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**Next Generation Safeguards Initiative**  
**Workshop on Enhanced Recruiting for International Safeguards**

Final Report

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## Executive Summary

### **Introduction:**

In 2007, the National Nuclear Security Administration's Office of Nonproliferation and International Security (NA-24) completed a yearlong review of the challenges facing the international safeguards system today and over the next 25 years. The study found that without new investment in international safeguards, the U.S. safeguards technology base, and our ability to support International Atomic Energy Agency (IAEA) safeguards, will continue to erode and soon may be at risk.

To reverse this trend, the then U.S. Secretary of Energy, Samuel Bodman, announced at the 2007 IAEA General Conference that the Department of Energy (DOE) would launch the Next Generation Safeguards Initiative (NGSI). He stated "IAEA safeguards must be robust and capable of addressing proliferation threats. Full confidence in IAEA safeguards is essential for nuclear power to grow safely and securely. To this end, the U.S. Department of Energy will...seek to ensure that modern technology, the best scientific expertise, and adequate resources are available to keep pace with expanding IAEA responsibilities."

To meet this goal, the NGSI objectives include the recruitment of international safeguards experts to work at the U.S. national laboratories and to serve at the IAEA's headquarters. Part of the latter effort will involve enhancing our existing efforts to place well-qualified Americans in a sufficient number of key safeguards positions within the IAEA's Department of Safeguards.

Accordingly, the International Safeguards Project Office (ISPO) at Brookhaven National Laboratory (BNL) hosted a Workshop on Enhanced Recruiting for International Safeguards (ERIS) on October 22 and 23, 2008. The ISPO used a workshop format developed earlier with Sonalysts, Inc., that was followed at the U.S. Support Program's (USSP's) technology road-mapping sessions. ISPO invited participants from the U.S. DOE, the IAEA, the U.S. national laboratories, private industry, academia, and professional societies who either are experts in international safeguards, or understand the challenges of recruiting for technical positions. The 44 participants represented eight national laboratories, four universities, three government organizations, two international organizations, two professional organizations, and three small companies.

The goal of the ERIS workshop was to improve efforts to engage U.S. citizens for IAEA positions in the Department of Safeguards. The participants considered the specific challenges of recruiting professional staff, safeguards inspectors, and managers. At the workshop's conclusion, participants presented their findings to the NNSA Office of International Regimes and Agreements (NA-243). The report's major findings are summarized below.

### **General Findings:**

Despite the diversity of the participants and their separation into three independent working groups, participants agreed upon the findings that are summarized below and discussed in detail later in the report. In addition, many observations reinforce the expert input sought by NA-24 in

early 2008 both for the NGSi Program Plan and the recommendations documented therein. The findings of this workshop should be linked to the near- and long-term evolution of career paths for NGSi human capital, and to the national laboratories' career ladders.

While the working groups separately discussed three different segments of the IAEA's Safeguards staff, most of the findings apply to all three categories considered (i.e., technical support, inspectors, and management)

### **Themes:**

After the workshop a group of participants who met to review the findings organized them by common themes. The main findings and recommendations of the workshop are discussed under those thematic groupings.

- A. Develop an integrated recruitment plan. An integrated recruitment plan is needed that will take into account pools of potential candidates, the stakeholders from various government and private agencies, the IAEA's needs, and the NGSi's plans for developing human capital. Institutional, legal, and political issues should be identified early and appropriate means to address them incorporated into the plan. A large number of individual actions were identified; many are related and may require coordination among the agencies, universities, and private industry. For efficient implementation and effective problem-solving, the elements of the plan must be integrated into a cohesive program. Vesting in a single organization the main responsibility for IAEA Safeguards recruitment would facilitate this. Participants envisioned that this "organization" would encompass the following key capabilities: recruiter, career developer, and information collector (to ensure full understanding of the situation). It would be valuable to add an NGSi-sponsored, full-time equivalent at the U.S. Mission Vienna, who would work closely with the "organization", would be responsible for supporting recruitment efforts and the NGSi's Human Capital Development work.
- B. Achieve the maximum placement of U.S. experts in IAEA Safeguards positions. There are two important avenues to achieving this goal: (1) Increasing the number of qualified candidates, and, (2) increasing the placement rate. A successful program will have an adequate number of applicants for the IAEA to select the best candidate and most of whom will be well-qualified. The participants identified benchmarks that should be tracked for self-assessing performance: (1) the number of applicants, and (2) the number and percentage of well-qualified ones. It is understood that there are factors in the IAEA's selection process beyond the control of the DOE, and indeed, that of the U.S. Government. Simply offering a well-qualified candidate does not ensure success. Furthermore, it is apparent that in the foreseeable future the percentage of IAEA employees from the United States will not come close to matching the percentage of the IAEA's regular budget that the United States pays through its annual assessment (or voluntary contributions) to the Secretariat, and few U.S. citizens will get jobs in the IAEA's Department of Safeguards. Some actions could be taken that would improve success in both categories. For example, increasing the exposure of potential qualified candidates to the IAEA by offering consulting and/or expert assignments through the USSP would encourage them to apply for

future vacancies (increasing the number of candidates), provide them with relevant experience (increasing their qualifications), and provide direct contact with the IAEA's staff (enhancing prospects compared to "unknown quantities").

