# NRC Minority Serving Institutions Program

## FY 2010 Peer Reviewer Evaluation Form

Please fill in the following: (one for each proposal you are reviewing)

**SBCR Number:** _____

**Institution Name:** Fort Valley State University

The GAO recommends that your review should include both numerical ratings, and a written assessment that will help NRC make decisions concerning the proposal's value and funding priority relative to the NRC/MSIP commitment to implementing the White House Education Initiatives directed at HBCUs, HSIs, and TCUs. Please respond with substantive narrative addressing each proposal's strengths and weaknesses. Be sure to briefly state the rationale or basis for suggestions made or questions raised. We will need your preliminary notes and ratings completed **prior** to the panel meeting. Please refrain from making any final assessments until you've had the opportunity to participate in the panel discussion of each proposal.

| | Total Points Possible | Your Score |
|---|---|---|
| Soundness of the proposed project or activity. Potential for Supporting or Advancing Nuclear Safety, Security, Environmental Protection, Educational Infrastructure, and other fields that the Commission determines to be critical to the NRC's MSIP mission. (see www.nrc.gov) | **25** | 25 |
| Proposed approach including aims and objectives, methodology, plan of operation, and timetable. | **20** | **20** |
| Qualifications of the Principal Investigator(s) and other collaborators | **20** | 20 |
| Applicant organization ability to perform and support project or activity (institutional support) | **15** | 15 |
| Expected products and/or results, potential problem areas and alternative tactics to achieve results (Budget and Cost-Effectiveness) | **10** | **8** |
| Evaluation and dissemination plans | **10** | **8** |
| | **Total Score** | **96** |

**Commentary:** (Please provide comprehensive notes as to the proposal's strengths and weaknesses as your comments may be requested by applicants. Use extra paper as necessary).

**SUMMARY**

Establishing a Nuclear Science and Technology Curriculum, Undergraduate Research Program and Outreach Activities at Fort Valley State University.

A-B

- Developing the technological infrastructure for faulty and student research in basic nuclear science (Cost Break down =

- Creating training programs for FVSU STEM faculty and K-12 teachers in order to vertically integrate concepts of nuclear science and energy into science and math courses

- Incorporating a research component in our undergraduate applied science programs

- Increasing the recruitment and retention of underrepresented students in the science, math, engineering, and technology programs

**COMMENT**

The proposed course meets Goal 1 (see list of purposed coursework below). The research, outreach and recruitment and retention goals also meet the grant objectives and goals. The application is detailed and meets all of the objectives. However, the K-12 recruitment plans seem to be a waste of funds at this stage of the program. The focus perhaps should be on the students that have already been admitted in to the college.

I recommend that in this phase of the development of the nuclear minor, the program should focus on the offering the coursework and training of the students in the paid summer intern program. There are other schools with web-based coursework or visual demonstrations that are funded by NRC. SBCR can provide to the institution information on the programs that are funded by NRC. Participation in the Web-Based training programs offered by other institutions could be more useful than K-12 teacher training and recruitment efforts.

The grant application states:

"In the second component of the research program, students will be required to visit research centers at other universities, NRC and DOE facilities, and/or national laboratories to participate in applied and/or theoretical research programs in nuclear sciences. Contacts and collaborations with such centers will be initiated immediately after the start of the project. The targeted research centers include: Georgia Tech, University of Tennessee and Oak Ridge National Laboratory. Student participation will be facilitated through paid summer internship programs in these centers. "

This is a good component that can supplement the coursework offered through the program. Especially, the paid summer intern program is a money well spent. The PI should also look contacting the utilities to see if the students can do site visit or onsite training.

The application proposes attending ANS meetings. Maybe this effort can be replaced with student visits at plant site or other hands on approaches.

### B.3.1 Curriculum Development

**Course Two: Physics of Ionizing Radiation**

This junior level (three-semester hour) course is designed to introduce to students the fundamentals of atomic and nuclear structure, basic quantum mechanics, radioactivity and decay kinetics, charged particle interaction, Geiger-Muller counters, scintillation counters, neutron detectors, and fission chambers.

**Course Three: Nuclear Science and Technology I:**
This is the first course of a senior-level two-course sequence. The course contents will include an introduction to: energy sources, reactor use and classification, reactor design problems, safety consideration, atomic structures, decay of radioactive nuclei, nuclear reactions, and radiation detection. This course will be delivered through three hours of lecture and one two-hour laboratory session each week. The pre-requisite for this course will be PHYS 2210: Principles of Physics II.

**Course Four: Nuclear Science and Technology II:**
This is the second course of the above sequence. The contents of this four-semester hour course will include topics in neutron interactions, steady state reactor core, transient reactor behavior and control, radiation damage and reactor materials problem, nuclear heat transfer, and nuclear reactor design. The course materials will be offered in the form of three lecture hours and a two-hour laboratory session per week.