**Science and Engineering Alliance, Inc. (SEA) Activities to Increase Participation of
Students from Underrepresented Groups in Science, Technology, Engineering
and Mathematics (STEM) Programs**

(DOE Washington, D.C. Regional Science Bowl Competition)

Final Report

Submitted to

**U.S. Department of Energy (DOE)
Office of Economic Impact and Diversity**

(Cooperative Agreement #: DE-FC01-09ED000008)

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REPORT SUMMARY

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Institution: Science and Engineering Alliance, Inc. (SEA)

Title of Project: SEA Activities to Increase Participation of Students from Underrepresented Groups in Science, Technology, Engineering and Mathematics (STEM) Programs

Period Covered by this Report: April 1, 2009 – April 30, 2012

BACKGROUND AND SUMMARY

Since 1991, the U.S. Department of Energy (DOE) has supported the Science and Engineering Alliance (SEA) student outreach efforts.

From 1991 to 2008, the DOE resources, totaling nearly \$400,000, were used to support the SEA Student Technical Conference and Recognition Program (STCRP). A total of 458 students have benefited from the STCRP. Of the 458 students, 242 undergraduate students received scholarships and 216 high schools students received incentive award support. Of the 216 high school awards, 88 of the awards went to high school students from the Washington, D.C area.

To date, the outreach efforts have attracted over 5,000 students, their parents, teachers, other Federal agencies and participants from private corporations. The program continues to attract large numbers of students that are significantly underrepresented in the science, technology, engineering and mathematics (STEM) fields.

In 2004, the SEA outreach efforts were expanded to include SEA facilitation of the DOE Washington, D.C. Regional Science Bowl. In 2010, a middle school component was added to the DC Regional Science Bowl. Middle schools competed for the first time in the 2011 regional competition.

In January 2012, an workshop component was added to train faculty from historically black colleges and universities (HBCUs) on the mechanics of developing competitive proposals in response to solicitation from the DOE.

I. PROGRAM DESCRIPTION

Using its 22 years of experience in developing the STCRP and recent success with the support of District of Columbia (DC) high school and middle school participation in the DOE Regional Science Bowl, SEA continues to strengthen and expand these activities. Considerable attention has been given over the years, to streamlining and executing all tasks associated with planning and implementing a successful program, with primary emphasis on the DOE Washington, D.C. Regional Science Bowl. With success in working with the DC high schools and middle schools, HBCUs and other MSIs, coupled with experience interacting with DOE national laboratories like Lawrence Livermore National Laboratory (LLNL), SEA provides a strong basis for adding value to the DOE's diversity efforts. A faculty development component was added to the program.

Objective

- To increase participation of students from high schools and include students from middle schools in the DOE DC Regional and National Science Bowl
- To provide incentive awards to the first, second and third place winners of the Regional Science Bowl competition.
- Continue to improve the competition logistic and strengthen relationship with existing high schools and middle schools in the Washington Metropolitan area and expand to include others.
- To train faculty from HBCUs on the mechanics of developing competitive proposals in response to solicitations from the DOE.

II. SIGNIFICANT ACCOMPLISHMENTS IN REPORTING PERIOD

On February 20, 2010 we were sponsors of the U.S. Department of Energy's (DOE) Washington, D.C. Regional Science Bowl. The event was hosted by and held at Friendship Collegiate Academy, located at 4095 Minnesota Avenue, NE, Washington, DC. 20019.

As a sponsor, we set out to provide the necessary services and details such as, continental breakfast which included muffins, pastries and juice for breakfast, pizza, salad and drinks for lunch, trophies for 1st, 2nd, and 3rd Place winners, Medals (gold, silver and bronze) for each level respectively, colorful 2gb USB drives for 1st and 2nd places and a pair of movie tickets for 3rd place winners.

In an effort to ensure that all aspects and details were covered, periodic conference calls were scheduled with Chester Scott and Amanda Quinones. Initially, all information regarding the previous year's Science Bowl was shared as a guideline for Science Bowl 2010. It was agreed upon that SEA

would provide up to 15 volunteers to assist with registration, timekeeping, judges, provide all food and beverages and T-shirts. Calls were made to individuals who are interested in volunteering their time to support our efforts and volunteers were secured for the event. Thereafter, we gathered information as it related to all details, vendors, availability and pricing. After compiling all information and deciding on practical gifts for the winning teams and the host school, we moved forward with all other logistics.

Visits were made to the engravers to view samples of medals, visits to view samples of "Science" related trophies before final decision was made on vendor. T-shirt vendor was contacted and order placed for shirts. In final preparation we went out to purchase all additional items that were not being provided or ordered through vendors. Trips to warehouses were made to purchase items for continental breakfast items i.e. fresh fruit, bagels, muffins, coffee, cases of water, paper products, etc. Gift items, greeting cards, wrapping paper, etc. was purchased as well. At the request of Chester Scott, a videographer was also hired to capture footage of various aspects of the event including on the spot interviews. Five copies of the DVD were provided, one for each of the schools and one for the DOE archives.

Several volunteers arrived early, ready and excited to support the students and the event. One of the volunteers stated that she showed up to volunteer based on reading about the competition on the SEA Facebook site.