1. Increasing the pool of candidates: The pool of candidates who apply for IAEA Safeguards positions could be increased by the following actions:
  - a. Enhance outreach and public information efforts - Improve the quality and increase the quantity of information about living and working abroad, IAEA benefits, and the like.
  - b. Find ways to mitigate the issue of "two-working spouses" - Many potential applicants are in two-income households. Applicants are discouraged by the inability of the accompanying spouse to find work in Vienna.
  - c. Work with DOE's laboratory management to encourage applications for and acceptance of IAEA's employment opportunities - Obstacles for the staff of the national laboratories include the fact that their management does not always value their IAEA experience and the difficulty they have in regaining a security clearance after completing the IAEA assignment.
  
2. Increasing the placement rate: The following steps would increase the placement rate:
  - a. Identify key posts/opportunities/positions – Geographical considerations preclude placement of U.S. candidates in some positions. Knowing which to avoid and which ones offer good opportunities for U.S. citizens and communicating this information to applicants and recruitment partners would improve the applicant-to-selection ratio.
  - b. Provide supplementary technical training - Many IAEA positions require expertise in the nuclear-fuel cycle and another technical area. Providing candidates with the complementary expertise they need to apply for IAEA positions would improve our placement rate.
  - c. Teach "application skills" (best practices) - Candidates who know what information the IAEA uses to assess their applications will be able to better present themselves on paper and more likely to be interviewed.
  - d. Establish mentoring programs - A mentoring program offered by people who have worked at the IAEA would provide applicants with guidance and encouragement.
  - e. Establish career paths - Defined career paths would guide prospective candidates through a series of assignments or other opportunities that would instill the knowledge and skills needed for an IAEA assignment.

The findings and recommendations are detailed in this report.

# Enhanced Recruiting for International Safeguards

## 1.0 Introduction

The International Atomic Energy Agency's (IAEA's) safeguards must be robust and able to address proliferation threats. To grow safely and securely, the nuclear industry must have full confidence in them. To this end, in 2008 the U.S. Department of Energy's (DOE's) National Nuclear Security Administration's (NNSA) Office of Nonproliferation and National Security (NA-24) launched its Next Generation Safeguards Initiative (NGSI). Through this program, the NA-24 seeks to ensure the availability of modern technology, the best scientific expertise, and adequate resources to keep pace with the IAEA's expanding responsibilities.

Placing sufficient well-qualified U.S. citizens in key safeguards positions within the IAEA is an important U.S. non-proliferation objective. A recruitment program has been in effect for many years. Efforts are underway to overcome obstacles to achieving this objective, including continuing work by the U.S. Support Program to the IAEA Safeguards (USSP) through the International Safeguards Project Office (ISPO), the U.S. Department of State (DOS), and the NNSA. Nevertheless, U.S. representation is below desired levels for some areas of interest to the United States, and there are still too few well-qualified U.S. applicants overall.

## 2.0 Background

In early 2008, Brookhaven National Laboratory (BNL) proposed to NA-24 the idea of hosting a workshop on safeguards recruitment. The International Safeguards Project Office (ISPO) at BNL is responsible for recruiting U.S. citizens for positions in the IAEA's Department of Safeguards, and also engages candidates for cost-free expert (CFE) and junior professional officer (JPO) positions under the U.S. Support Program to IAEA Safeguards (USSP). The ISPO wanted feedback on its recruitment efforts and to benefit from a workshop that would formulate innovative suggestions for improving its recruiting activities. The justifications for convening this workshop extend beyond the ISPO and the USSP. Numerous experts in safeguards, the nuclear industry, and the technical workforce have expressed concern over the declining number of skilled candidates available to fill essential positions in various sectors of U.S. Government and industry. The concerns extend to representation at the IAEA.

The IAEA's Director General Mohammed ElBaradei addressed the 49<sup>th</sup> IAEA General Conference in 2005 as follows: "[T]he recruitment of staff members, particularly in the scientific and technical areas, is becoming increasingly difficult. The aging workforce in the nuclear field and pending retirements of current Secretariat staff will exacerbate the situation. It is only through the active participation of Member States in identifying suitable well-qualified candidates and the concerted efforts of the Secretariat that it can be assured that the Agency is adequately and appropriately staffed with individuals of the highest competence, managerial capability and integrity." More than one-third of senior IAEA staff is expected to retire in the next three years, and the Commission on Eminent Persons reported that "half of the top management and its senior inspectors are expected to...retire in the next five years."<sup>1</sup>

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<sup>1</sup> *Report of the Commission of Eminent Persons on the Future of the Agency, GOV/2008/22-GC(52)INF/4, May 23, 2008, p.29.*

Shirley Ann Jackson, President of Rensselaer Polytechnic Institute, a keynote speaker at the October 2005 USSP Workshop on Safeguards Tools for the Future, addressed this issue. She believes the world is facing a “quiet crisis.” A convergence of trends – the aging workforce, fewer U.S.-born students studying science and engineering, and the decline in U.S. Government funding for basic research - threatens to impact the strength of our research and development efforts, and indirectly reduces the number of candidates the United States can offer for IAEA positions. A smaller pool of candidates “...means that the IAEA must compete with private enterprise and national governments in hiring individuals with the proper skills.”<sup>2</sup>

### **3.0 Workshop Goals**

The goal of the NGSi Workshop on Enhanced Recruiting for International Safeguards (ERIS) is to improve U.S. efforts to recruit U.S. citizens for positions in the IAEA’s Department of Safeguards. The participants addressed targeted and overall recruitment work. The participants also discussed means for increasing awareness of the IAEA as an employer, the issues that discourage prospective candidates from applying, capability gaps, identifying new pools of candidates, and ascertaining tools and techniques for recruiting. They focused on three Department of Safeguards’ job categories, perceiving that each posed different recruitment challenges: Technical Professional Support (because candidates must be subject matter experts), Safeguards Inspector (because recruitment is more frequent and includes entry-level staff), and Management (because they are less common and generally require subject matter expertise and management experience).

