

LINKING ENVIRONMENTAL and ACADEMIC PROGRAMS
***Air Quality Monitoring and Data Analysis, Environmental Results, Career Development,
and Stewardship***

MEMORANDUM OF UNDERSTANDING

BETWEEN

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
MID-ATLANTIC REGION**

AND

NORFOLK STATE UNIVERSITY

AND

HAMPTON UNIVERSITY

AND

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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- An increase in the number of minorities with careers in environmental science and environmental engineering.
- The improvement of Air Quality in the Communities of Southeastern Virginia.
- The understanding of air pollution causes and effects.
- Environmental stewardship ethic in students and residents of the community.
- Opportunities for research experiences for both high school and undergraduate students in the area of molecular environmental toxicology and environmental research.

Objectives

The objectives of this MOU are to:

1. Support and promote student recruitment, internships, career development and employment in the fields of environmental science and engineering.
2. Enhance faculty's professional development opportunities in environmental science and related fields.
3. Enhance public, private and non-profit partnerships for environmental initiatives and student career development.
4. Support air pollution reduction activities in the Hampton Roads area.
5. Provide mutual technical assistance in the areas of air emissions inventories, air quality monitoring data and new diesel technology.
6. Support the Center for Microgravity and Environmental Biology in the Department of Biology in the School of Science and Technology at Norfolk State University.
7. Support the Center for Atmospheric Sciences at Hampton University.

- EPA, at its discretion, may provide opportunities where authorized by applicable law, regulation, and policy, and to the extent possible for intern positions for students.
- DEQ, to the extent most practicable, will provide NSU and HU students intern opportunities.
- NSU and HU will publicize these internship opportunities and provide the students with information about EPA and DEQ.
- EPA and DEQ intend to participate in NSU and HU job fairs.
- EPA and DEQ intend to participate in department seminars and workshops sponsored by NSU and HU for the purpose of generating interest, and creating a forum for publicizing the Partners' missions and messages.
- EPA may assist NSU and HU with upgrading its laboratory facilities and other technical resources through donations of surplus laboratory, computer and field equipment, where authorized and when available in accordance with applicable laws, policies, and regulations.
- NSU and HU may provide visiting faculty appointments to the Partners' scientific and technical staff on collaborative research efforts and related programs. EPA may grant visiting scientist status to NSU and HU faculty at their analytical facilities, such as the Environmental Science Center in Fort Meade, MD where authorized and when available

of informing the students of post-secondary education and career opportunities, specifically relating to environmental science and technology.

- NSU will coordinate the School of Science and Technology meetings with the relevant Partners for the purpose of strengthening the environmental curriculum at NSU.
- HU will coordinate the School of Science, Department of Atmospheric and Planetary Sciences meetings with the relevant Partners for the purpose of strengthening the environmental curriculum at HU.
- DEQ will coordinate with NSU and their Upward Bound Program to provide student participants with environmental science-based field and laboratory training and hands-on experience at the School of Science and Technology.
- The Partners, where authorized and when available, intend to support and participate in education and training programs by:
 - Hosting mock interviews
 - Hosting field trips/tours
 - Participating in career days
 - Providing staff development and training for faculty
 - Attending awards assemblies
 - Providing classroom speakers

Objective 2 - Enhance faculty professional development in environmental science and related fields.

environmental initiatives and student career development.

The Partners intend to work with government sponsored and other volunteer organizations, such as the Retired and Senior Volunteer Program (RSVP), Volunteers in Service to America (VISTA), and the Upward Bound Program to enhance environmental stewardship, outreach, monitoring and training opportunities in the Hampton Roads area of Virginia.

- NSU and HU will encourage and support its faculty and students to visit classrooms to speak to high school students.
- NSU will set up tours for K-12 students at the School of Science and Technology.
- HU will set up tours for K-12 students at the Center for Atmospheric Sciences.
- EPA and DEQ intend to work with NSU and HU to identify opportunities to develop research and related activities in the Hampton Roads area of Virginia.
- The Partners intend to support the development of research projects that incorporate science, education, and outreach components to identify the local sources of air pollution, characterize the ambient air quality, develop and use technical tools such as monitoring, and modeling, identify strategies to improve air quality, and develop educational material for compliance assistance to small businesses and the community.
- To the extent possible and where authorized, the Partners intend to collaborate in developing an environmental awareness educational kit and environmental awareness workshops for community/voluntary organizations, science and

- Partners intend to collaborate to develop methodologies in evaluating benefits of diesel retrofit technology.
- Partners intend to collaborate to identify local sources of air pollution and characterize local ambient air quality by using emission estimation techniques and monitoring data.

Objective 5 - Provide mutual technical assistance in the areas of air emissions inventories, air quality monitoring data and new diesel technology.

