

*Impact of the U.S. Support Program Safeguards
Internship Program*

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Impact of the U.S. Support Program Safeguards Internship Program

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ABSTRACT

The U.S. Support Program began funding an internship program in the IAEA Department of Safeguards in 2002. Since that time, 39 U.S. citizens and permanent residents have been placed in one-year, paid internships with the IAEA. The management of the internship program was originally the responsibility of the International Safeguards Project Office but was transferred to the Office of Educational Programs at Brookhaven National Laboratory in 2004. Feedback on the internship program from the U.S. government and the IAEA has been positive. The interns have completed basic yet essential work for the Department of Safeguards and freed IAEA staff members to perform more complex tasks. The cost of an intern is low relative to other forms of human resources support. After the conclusion of their assignments, many of the interns go on to work for the U.S. government, the national laboratories, or companies in international safeguards and nonproliferation. This paper will discuss the work done by the interns for the IAEA, factors influencing the success of the internship program, and the effects the program has had on the careers of interns, in preparing the next generation to work in the nuclear industry, participation in INMM activities, and recruitment for U.S. citizens for safeguards positions.

INTRODUCTION

In 2002, the U.S. Support Program (USSP) began funding an internship program to benefit the IAEA Department of Safeguards. The reasons for funding this program were 1) to create entry level positions at the IAEA that would increase awareness among college students of job opportunities with the IAEA, 2) to provide human resources support to perform basic yet essential work, and 3) to gain access to academic institutions as another source of USSP support to the IAEA.

Since 2002, the USSP has placed 39 U.S. citizens and permanent residents in one-year, paid internships with the IAEA. The interns have been given responsibilities involving open source information collection and analysis, geographical information systems, software and database development, technical writing, document management, equipment testing and implementation support, and finance. Interns are limited as to what they can do at the IAEA. They cannot be radiation workers and cannot travel. However, their assignments are based on their education and experience and are enriching. The IAEA has been very receptive to making changes to the internship based on the intern's interests.

Starting in January 1999, the USSP provided funding for the Monterey Institute for International Studies to provide interns to assist with open source information collection and analysis. The Monterey Institute provided one to three interns per year before this effort was combined with the BNL-managed effort in 2004. BNL continued to recruit students from the Monterey Institute after 2004.

The interns are recruited predominantly from colleges, universities, and technical schools, but seven were already employed before starting their internship. The internship program was advertised through professional society trade fairs and through presentations at schools. The 39 interns placed with the IAEA represent 24 schools. The program typically gets 100 applications per year.

The internship program began as a project of the International Safeguards Project Office (ISPO), but ISPO quickly sought the assistance of the Office of Educational Programs (OEP) at BNL due to their experience in managing student programs. In 2004, ISPO turned over management of the internship program to OEP.

Work Performed by Interns in the Department of Safeguards

Interns have been placed in the IAEA Safeguards Divisions of Technical Services, Information Technology, Concepts and Planning, and Operations A and C, as shown in Table 1. The interns are expected to perform real work and complete a project over the course of their internships. The work done by the interns has supported IAEA staff members and enabled the staff members to concentrate on more complex tasks, or in some cases, begin initiatives that they would otherwise not have time for. A description of three typical intern projects follows.

Table 1: Placement of Interns at the IAEA

Safeguards Division	No. of interns placed
Concepts and Planning	1
Information Technology	22
Technical Services	12
Operations A	2
Operations B	0
Operations C	1
Programme and Resources	1

Equipment Development and Testing: Each year interns have been placed in the Section for Installed Systems to assist with equipment testing and preparing equipment for field use. The interns, who have nuclear or electrical engineering backgrounds, act as technicians to the engineers working in the section. One intern produced software that could be embedded in unattended and remotely monitored instrumentation to authenticate the data collected by the instrument before it is forwarded to the collect computer. Software of this type is essential to verify the integrity of the collected data and might otherwise have had to be produced by a contractor paid by the IAEA or the USSP. The software is now undergoing a vulnerability assessment so that it can be approved for routine use.

Information Collection: Two or three interns are placed each year to assist the Information Analysis Unit with the collection of open source information. Each morning, interns search information sources for data related to nuclear activities in IAEA member states. The collected information is entered into a database available to country officers, which country officers use to update state files. Especially significant reports are sent immediately to country officers in a daily news summary. The interns also assist in producing state files and in producing specific analytical products based on open-source research.