At the conclusion of the workshop, the workshop participants presented their findings and recommendations to the NNSA Office of International Regimes and Agreements (NA-243).

### **4.0 Workshop Overview**

The ISPO invited representatives from the U.S. Department of Energy, the IAEA, U.S. national laboratories, private industry, academia, and professional societies, all either experts in international safeguards or knowledgeable of the challenges in recruiting technical staff. There were 44 attendees, representing eight national laboratories, four universities, three government organizations, two international organizations, two professional organizations, and three small companies.

The workshop took place at BNL on October 22 and 23, 2008. ISPO used a workshop format developed earlier in collaboration with Sonalysts, Inc., that was used successfully for the USSP’s technology road-mapping sessions.

The first day began with a series of presentations made by representatives of the DOE, BNL, the IAEA, and private industry. They oriented the participants to the challenges of recruiting candidates for IAEA positions, to how the United States presently organizes and conducts its recruiting efforts, and the situation private industry faces in recruiting nuclear engineers and scientists. Section 5 of this report has a short summary of each presentation.

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<sup>2</sup> <http://www.rpi.edu/president/speeches/ps101005-iaea.html>.



Participants formed three working groups in the afternoon of October 22. Three breakout sessions addressed separate recruiting challenges. In Session 1, each group considered recruiting for technical support staff. In Session 2, they addressed recruiting for safeguards inspectors, while in Session 3 they covered specific concerns for managers. Each working group assigned a facilitator to keep the discussions on track and help brainstorming. Assigned note takers documented the discussions in each session. Session 1 was held on the afternoon of October 22, and Sessions 2 and 3 on the morning of October 23.

- **Recruitment Challenge 1: Professional Technical Support Staff**  
Three groups, each focused on a different topic: Awareness (how to increase awareness of the IAEA in the United States); Capability Gaps (identify the technical areas in which the United States has difficulty in identifying experts); and, Obstacles.
- **Recruitment Challenge 2: Safeguards Inspectors**  
Three groups, each having the same focus: Recruiting qualified candidates as safeguards inspectors.
- **Recruitment Challenge 3: Management Positions**  
Three groups, each having the same focus: Recruiting qualified candidates for vacancies of Director, Section Head, and Unit Head.

After the breakout sessions were completed, time was allotted to the facilitators and note takers to prepare a Workshop Summary Presentation. The Workshop Summary Presentation was given to NA-243 at the conclusion of the workshop. On October 24, the meeting's organizers and note takers met to review and analyze the findings and begin work on the final report.

The workshop agenda is included as Appendix A of this report. The list of workshop participants is included as Appendix B.

## **5.0 Workshop Presentations**

ISPO arranged a series of presentations to inform those participants who had little knowledge of international safeguards before the workshop, and to orient all participants to the issues that brought about the workshop. The presentations, delivered on the morning of October 22, are summarized in Sections 5.1 through 5.7.

### **5.1 DOE Perspective**

Dunbar Lockwood, Team Lead for International Safeguards Policy and Treaty Implementation (ISPTI) in NA-24's Office of International Regimes and Agreements (NA-243), opened the workshop by detailing the DOE's perspective on the challenges facing international safeguards and the steps that NA-24 began taking in 2008 to address them. He reported on efforts under the NGSI program to revitalize the U.S. safeguards technology and human capital base. NGSI's purpose is to help develop the policies, concepts, technologies, expertise, and infrastructure nec-

essary to sustain the international safeguards system during the next 25 years. While the NGSi is a domestic program, its underlying focus is international.

The IAEA's safeguards system is one of the central pillars of the international nuclear nonproliferation regime, and the United States is intent on ensuring that its technical foundations remain strong. The IAEA's safeguards mission has expanded much faster than its resources, and the system is very strained; left unchecked, the situation will only worsen. The last decade saw the emergence of the IAEA inspector as a "nuclear detective" as opposed to the traditional role of nuclear materials accountant. New international safeguards professionals require training across a much broader range of relevant disciplines to meet the demands of safeguards positions.

The work plan for NGSi will include five elements:

1. Strengthen Authorities and Institutions
2. Concepts and Approaches
3. Safeguards Technology Development
4. Human Capital Development
5. Infrastructure/Bilateral Engagement

The aim of the NGSi Workshop on Enhanced Recruiting for International Safeguards was to share ideas and information on how to support element 4, Human Capital Development, by doing a better job of identifying, attracting, and recruiting highly qualified U.S. safeguards experts to serve at the IAEA. Lockwood encouraged the participants to discuss their ideas with other participants and collaborate towards formulating innovative and practical suggestions for improving recruitment for international safeguards positions.

## **5.2 What is International Safeguards?**

Michael Rosenthal, Division Head of BNL's Nonproliferation and Safeguards Division, Nonproliferation and National Security Department, defined international safeguards as both background and as an introduction to the workshop. Dr. Rosenthal noted that the safeguards applied by the IAEA are an essential part of a viable international nuclear-nonproliferation system that the United States strongly supports. The IAEA applies almost all its inspection resources today to its role as the verification authority of the Nuclear Nonproliferation Treaty's comprehensive safeguards agreements. Under this treaty, under which non-nuclear weapon states accept and the IAEA has the right and obligation to apply safeguards to all nuclear material employed in all peaceful nuclear activities. The IAEA's on-site inspections deter diversion, investigate suspicious programs, and foster confidence in nuclear energy programs.