The focus of CMEB has been environmental biology research. The CMEB will assist the Partners by providing:

- Air pollution information for the daily Air Quality index.
- Health advisories.
- “Ozone Action Day” alerts.

The CMEB will develop research projects that evaluate air quality and assessment methods for evaluating the air quality benefits – and tradeoffs – of using renewable diesel and biofuels.

Objective 6 – Support the Center for Microgravity and Environmental Biology in the Department of Biology in the School of Science and Technology at Norfolk State University

The CMEB has been used to promote research and train students in environmental science issues. The CMEB was established in 2002 in the Department of Biology using funding from the National Aeronautics and Space Administration (NASA) Glenn. The

cooperative programs are conducted at LaRC, as well as at other institutions. Developments in remote sensing technology are closely linked to the HU Research Center for Optical Physics (RCOP).

The Center for Atmospheric Sciences' goals are to:

- Establish a center of excellence in atmospheric and space sciences at HU to enhance and complement NASA, NOAA, NSF and DOD research.
- Establish HU faculty, curriculum and programs leading to advanced degrees in atmospheric sciences.
- Conduct fundamental research in atmospheric and Earth radiation sciences.
- Establish innovative approaches for educational and public outreach.

Institutional Profiles

United States Environmental Protection Agency

In addition to its regulatory and enforcement functions, EPA is an environmental science agency responsible for conducting environmental research and providing support to the academic environmental research community. Pursuant to CAA 103(a), EPA is authorized to encourage and cooperate with entities to promote the coordination and acceleration of research, investigations, and studies related to the causes, effects, extent, prevention and control of air pollution. It is under that authority that EPA intends to participate in the activities outlined in this MOU. In carrying out its mission, EPA has created opportunities for young researchers and students to prepare and enter into environmentally-related careers. EPA began a sustained effort in 1981 to increase the involvement and participation of scientists and researchers in minority institutions in the Agency's environmental and scientific programs. In responding to these needs, EPA has established a number of partnerships and cooperative ventures with several

The College was able to pursue an expanded mission with even greater emphasis in 1956 when another Act of the Legislature enabled the institution to offer its first Bachelor's degree. In 1969, the College was separated from Virginia State College and became fully independent. Subsequent legislative acts designated the institution as a university and authorized the granting of graduate degrees. In 1979, university status was attained.

Today, the University is proud to be one of the largest predominantly black institutions in the nation. Furthermore, it is committed to pursuing its vital role of serving the people of the Hampton Roads area.

Norfolk State University (NSU) is a public, state-supported institution in Norfolk, Virginia, which was voted the number one city in the South for 1998 by Money Magazine. The University is organized into five schools: Business and Entrepreneurship, Education, Liberal Arts, Science and Technology, and Social Work. The School of Science and Technology (SST) has over 1,600 students and presently comprises almost 25% of the University's total student enrollment. Undergraduate students can select from a wide array of courses in nine academic departments: Allied Health, Biology, Chemistry, Computer Science, Engineering, Mathematics, Nursing, Physics, and Technology.

The School of Science and Technology has played a pivotal role in the University's sixty-five year history. Faculty contributions in research, grantsmanship, service, and mentoring are exceptional. Graduates are securing outstanding jobs and are earning advanced degrees in record numbers. The School currently houses two of the University's centers of excellence - CMR (Center for Materials Research) and IIR (Institute for Information Assurance Research) - along with numerous accredited programs. The University has demonstrated a strong commitment to the sciences and health professions through a significant investment of University resources in undergraduate educational programs, research facilities, and scholarships. Moreover, science and technology has been identified as one of NSU's top institutional priorities.

The Center for Microgravity and Environmental Biology (CMEB) was created in 2002 in the Department of Biology using funds from NASA Glenn. In 2004 the CMEB offered its first NASA graduate fellowship with emphasis in Plant Biology. In 2003, the CMEB offered a collaborative REU summer research experience with Elizabeth City State University. The original focus of CMEB was to study microgravity responses in plants but with the addition of new faculty hires the emphasis has moved to a broader understanding of environmental and health science research. Although the research focus has changed, CMEB has continued to provide outreach and student development opportunities for undergraduate and k-12 students. In addition to participation on research projects, students are provided opportunities to attend and present at scientific meetings and interact with biologists at both institutions who represent a broad range of specialties.

The Department of Biology at Norfolk State University has established a Center for Environmental Biology (CEB). The CEB serves as a comprehensive research and educational resources dedicated to the promotion of learning through outreach and service. The Center provides laboratory research experiences in plant biochemistry, pathology, physiology, toxicology, and molecular biology for NSU undergraduate and graduates student. The objective is to stimulate and motivate promising young scientists to pursue careers in research.

