Thompson, Small Business Programs Manager, U.S. Department of Energy, Chicago Operations Office

2:30 p.m.–3:30 p.m.

SCIENCE EXPOSITION AND NETWORKING

3:30 p.m. – 4:00 p.m.

QUESTIONS & ANSWERS

- Moderator: Annie Whatley, Senior Advisor for Education Programs, Office of Economic Impact and Diversity, U.S. Department of Energy

4:00 p.m.

CLOSING

Appendix B Sponsors

Oak Ridge Associated Universities

U.S. Department of Energy

- Office of Human Capital Management
- Office of Economic Impact and Diversity
- Office of Science
- Oak Ridge Office

U.S. Nuclear Regulatory Commission

UT-Battelle, LLC

Appendix C

2007 Day of Science Leadership Team

Senior Planning Team

- Will Minter, Day of Science Program Manager, Oak Ridge National Laboratory
- Marie Westfall, Day of Science Assistant Program Manager, Oak Ridge Institute for Science and Education
- James Page Brown, Director, Office of Research Careers, Morehouse College
- Linda Holmes, Science Education Group Manager, Oak Ridge Associated Universities
- James B. Roberto, Deputy for Science and Technology, Oak Ridge National Laboratory
- Wayne Stevenson, Director, Science Education Programs, Oak Ridge Associated Universities
- Greg Turner, Chief Financial Officer, Oak Ridge National Laboratory

Department of Energy Leadership

- Sean Clayton, Office of Corporate Workforce and Employment Solutions
- Pat Howes-Smith, Oak Ridge Operations
- Thomasina Mathews, Office of Corporate Workforce and Employment Solutions
- Rufus Smith, Oak Ridge Operations
- Annie Whatley, Office of Minority Economic Impact

Staff Support

- Cassandra McGee Stuart, Special Assistant to the Program Managers, Oak Ridge National Laboratory

Communications

- Mike Bradley, Oak Ridge National Laboratory
- Brenda Hackworth, Oak Ridge National Laboratory

Conference Coordination

- Norma Cardwell, Oak Ridge National Laboratory

Exhibit Managers

- Desmond Stubbs, Oak Ridge Associated Universities
- Greg Gruzalski, Oak Ridge National Laboratory

Finance and Cost Management

- Bryan Kendrick, Oak Ridge National Laboratory
- Mike Gallaher, Oak Ridge National Laboratory

Registration

- Vannissa Walton, Oak Ridge Associated Universities

Student Recruitment, Oak Ridge Associated Universities

- Barbara Dunkin, Oak Ridge Institute for Science and Education
- Michael Hubbard, Oak Ridge Institute for Science and Education
- Libby Kittrell, Oak Ridge Institute for Science and Education

Transportation and Lodging Coordination

- Carol Leffew, Oak Ridge National Laboratory