Material accountancy remains a safeguards measure of fundamental importance, with containment and surveillance as essential complementary measures. The IAEA will have a continuing need for talented staff, well-trained in traditional nuclear measurement and accounting techniques, and in using containment and surveillance equipment. However, the IAEA's mission also is to provide assurance of the absence of undeclared nuclear material and activities in a State as a whole, an assignment that was codified in 1997 in the Model Additional Protocol (INFCIRC/540). Where it is in force, an Additional Protocol enhances the IAEA's

access to information and locations (e.g., expanded declarations, export data, and nuclear-fuel-cycle plans, and complementary access to mines and certain manufacturing locations). The Additional Protocol necessitates that inspectors are both detectives and accountants; consequently, inspectors now need new skill sets and subject matter expertise. This requirement will grow because the increased emphasis on collecting and analyzing information will entail a projected increase of 50% by 2030 in work conducted at IAEA Headquarters, versus a projected 10-25% increase for work conducted in the field.<sup>3</sup>

Although the Agency's mission is clear and authorities are established (although not always provided), good safeguards need technical capacity and human, financial, and political resources. Rosenthal stressed that the focus of the workshop is on human resources for the IAEA's Department of Safeguards.

### 5.3 Review of Workshop Objectives

Rosenthal continued by outlining the workshop's objectives. There are many aspects to meeting the IAEA's human-resource needs, including both internal and external matters, and matters of special interest to the United States. Many observers, such as the Government Accountability Office, the IAEA's Commission of Eminent Persons, and the NGSi already highlighted the need for the IAEA to improve its ability to address its human resource needs.<sup>4</sup> The workshop relates not to the many issues pointed out by those organizations and programs, but only to the overall U.S. goal of increasing the percentage of U.S. citizens serving in regular staff positions in the Department of Safeguards.

It is important to the United States for U.S. citizens to accept positions with the IAEA, an outcome that has benefits for both entities. It benefits the IAEA by providing them with well-qualified individuals, some with unique qualifications. In turn, it benefits the United States because the IAEA thereby employs some of the world's leading nuclear experts, and because IAEA staff members return to the United States as experts in IAEA practices and procedures. Thereafter, they contribute in unique ways: (1) to the recruitment process; (2) to the ability of the United States to support the IAEA; and, (3) to the provision of well-informed, technical safeguards advice to U.S. policy-makers in Washington, DC.

In principle, U.S. representation in the Secretariat could be increased via several steps, include the following:

1. increasing the size of the talent pool (i.e., training and educating U.S. citizens to qualify them well for a position in the Department of Safeguards);
2. increasing the number of well-qualified U.S. citizens applying for positions in the Department of Safeguards; and,

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<sup>3</sup> IAEA Report "20/20, Vision for the Future, Background Report by the Director General for the Commission of Eminent Persons," February 2008. The range depends on adherence to Additional Protocols (AP). There would be a 10% increase in infield verification activities compared with the current level if all States concluded an AP and an additional 15% increase without APs in all States.

<sup>4</sup> Report of the Commission of Eminent Persons on the Future of the Agency, GOV/2008/22-GC(52)INF/4, May 23, 2008, p.29.

3. improving the IAEA's selection process to raise the percentage of U.S. citizens selected.

This workshop concentrated on only the second element – increasing the number of well-qualified U.S. citizens who apply for positions in the Department of Safeguards. Within this framework, the workshop's intent primarily is to explore U.S. recruitment efforts and focus on ways to:

1. identify target audiences and individuals;
2. increase awareness; and
3. encourage applicants.

The workshop also planned to identify metrics for “success” (i.e., measuring results). For example, how can the United States better keep track of how it is doing thereby to improve the “effectiveness and efficiency” of the recruitment process? Organizers also considered it useful for participants to identify the types of data that should be available to inform both the recruitment process, and the placement process.

Finally, participants at the workshop were not expected to address other important issues, such as:

1. understaffing in the Department of Safeguards or the size of the IAEA budget;
2. the number (or percentage) of U.S. citizens working in the IAEA Department of Safeguards; or
3. specific training or education to increase the talent pool.

#### **5.4 Review of IAEA's Recruiting Efforts**

Catherine Monzel, Head of the IAEA's Recruitment and Staff Development Section, summarized the IAEA's mission, financial resources, staff composition, and organizational characteristics. She outlined the work and staff profiles of each Department, especially emphasizing Safeguards and Nuclear Security. After describing the IAEA's recruitment principles, she explained the conditions of employment, such as salaries, and other benefits and entitlements of professional staff. Finally, she gave an overview of the recruitment process, including an explanation of the vacancy notices, general hiring requirements, and duration of the process.

#### **5.5 IAEA Safeguards Program and Staffing**

Alicia de Reynaud, Head of the Section of Programme and Resources in the IAEA's Department of Safeguards, described the composition of the Department of Safeguards' workforce and staffing skills required today and in future. One pillar of the IAEA's mission is Safeguards and Verification. Sixty percent of the regular budget is spent on staff. The Department of Safeguards depends on a specialized, high-caliber, talented workforce. Sixty percent of the Safeguards staff members are in the professional grades; 90% of the professionally graded staff members are designated inspectors.

