

# New Mexico State University ARROWHEAD CENTER

LEADING ECONOMIC DEVELOPMENT FOR NEW MEXICO STATE UNIVERSITY



## Strategies to Address Identified Education Gaps in the Preparation of a National Security Workforce

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Live, Learn and Thrive

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# **Strategies to Address Identified Education Gaps in the Preparation of a National Security Workforce**

## **1.0 INTRODUCTION**

This report documents the strategies to address identified current and future gaps in educational efforts for the preparation of a national security workforce as part of the National Security Preparedness Project (NSPP) being performed under a Department of Energy (DOE) National Nuclear Security Administration (NNSA) grant. This report is due June 30, 2008, as performance measure 3.1.4 (Grant No: DE-FG52-07NA28084, Arrowhead Center proposal, Page 17).

The need to adequately train and educate a national security workforce is at a critical juncture. Even though there are an increasing number of college graduates in the appropriate fields, many of these graduates choose to work in the private sector because of more desirable salary and benefit packages. This is contributing to an inability to fill vacant positions at NNSA resulting from high personnel turnover from the large number of retirements. Further, many of the retirees are practically irreplaceable because they are Cold War scientists that have experience and expertise with nuclear weapons and atom bombs. This report will discuss strategies available to address identified gaps and weaknesses in education efforts aimed at the preparation of a skilled and properly trained national security workforce.

## **2.0 APPLICATION OF IDENTIFIED STRATEGIES TO CURRENT SITUATION**

The analysis of the current educational efforts for the preparation of a skilled and properly trained national security workforce indicates that numerous educational institutions across the U.S. offer a variety of science and engineering degrees and certificates. The majority of these degrees and certificates, currently and in the future, will have applications in the NNSA. The work at NNSA in the fields of science and engineering is monumental and comprises the majority of the workforce. Currently engineers in the fields of chemical, civil, general, mechanical, nuclear, and petroleum—as well as physicists, general, and physical scientists—are in demand at NNSA. It appears that the educational efforts across the U.S. in these fields are sufficient to meet the demand. The problem lies in attracting graduates in the required fields for government service and ensuring that the graduates are properly trained.

A study should be undertaken immediately to determine what efforts/programs would be helpful in attracting and retaining young professionals. The attraction may not mean additional income. It could be in the form of a creative compensation package such as flexible work hours, gym memberships, on-site daycare, additional vacation time, and/or telecommuting. The newest employees have a different definition of employee satisfaction, which needs to be explored and incorporated.

Educators cannot be solely responsible for educating the next generation of national security experts. A promising strategy focuses on NNSA working directly with educational institutions and national laboratories that are in close proximity to NNSA physical locations. NNSA employees can provide insight into the types of employees that are required, as well as the skill sets that are necessary. The educational institutions, in partnership with NNSA personnel, can provide the identified training in a hands-on, technology-mediated manner at both the educational institution and NNSA offices using distance-learning formats. Once this process is vetted, it can be expanded to all interested educational institutions across the nation.

Educators generally prepare the workforce in what they think business and industry need in terms of workforce without much interaction with business and industry. By working more closely with educational institutions that are in close proximity to NNSA physical locations, NNSA can be assured that the future workforce is being trained and educated with the proper skill sets. NNSA personnel can be involved in this education process in either a volunteer or an adjunct capacity. This close relationship also will provide students with hands-on, real-world learning experiences and opportunities to see the relevance of the material they are learning. A shortage of qualified educators in key academic departments directly affects the quality of the development of the NNSA workforce. NNSA employees make great volunteer and part-time educators in these departments and can provide students with a wealth of “real-life” experiences in the classroom.

### **3.0 CONCLUSION**

There has been an increased emphasis on the development of national security accompanied by an increase in funds for these programs. As such, many universities and colleges have recognized the need for a workforce in this area and have implemented programs aimed at meeting the demand. There are new degree programs developed specifically in homeland security or national security, as well as an increase in specializations or minors relating to the security of our nation. Specializations range from security and intelligence law to high-tech crime investigation. One downside of these programs is that they are new and do not necessarily have the experience and renown of other degree programs and could greatly benefit from partnerships with NNSA and national laboratories.

NNSA is facing a critical workforce shortage as a result of a large number of retirements. While the legacy knowledge of this retiring workforce cannot be completely replaced, these retirees will be invaluable in the classroom instructing the next generation of the national security workforce. Options for online degrees, distance learning, night classes, short courses, and certificates—as well as partnerships between NNSA, educational institutions, and national laboratories—all deserve further exploration.