Semi-Annual Progress Report to the U.S. Nuclear Regulatory Commission

A. Project and Project Personnel Information

NRC Grant Number: **27-10-1116**

Recipient Institution: Florida A&M University (FAMU), Tallahassee, Florida

Award Period: From: 10/01/2010 to: 09/30/2012

Project Title: Radiation Protection Education and Research at Florida A&M University

Principal Investigator: Frederic Essien

Date of Award: 10/01/2010

Date of Project Commencement: 11/08/2010

Period covered by this Progress Report: From: 04/01/2011 to 09/30/2011

Number of Students supported during this Reporting period: 2

Degree for which supported students are registered: PhD

B. Work Performed in Reporting Period

The activities of this reporting period were performed by the two students receiving support from this grant. The work and formed part of their respective doctoral research projects; and. consisted of:

1. tasks related to an investigating the fate of technologically enhanced naturally occurring radioactive materials (TENORM). The radionuclides investigated were the expected byproducts of the operations of a phosphate processing plant in the neighborhood of Bang Lake, located in the Grand Bay National Estuarine Research Reserve. The specific tasks included:

   April – May 2011:
   Collection and preparation of sediment and plant samples followed by gamma ray spectroscopic analyses for uranium daughter products; with the samples contained in marinelli beakers. Gamma ray spectroscopy was performed in radiation laboratories of the Florida A&M University Environmental Sciences Institute, now the School of the Environment.

   May – August 2011:
   Neutron activation analyses (NAA) for occurrence of Aluminum, Cadmium, Chromium, Arsenic, Vanadium and Zinc in samples from Grand bay. NAA irradiation and spectroscopy were carried out at the nuclear reactor facilities of the Oak Ridge National Laboratory in Oak Ridge, Tennessee.

August – September 2011:
Analysis of results obtained from the NAA experiments; continuation of gamma ray counting and spectroscopy on sediment and plant samples; documentation and preparation of phase reports.

2. Work connected with research on Airborne radionuclides and their effects on Urban Air quality. This project was started shortly after the beginning of the Summer semester, in June 2011. Tasks undertaken so far consist of:

   June – September 2011:
   Evaluation of protocols and instrumentation for measurements of radon gas and particle-associated radionuclides in ambient air.

3. Student recruitment was vigorously pursued; however, the efforts were not as fruitful as expected; apparently due to the Fukushima nuclear disaster in March 2011; as a number of prospective students cited that event, in expressing second thoughts about careers in the nuclear industry and in radiation protection.

C. Achievement of Project Goals

Since student recruitment goals were not fully met and, the major project objective is to increase the proportion of African American and other minorities in health physics and radiation protection professions, it cannot be claimed that the project's first year objectives have been adequately met. The Investigators' commitment to the project aims remains undiminished and therefore, it is hereby requested that a no-cost extension be granted to enable a fuller achievement of the first year goals.

D. Expectations for the next Reporting Period

Student recruitment efforts in the Spring and Summer of 2012 are expected to bring about the enrollment of about 5 graduate students for the Fall of 2012. Efforts to obtain additional funding for the project will continue to be made in the coming reporting.

Signed: Frederic Essien **Date:** October 31 2011