The human resources required by the Department of Safeguards cover a wide variety of specialists. Most have experience in nuclear engineering and nuclear physics, but other scientific and

technical groups represented include chemists, mathematicians, statisticians, information analysts, systems analysts, electrical engineers, and information technology specialists. Some very specialized technologies the IAEA uses are satellite imagery, environmental sampling, nondestructive analysis, containment and surveillance, and remote monitoring.

The challenges faced by the IAEA also confront the U.S. nuclear industry and other sectors. The workforce is aging, job descriptions are changing to meet programmatic needs, there is competition with other organizations for limited numbers of experienced staff in the nuclear field, and organizational practices/policies are not focused on the goal of maintaining expertise (rotation, geographical distribution, and gender balance). Ms. de Reynaud stated that 58 inspectors are expected to retire in the next five years; within the next ten years, based on age data, about 180 professional staff, including about 170 inspectors will retire.

In its report, "20/20: Vision for the Future," the IAEA predicts that future Safeguards activities will be information driven with more material, facilities, and States under safeguards. State-of-the-art tools and capabilities will be required, and roles and activities may be expanded.

Ms. de Reynaud gave an example of recent recruiting efforts for safeguards inspectors at the P3 grade.<sup>5</sup> Of an average of 200 applicants per year between 2005 and 2008, only 25 on average were found to be qualified and invited for interview by the IAEA. The interviews revealed that an average of eleven candidates was well-qualified. The number of inspector positions available varied between 2005 and 2008, but the IAEA was unable to fill all of them in any year. Encouragingly, the data show that the percentage of qualified and well-qualified candidates increased over these years.

Geographical distribution plays a role in the choice of people to fill posts at the IAEA's Department of Safeguards. The United States and European Community hold about 52% of the professional staff positions there; the United States holds about 72 of the positions subject to geographical distribution. This number is by far greater than that for any other member state, but reflects the United States' contribution to the regular budget, i.e., about 25% of the total budget and 26% for Safeguards. In the Department, male professionals outnumber female professionals by 371 to 73.

To combat the challenges facing it, the Department of Safeguards undertook a program of internal reassignments, rotating 32 existing staff members in 2008 to distribute institutional knowledge. The Department improved its planning for succession. Projected near-term activities include better recruitment and hiring practices, succession planning with a formal mentoring program, comprehensive training, and knowledge sharing. Ways to improve the retention of staff are under exploration.

For the future, the IAEA anticipates requiring inspectors and support staff with soft skills and collaborative information analysis. They also will need fuel cycle generalists and specialists, technical and equipment specialists, information technology and communication specialists, trainers, and project managers.

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<sup>5</sup> *The professional employment grade P3 requires four years' relevant work experience. This is the usual entry level grade for a safeguards inspector.*

## 5.6 Review of U.S. Recruiting Efforts

Susan Pepper, Head of the International Safeguards Project Office (ISPO) at BNL, spoke about the efforts of ISPO to recruit U.S. citizens for positions in the IAEA's Department of Safeguards. She also briefly addressed the recruiting activities of Argonne National Laboratory (ANL) for non-Safeguards IAEA positions, and the Department of State's recruitment for international organizations in general.

As part of its role in managing the USSP, the ISPO seeks U.S. citizens for positions with the IAEA's Department of Safeguards. Traditionally, ISPO attended meetings of the American Nuclear Society and the Institute for Nuclear Materials Management to distribute information. Around 1999, ISPO recognized the need to reach beyond these, and started attending professional meetings, career fairs, and trade shows sponsored by the Institute for Electrical and Electronics Engineers, the Society of Women Engineers, the military, and other organizations, aiming to reach people with the diverse backgrounds that the IAEA needs.<sup>6</sup> Recently, ISPO coordinated its activities with ANL and the U.S. interagency to increase effectiveness and efficiency. The ISPO has invited IAEA's personnel staff to join them in recruiting and contracted with a former IAEA staff member to do so.

The ISPO places advertisements in the media, supplies prospective candidates with information, distributes listings of vacancies, and assists applicants in applying for positions and tracking their applications. In 2002, the USSP started an internship program to create entry-level positions, thereby increasing students' and young professionals' awareness of the IAEA. In 2006, the Junior Professional Officer (JPO) program replaced the internship program.<sup>7</sup> Pepper reported that the ISPO's most effective activities are increased participation in trade shows and career fairs, the internship and JPO programs, closer coordination with recruiting partners, and including current and former IAEA staff in recruiting missions.

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<sup>6</sup> Many members of the American Nuclear Society and the Institute for Nuclear Materials Management have educations and backgrounds in nuclear engineering and physics. Recruiting from members of these organizations is essential to contact large numbers of people with this special expertise. However, the IAEA needs people with a wide variety of other technical skills, such as software development, open source information collection and analysis, statistics, and electrical engineering. The Institute for Electrical and Electronics Engineers offers access to people with such skills. The Society of Women Engineers provides access to women in all fields of engineering, an underrepresented minority whose numbers the IAEA would like to increase. Furthermore, large numbers of students and recent graduates, prime candidates for junior professional officer positions, attend their career fair. The military has potential candidates trained in technical areas. Military staffs often retire at a young age with a pension, and often are accustomed to living overseas.