Hampton University

Hampton University, a dynamic, progressive institution of higher education, is a privately-endowed, non-profit, non-sectarian, co-educational, historically black university. It is located in southeastern Virginia and boasts one of the loveliest campuses in the nation, with a picturesque waterfront and historic buildings and landmarks. Hampton University has grown into a comprehensive university providing a

students by expanding the range of offerings in a flexible course of study that accommodates students with different academic backgrounds. The department builds upon the success of its research center, the Center for Atmospheric Science (CAS), which was previously part of the Department of Physics.

The department and CAS have a three-fold focus of closely related objectives: education; fundamental research; and outreach to the public, university, and K-12 communities. The center supports the nation's programs in atmospheric and Earth radiation sciences, planetary and space sciences, and related technologies. It works closely with the nearby NASA Langley Research Center (LaRC), and many other governmental and private partners. CAS is housed in its own buildings on campus with supporting laboratory space at HU. Some cooperative programs are conducted at LaRC, as well as at other institutions. The Center for Atmospheric Sciences' goals are to:

- Establish a center of excellence in atmospheric and space sciences at HU to enhance and complement NASA, NOAA, NSF and DOD research.
- Establish HU faculty, curriculum and programs leading to advanced degrees in atmospheric sciences.
- Conduct fundamental research in atmospheric and Earth radiation sciences.
- Establish innovative approaches for educational and public outreach.

Virginia Department of Environmental Quality

The Department of Environmental Quality (DEQ) is dedicated to protecting Virginia's environment and promoting the health and well-being of the citizens of the

the federal Clean Air Act (CAA) are met.

The Air Quality Division's core responsibilities include: 1) developing and implementing programs designed to ensure that Virginia meets national ambient air quality standards; 2) regulating the emission of air pollutants from industries and facilities by issuing and ensuring compliance with permits that set limits that are protective of public health; 3) monitoring Virginia's air quality; 4) investigating complaints and violations of Virginia's air quality laws; and, 5) developing state rules governing air quality standards.

General Provisions

- EPA Financial Limitation Provision
 - As required by the Antideficiency Act, 31 USC 1341 and 1342, all commitments made by EPA in this MOU are subject to the availability of appropriated funds. Nothing in this MOU, in and of itself, obligates EPA to expend appropriations or to enter into any contract, assistance agreement, interagency agreement, or incur other financial obligations that would be inconsistent with Agency budget priorities. The partners to this agreement agree not to submit a claim for compensation for services rendered to EPA in connection with any activities they carry out in furtherance of this MOU. This MOU does not exempt the partners from EPA policies governing competition for assistance agreements. Any transaction involving reimbursement or contribution of funds between the parties to this MOU will be handled in accordance with applicable laws, regulations, and procedures under separate written agreements.

- Publications

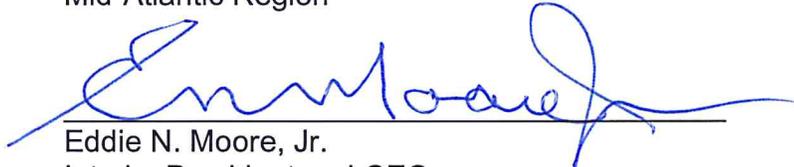
- This MOU does not create any right or benefit, substantive or procedural, enforceable by law equity, by persons who are not party to this agreement, against any partner to this agreement, their officers or employees, or any other person. This MOU does not direct or apply to any person outside of the partners listed herein.

Commencement, Renewal, Amendment, Termination and Communication

- This MOU is to take effect upon the signature of the parties.
- This agreement will remain in effect for a period of five (5) years, with the option of renewal and will be reviewed yearly from the effective date of this agreement with the understanding that it may be revised by mutual consultation and written consent of the Partners.
- Amendments to the agreement may be initiated by any Partner and may be made with the written consent of all Partners. Requests for amendments may be made through an exchange of letters.
- Any issues not mentioned in this MOU may be resolved through mutual agreement among the designated liaison officers with the approval of their respective Partner Institution Official.
- Any party may terminate its participation in this MOU at any time by providing written notice to the other parties at least 60 days in advance of the desired termination date.


Shawn M. Garvin
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United States Environmental Protection Agency
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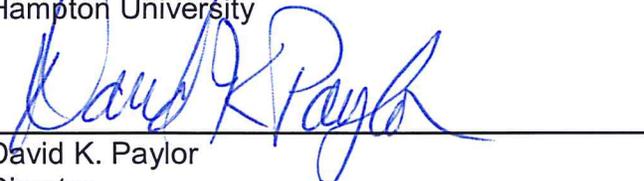
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