A total of 12 Washington, D.C. high schools participated in the Science Bowl competition. The names of the schools are listed in the Appendix. The students exhibited a great deal of excitement and enthusiasm. All were well prepared to compete in the competition. The winners were as follows: 1st Place Wilson Senior High School, 2nd Place, St. Albans School and 3rd Place, McKinley Technology High School. This was a very successful event for all involved.

On February 26, 2011 and March 19, 2011 we were sponsors of U.S. Department of Energy's (DOE) Washington, D.C. Regional Science Bowl for middle school and high school students. The middle school event was hosted by and held at Friendship Public Charter School – Blow Pierce Campus located, 725 19th Street, N.E. Washington, D.C. 20002 and the high school event was hosted by Friendship Collegiate Academy located, 5

As a sponsor, we set out to provide the necessary services and details such as, continental breakfast which included muffins, pastries and juice for breakfast, pizza, salad and drinks for lunch, trophies for 1st, 2nd, and 3rd Place winners, Medals (gold, silver and bronze) for each level respectively, for middle schools \$100 Visa gift cards for 1st \$75 Visa gift cards for 2nd place and \$50 Visa gift cards for 3rd place winners. Also, each winning school received As follows:

1st place St. Peter School received \$1000. They will use these funds to purchase

2nd place Washington Latin PCS received \$750. They will use these funds to purchase a digital a dissection microscope. Also, it will provide transportation for students to attend city science fair.

3rd place Friendship PCS – Chamerlain Campus received \$500. They will use these funds to purchase additional supplies for their science department.

In an effort to ensure that all aspects and details were covered, periodic conference calls were scheduled with Chester Scott and Jamie. Initially, all information regarding the previous year's Science Bowl was shared as a guideline for Science Bowl 2011. It was agreed upon that SEA would assist with high school and middle school participation in the science bowl and provide all food, beverages, T-shirts and awards.

A total of 6 Washington, D.C. middle schools and 8 high schools participated in the Science Bowl competition. The names of the schools are listed in the Appendix. The students exhibited a great deal of excitement and enthusiam. All were well prepared to compete in the competition. The winners of the middle school as follows: 1st Place St. Peter School, 2nd Place, Washington Latin Public Charter School and 3rd Place, Friendship Public Charter School – Chamberlin Campus. This was a very successful event for all involved.

Students from Washington Latin Public Charter School and Woodrow Wilson High School, both in the District of Columbia (DC), triumphed in a battle of scientific and mathematical wits on Saturday, February 11, 2012 and February 18, 2012 respectively, capturing their respective U.S. Department of Energy (DOE) Regional Science Bowl championships.

The Science Bowls are a key part of the DOE's efforts to encourage middle school and high school students to excel in math and science and to pursue careers in these fields. This year was the second

year for the middle school competition that brought together a total of 30 students representing five (5) DC Middle Schools competing for the top spot. Now in its 8th year, the high school competition

involved some 50 students representing 8 DC High Schools. The competition clearly showcases the very best and brightest of our future scientists and engineers.

First-place winners of the DC Regional competitions will face other regional competition student team winners from across the country at the DOE's Annual National Science Bowl (NSB) competition April 26 - April 30, 2012 at the National 4-H Center in Chevy Chase, MD. The final face off is expected to be a fierce competition among some of the nation's outstanding students from high schools and middle schools representing each state.

The Department of Energy created the NSB in 1991. By recognizing and rewarding successful math and science students, the NSB helps generate enthusiasm for science and engineering. The Department of Energy supports math and science education to help provide a technically trained and

diverse workforce for the agency and the Nation. More than 15,000 high school and middle school students are participating in the Science Bowl competition nationwide this year.

For the DC Regional qualifying rounds held at Friendship Public Charter School – Chamberlain Campus and Friendship Collegiate Academy, student-teams faced rounds of increasingly difficult grade-appropriate questions in biology, chemistry, physics, astronomy, earth science and mathematics. Each team has five students and a teacher who serves as an advisor and coach. The competitions consisted of round robins followed by double-elimination finals.

On March 7, 2012 SEA conducted the initial grant-writing workshop for HBCU faculty, graduate students and administrators. The workshop was part of the 2nd Annual DOE HBCU Conference on Entrepreneurship: Transforming Education, Government and Industry held at Alabama State University in Montgomery, AL. The workshop focused on examining the multiple avenues for doing business with the DOE. This workshop concentrated primarily on grants and unsolicited proposals. A total of roughly 100 persons attended the workshop. Individuals have contacted the workshop facilitator with questions on registration requirements for Grants.gov, FedConnect and Central Contractor Registration (CCR), which are the first steps in doing business with the DOE.

The SEA manages the DC Regional Science Bowl for the DOE under Cooperative Agreement #: *DE-FC01-09ED000008*.

III. FINANCIAL MATTERS

A detailed financial statement for 2009-2012 is below:

Federal Expenditures and Unobligated Balance:	\$60,000
Total Federal funds authorized	\$60,000
Federal share of expenditures	\$60,000
Federal share of unliquidated obligations	\$ -
Total Federal share (sum lines e and f)	\$60,000
 Total Federal share (Unobligated balance of Federal funds (line d minus g)	 \$ -

Appendix

Washington, DC Regional Science Bowl