<sup>7</sup> The Junior Professional Officer (JPO) program provides an opportunity for recent college graduates to work with the IAEA for one to two years and gaining work experience. The JPOs undertake basic yet essential work, freeing regular staff to concentrate on complex tasks. The USSP funds the JPO positions that are in technical areas such as collecting and analyzing open source information, analyzing satellite imagery, developing software and databases, and developing, testing, preparing, and maintaining equipment. To date the USSP has funded ten assignments.

## **5.7 Addressing Challenges Associated with the Recruitment of Skilled Professionals in Support of International Safeguards**

Michael Brown of the Hay Group spoke about the problems facing the DOE and the IAEA in recruiting skilled Safeguards staff. The most daunting one is strong competition from private industry for the best workers. Three trends are creating a crisis for organizations looking for skilled nuclear workers: 1) fewer engineers graduate from U.S. universities as compared to 25 years ago; 2) the retirement of the "baby boom" generation; and, 3) a world-wide nuclear renaissance that is creating a huge demand for people with engineering and technical backgrounds. These trends have resulted in a shortage of skilled nuclear workers and a potential knowledge gap as experienced workers retire before new people replace them. The intense competition from private industry for experienced workers complicates the IAEA's problem of recruiting them for the Department of Safeguards.

Brown asserted that government and private industry must try new approaches to recruit successfully and retain a new generation of nuclear workers. He detailed different strategies that the U.S. nuclear industry is undertaking to ensure it has sufficient engineers to rebuild the U.S. nuclear infrastructure. They include better compensation packages, annual bonuses, identifying potential candidates in high schools, and offering scholarships for advanced degrees to mid-career engineers.

He challenged participants to think creatively to define new recruiting and retention strategies tailored to the unique requirements of the DOE and the IAEA. He suggested the groups should consider the following questions:

1. What type of person succeeds in and adds value to this type of environment?
2. How do we attract people with all the unique skill sets required?
3. Does the current recruitment program have the right structure?
4. Should we somehow leverage the experience of individuals who have come through the program in some manner?
5. Should we address the needs of the national laboratories as well as the IAEA?
6. Should we build a pipeline model to address our future expanded needs?
7. Could we utilize a combination of junior and senior personnel rather than mid-career personnel who may be more difficult to recruit?
8. How do we capture the knowledge-base people possess before they leave the IAEA?

Brown offered his own thoughts for addressing the IAEA recruiting problem, proposing an integrated solution that addresses, among other issues, compensation, diversity, family issues, second-career professionals, organization design and motivation, and knowledge transfer.

## **6.0 Summary of Workshop Discussions**

This section summarizes the working groups' independent discussions. They did not share their conclusions with the other groups until completing their own; nevertheless, the three groups

identified many of the same issues as being key to improving the effectiveness and efficiency of the U.S. recruiting effort. Among the key issues are

1. developing an integrated recruitment strategy;
2. thinking and acting strategically when recruiting;
3. improving the process for preparing candidates and their families for jobs at the IAEA, and easing their repatriation when they complete their assignment;
4. assisting candidates with the application and interview process;
5. grooming high-potential candidates for IAEA jobs;
6. coordinating effectively recruiting activities among key recruitment stakeholders; and,
7. dedicating more resources to recruiting.

The discussion summaries are documented in three categories: Recruiting Coordination and Integration of Recruiting; Increasing the Pool of Well-qualified Candidates; and, Increasing the Placement Rate.

## 6.1 Recruiting Coordination and Integration

**Develop an integrated recruitment plan.** An integrated recruitment plan is needed that will encompass pools of potential candidates, different government and private agency stakeholders, the needs of the IAEA, and the NGSI's human capital development plans. The plan should address institutional, legal, and political obstacles that must be resolved. A large number of individual actions were identified, many interrelated, and in some cases requiring the coordination of government agencies, universities, private industry, and the NGSI. All these elements must be integrated into a cohesive program that can be effectively implemented and efficiently resolve problems. Creating an "organization" to take responsibility for IAEA Safeguards recruiting would facilitate this. The workshop participants envisioned that the organization's staff would have the following key capabilities: recruiter, career developer, and information collector (to fully understand and clarify the situation). As discussed below, it would be valuable to add an NGSI-sponsored person at the U.S. Mission Vienna, who would be responsible, *inter alia*, for supporting recruitment efforts and NGSI Human Capital Development activities and working closely with the centralized recruiting organization. Duties would include gathering and organizing the required information to support recruitment and keeping the U.S. interagency informed about the IAEA's evolving needs.

**Increase the coordination of U.S. recruiting efforts.** Current U.S. recruiting efforts should be better coordinated to reduce redundancy and maximize the impact of limited resources. The main focal points for IAEA recruitment are the ISPO (for safeguards) and Argonne National Laboratory (for positions in the other IAEA departments); however, several other organizations are carrying out recruitment and professional development, including U.S. Government agencies (NNSA, State, DOD, and NRC), other national laboratories, professional societies, colleges, and universities. An effort is needed to better coordinate and take advantage of these efforts to meet common goals. Recruitment activities should be integrated within the broader scope of the NGSI's Human Capital Development.



**Gather information on past and current experiences.** To better understand the recruitment "problem" and needs for the next twenty years, the experiences of recruits over the last twenty years should be analyzed. This workshop's findings rest on the experiences of a small group of people. Information could be gathered from a broader cross-section of the target audience, including people who were selected for an IAEA position, those who applied and were unsuccessful, and people who considered applying but decided not to. Also important is correctly identifying the type of information that should be gathered and determining the manner in which to do so. One mechanism for gaining important feedback is conducting exit interviews of U.S. citizens completing IAEA assignments. Further, metrics for self-assessment must be identified. There will be a continuing need to update this information. .