Software Development: Software support is an area where interns have made significant contributions because college students and recent graduates already possess enough skills and expertise to work as part of a team to design and develop software products. USSP interns have worked on data collection codes, web-based systems and databases. Common Inspection Onsite Software Package (CIOSP) and the Computerized Inspection Report (CIR) are two software development efforts to which USSP interns have contributed.

Impact of the Internship Program

The internship program has had success in furthering the goals of the USSP, has increased awareness of the nuclear industry and nonproliferation as career options, has resulted in the interns taking positions in the U.S. government and national laboratories after their internships, and has also played a role in increasing student participation in the Institute for Nuclear Materials Management.

Program Goals:

As mentioned in the introduction, the USSP's goals for the internship program were creation of entry level positions at the IAEA, provision of human resources support to perform basic yet essential work, and creation of access to academic institutions as another source of USSP support to the IAEA. The internship program in and of itself created entry level positions in the Department of Safeguards. Appropriate internship assignments have been defined for students, recent graduates and post-graduates. These assignments have led to a number of consulting assignments at the IAEA. However, the internship program also caused a gap in human resources provided through the USSP. The USSP had expected that interns could apply for regular staff positions and cost-free expert positions with the IAEA, but because most positions at the IAEA require three years experience, most interns do not qualify. As a result, in 2004 the United States concluded a memorandum of understanding (MOU) with the IAEA to create a Junior Professional Officer (JPO) Program. Under the MOU, JPOs are placed in the Department of Safeguards at the P1 and P2 professional levels similar to the way that cost free experts are placed – the IAEA prepares a job description and makes a request to the USSP to fund the position. The MOU allows the placement of U.S. JPOs in other Departments of the IAEA as well. These positions are managed by Argonne National Laboratory and funded through the U.S. Voluntary Contribution for Cost Free Experts.

The interns have succeeded in helping the IAEA perform the more basic tasks that need to be completed and in freeing the regular staff to perform more complex activities. The tasks that are assigned to the interns, such as information collection or equipment testing, enable their

supervisors and co-workers to focus on more complex activities such as information analysis or equipment integration and installation. In some cases the interns have been able to help with projects that may otherwise not have been initiated.

The internships have also led to one USSP task involving the college from which an intern was recruited. Traditionally, the USSP has not called on academia to support the IAEA. Since beginning the internship program the USSP has provided funding for two educational organizations to work with the IAEA. The first activity, with Clemson, did not have any connection to the internship program. The contract with Clemson was for the provision of expert assistance from one of Clemson's professors. The second activity, however, with Mercyhurst College, was a direct result of the internship program. The intern completed her internship in information collection and returned to Mercyhurst to complete her master's degree. The IAEA requested the intern's continued assistance, and the USSP provided funding for a contract with Mercyhurst to provide her information support services. In addition to requesting the services of the former intern, the IAEA also requested assistance from one of Mercyhurst's faculty members. It was only as a result of recruiting interns from Mercyhurst that the USSP learned of their educational programs and capabilities.

Awareness:

As part of its intern recruiting activities, ISPO and OEP have made presentations at colleges and universities and met with prospective candidates at career fairs. Only a small fraction of the people contacted at these events are successful in becoming interns. However, all of the people contacted learn about the job opportunities at the IAEA. If they are not ready for an overseas assignment immediately, they may consider it at a later time. Some of them will mention the opportunity to friends and family. Clearly the friends and family of the successful candidates learn about the IAEA. While it is not possible to quote exact numbers, it is reasonable to expect that thousands of people are being made aware of the opportunities at the IAEA and in the nuclear industry as a result of these internships.

Industry Impacts:

In addition to the goals laid out by ISPO and the USSP at the inception of the internship program, the program has had an impact on the nuclear industry. First, the internship experience has influenced the career and educational choices of several of the interns. Second, several of the interns have taken post-internship positions with the U.S. government and the national laboratories. Finally, the program has increased awareness of the nuclear industry and the IAEA as career opportunities for students in all disciplines.