**Identify the best recruiting practices and institutionalize them in the NA-24 recruiting process.** A "best practice" is one with redeeming qualities and attributes proven through implementation and beneficial for others to use. The term does not mean the best of all similar practices. "Best practices" typically are a proven, practiced system, process, or program that is recognized by managers as having positive attributes, being applicable program-wide, and supportive of continuous improvement in a topical area, such as the NGS Human Capital Development. Compiling and sharing best practices for international safeguards recruiting would assist all recruiting partners, especially those who are knowledgeable about safeguards and the IAEA, but inexperienced in recruiting.

## **6.2 Increasing the Pool of Well Qualified Candidates**

The participants proposed ideas to increase the breadth and depth of the pool of individuals who would apply for IAEA's safeguards positions. Their ideas concern, among other factors, the challenges of posting/advertising jobs, employee compensation, repatriation, career-path disruption, family relocation, and spousal employment.

**Develop a family orientation program.** For a person to apply for a position with the IAEA, his/her family must be agreeable. A family orientation program could provide information to prospective candidates for discussing the assignment with their families. It also could serve as an intensive program for successful candidates who are taking near-term assignments. Previously, ISPO held a two-day orientation class for people, and their spouses, selected for positions as cost-free experts and regular staff. These classes helped to prepare them for working at the IAEA and life in Vienna. Often, the move is more difficult for the family members because they are responsible for interacting with property owners and service people. ISPO's orientation program was discontinued over ten years ago, but Jill Cooley, Director of Safeguards Concepts and Planning, recently remarked how important and useful the class had been for her. A new orientation program could leverage existing programs, such as those used by DOD and DOS, to prepare their staff for overseas assignments. New video materials could be developed to address issues specific to IAEA assignments. ISPO has an informal "host family" program wherein current IAEA employees are paired with recently selected individuals. The host family can answer questions during the planning stages and help the newly arrived family learn to get around Vienna. The host family, along with the orientation program, would support new staff members in making a successful adjustment.

**Address real and perceived compensation issues.** Many U.S. candidates perceive the IAEA's salaries to be inadequate, regardless of the actual amounts, the overall compensation package, and the "quality of life" benefits. When the U.S. dollar is strong, the salary in dollars appears low. The main problem is that the IAEA's salary and benefits package is complicated, and determined by algorithms that take into account family size and status. Furthermore, it is difficult to obtain reliable information about the benefits package, and more difficult for candidates to understand sufficiently well the relative costs of living so to properly judge whether they can make ends meet on their IAEA salary. Exacerbating the situation is the fact that most spouses have jobs in the United States but are unlikely to find one in Vienna. The IAEA has software on its intranet allowing staff members to calculate their benefits. Participants recommended that either the United States request that this software be made available to U.S. candidates, or that the IAEA help the United States develop a similar software product that U.S. candidates could use.

The ISPO benefits brochure helps to explain the benefits package. The participants endorsed the development of a tool to demonstrate the comparative buying power of an IAEA salary. Designing such a tool could be expensive, but a similar tool might be available through the relocation industry or companies that frequently transfer their employees. Another option would be to ask current IAEA staff members to give testimonials about their financial experiences (the ISPO knows of several examples where the new staff member took an apparent cut in pay, but could live comfortably in Vienna). Also, when the dollar is weak, as now, the IAEA salaries expressed in U.S. dollars are quite high; this should be advertised.

**Broaden the application pool outside the U.S. national laboratory population.** Historically, candidates for IAEA Safeguards positions are drawn from national laboratories, and then, often are limited to people working in international safeguards programs. Domestic safeguards and security staff at the laboratories (funded by NA-70) should be targeted. However, the missions and job requirements of many other organizations overlap with those of the IAEA. The NRC is a good source of potential candidates for IAEA Safeguards positions, for both inspectors and managers. Military personnel with experience in nuclear reactors and other programs, environmental sampling, or on-site inspections are good candidates for inspector or technical support positions. They often have international experience, which is highlighted by the IAEA as an important qualification. Private industry, particularly the nuclear power industry, employs people with many of the same skills needed by the IAEA. Importantly, the IAEA needs experts in fields other than the nuclear field, such as information technology and electronics, and in non-nuclear scientific and technical areas, such as physics or engineering. Universities also have such experts and IAEA salaries are attractive to them. Advertisements in journals and trade newspapers could reach these additional sources of candidates.

**Increase opportunities for spousal employment.** The IAEA does not assist staff members' spouses in finding employment. There are few opportunities to find work on the Austrian economy. Yet, for many people at the workshop, spousal employment was the most important issue; some consider it especially vital when the accompanying spouse is male. Some spouses find jobs, but they are usually one-of-a-kind situations identified through a stroke of luck. The U.S. Embassy in Vienna recently compiled information on employment opportunities for spouses of embassy staff, but it is not available to IAEA employees or applicants. The workshop partici-

pants recommended forming a network of working spouses to share information on job opportunities and lessons-learned in job hunting. The legal situation on spousal employment needs to be clarified and conveyed to staff members and applicants.

**Circulate six-month projections of IAEA posts to laboratory points-of-contact and provide information on which positions are open to U.S. candidates.** The IAEA provides this information to the U.S. Mission, and the ISPO posts it on its website. However, the IAEA does not list all positions. ISPO periodically could circulate the information by e-mail and generate guidance on which positions are good prospects for U.S. candidates.