Many of the candidates were motivated to apply for the internships by the opportunity to spend a year working in Europe in a paid position. While some of the interns studied nuclear engineering, physics, or nuclear nonproliferation and were already aware of the IAEA and its responsibilities, many of the candidates had never heard of the IAEA before or had not considered the rewards of working in nonproliferation or in the nuclear industry. After working with the IAEA, nearly all of the interns want to stay in Vienna and continue working with the IAEA. Several of the interns expressed a desire to continue working in similar fields. One intern who planned to pursue a Ph.D. in nuclear engineering, decided to also obtain a master's

degree in nonproliferation policy. Another intern decided as a result of her internship to pursue a graduate degree and to study nonproliferation policy to better prepare herself for a career in nonproliferation. The program's only intern working in finance was in the middle of a Master's of Business Administration when she accepted the internship. She planned to work in New York City in the financial industry. Her internship convinced her that she could make a better contribution to the world by working at a national laboratory on nonproliferation projects. These are three interns out of 39 who made conscious decisions to change their career paths. Some of the interns will not work in the nuclear industry, but their internship will give them an appreciation of nonproliferation and nuclear policy that could influence their lives and the lives of those with whom they interact.

OEP maintains statistics of the interns' activities after they complete their internships. Several of the interns have gone on to work with U.S. government agencies and the DOE national laboratories. Table 2 provides a summary of the post-internship employment of the interns. Interns have been hired by the Nuclear Regulatory Agency, the Department of State and the Department of Energy. Brookhaven (3), Los Alamos (4), and Lawrence Livermore National Laboratories (1) have also hired former interns. Seven former interns have been hired by the IAEA under Special Service Agreements. Three former interns have obtained JPO assignments. Two of these JPO assignments are with the Department of Nuclear Safety and Security. Nine interns returned to school to complete degrees or to pursue additional degrees, directly following their internships. Five interns have been interviewed by the IAEA for regular staff positions, but to date none have been selected. Almost half of the interns have secured employment or are pursuing education in the international safeguards or nuclear fields.

Table 2: Post-Assignment Activities

Type of Position	Immediately after Internship*	One year after internship*
IAEA	4	7
School – to complete degree	6	0
School – to obtain additional degree	3	4
U.S. government position in related field	2	2
National laboratory position in related field	5	2
Company position in related field	3	2
Position in unrelated field	4	4
Unknown	12	18

* data incomplete for 2005-2006 interns and is reflected by large number of unknowns

Impact on INMM Activities:

Many of the USSP interns have become involved in INMM activities. The Texas A&M University and Mercyhurst College student chapters of the INMM have former interns as

members. The Mercyhurst College Student Chapter, which was officially established in March 2006, is largely a result of interaction between the INMM and Mercyhurst students fostered by the USSP. One of the founders of the Mercyhurst Student Chapter is a former USSP intern. As of May 31, 2006, there are 51 student members of the INMM; of these, at least twelve are from Mercyhurst College. Two other schools with USSP internship participation, Rensselaer Polytechnic Institute and the University of Missouri – Columbia, have also expressed interest in forming student chapters. The internship program has played an important role in encouraging student participation in the INMM.

For the last three years, the USSP and the INMM Vienna Chapter have co-hosted an intern symposium where the interns make twenty minute, INMM-style presentations about their work for the IAEA. The USSP has provided funding for five of the interns to repeat their presentations at the INMM Annual Meeting. In 2006, interns Lauren Ginsberg and James Garner will present their work on radiation-based, integrated, unattended monitoring systems and system level testing of the data collection and evaluation system at the Rokkasho Reprocessing Plant, respectively, at the annual meeting. In 2005, Jessica Satterfield was selected repeat her paper on the IAEA's illicit trafficking database in Phoenix, AZ, and in 2004, Greg Gerrein and Angela Thornton were selected to present their papers on the JNFL Project and the BN-350 Mirror System, respectively, in Orlando, FL.

As of May 31, 2006, two student members and four regular members of the INMM are current or former interns. Participation in INMM activities will help current and former interns learn more about the industry and its career opportunities and provide networking opportunities for them. The INMM is also an excellent organization for career development.

SUMMARY

Thirty-nine interns have been placed in assignments with the IAEA Department of Safeguards under funding from the USSP over the last four years. The interns have been recruited from colleges, universities, and technical schools across the United States. The internships have provided necessary technical support to the IAEA, have increased awareness of the IAEA as an employer, and have influenced the career paths of many of the interns. The internship program led to the establishment of the United States' Junior Professional Officer (JPO) agreement with the IAEA. Almost half of the interns have secured employment or are pursuing education in the international safeguards or nuclear fields, including three who are now employed as JPOs with the IAEA. The INMM has also benefited from the internships as a source of new student and regular members.

REFERENCES

1. S. Pepper, "The Establishment of a U.S. Support Program Internship Program," presented at the 44th INMM Annual Meeting, Phoenix, AZ, July 2003.