**Engage current and past IAEA employees and spouses as ambassadors to orient prospective candidates.** Former IAEA employees and their spouses are excellent sources of information about working at the IAEA, living in Vienna, job requirements, salary and benefits, employment opportunities for spouses, and education for children. A formal or informal network could be established to share this information, including holding "alumni" meetings. In addition, UNVIE should contact U.S. citizens currently working at the IAEA to determine where they learned about the IAEA.

**Support re-entry into U.S. workforce upon return to the United States.** A concern of many people considering assignments with the IAEA, especially those in mid-career, is where they will work after completing their assignment. Not all employers offer leaves of absence to employees for IAEA assignments; policies and practices are inconsistent, even at the DOE and the national laboratories. The U.S. interagency should communicate the importance of supporting the IAEA and the value of IAEA experience, the latter particularly so for the national laboratories with many programs supporting international safeguards. As the NGSi implements programs to revitalize the technology base for international safeguards, IAEA work experience will provide important insights into the IAEA's practices, technology and information needs, requirements, and policies. Such experience should be invaluable to the nuclear power industry in the nuclear renaissance as designers consider proliferation-resistant and safeguards-friendly designs. For its interns and JPOs, the ISPO informally assists in the job search by circulating resumes. This service could be extended to regular staff and expanded by a complementary service where employers can advertise opportunities.

**Communicate to national laboratory management and other employers that IAEA experience is valuable.** National laboratories have individual policies, some of which are unclear, for managing a staff member who takes an IAEA assignment. Some staff members must resign to take the position. Laboratories that do not fall under NNSA management sometimes actively discourage such assignments. The U.S. Government should encourage laboratory managers to visit and meet with their counterparts at international safeguards venues to better understand the IAEA and the value of international experience. Thereafter, IAEA opportunities might not be viewed as competition to U.S. organizations, or as work of little value.

**Provide financial support for candidates to gain IAEA experience and exposure.** Participating in the IAEA's technical meetings or USSP consultancies is a good way for the IAEA to meet prospective candidates before they apply. It allows the IAEA to assess candidates' technical capabilities and demeanor, making them a "known quantity," and thereby reducing the risk

associated with the selection. The United States could fund such participation through the USSP or the DOE.

**Develop a uniform security clearance reinstatement or retention policy.** Many prospective candidates for safeguards positions hold security clearances. In most cases, successful candidates are forced to give them up upon taking the IAEA position. Because these postings usually are short term (two to seven years) and because the re-clearance process can be lengthy (one to two years), all candidates are concerned about their re-entry into U.S. Government and national laboratory positions; some decide not to apply, and others turn down offered positions. Some laboratories are able to place affected clearances on stand-by during the assignment, but treatment is inconsistent across the DOE complex. Allowing successful candidates to keep their clearances or expediting the re-clearance process would relieve a major obstacle to recruiting candidates. (Note: The Security Act of 2008<sup>8</sup> contains a provision requiring the government to keep active the clearances of U.S. citizens working at the IAEA. If approved, the Act will resolve this issue.)

**Improve public outreach and recruiting.** The IAEA is a generally unknown organization. Winning the Nobel Peace Prize in 2005 and frequent mention in the news since about 2003 have increased awareness somewhat, but the IAEA is far from being a household name. Heightening the IAEA's visibility in the United States will help increase the number of people considering applying for a position at some time in their careers.

**Encourage ISPO to be creative in its advertising and outreach activities.** The participants encouraged the use of more creative recruiting tools. New advertising or trade show opportunities might be identified. Participants discussed the idea of having a celebrity spokesperson. For example, a few years ago, the actor Jennifer Garner was a recruiting spokesperson for the Central Intelligence Agency (CIA), appearing in television commercials encouraging young people to consider the CIA for their careers. Participants debated using a public service announcement (PSA) to increase public awareness. A PSA might inform U.S. citizens of the important work done by the IAEA's Department of Safeguards to increase worldwide security, as well as to raise the profile of the IAEA. The participants noted that the younger generations use different tools to look for jobs than did their parents. The ISPO should look into tools, such as YouTube and Monster.com, and other appropriate means for reaching new college graduates. Presentations to community groups, schools, and professional organizations are another way to increase awareness of the IAEA's work.

### 6.3 Increasing the Placement Rate

Increasing the number of candidates applying for IAEA positions will not itself solve the challenge of increasing the placement rate of U.S. citizens at the IAEA. Only candidates that the IAEA deems well-qualified will be hired. To be considered well-qualified, candidates need specific knowledge, skills, and experience. In some cases, those skill sets are so unique that they are not taught in colleges and universities, and are acquired only through on-the-job training or years

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<sup>8</sup> *Senate Bill S.3563: An original bill to authorize appropriations under the Arms Export Control Act and the Foreign Assistance for fiscal years 2009 and 2010, and for other purposes. Sponsor: Senator Christopher Dodd. Introduced September 23, 2008.*

of experience; or they simply may not be available in the United States. The following ideas were offered to help the United States ensure that U.S. candidates possess those needed skills.

### **6.3.1 Think and Act Strategically**

**Work with the IAEA to broaden job descriptions and the range of expertise considered appropriate to meet inspector job requirements.** Currently, the IAEA's vacancy announcements are specific on what is acceptable as educational background and relevant experience. Broadening the backgrounds would increase the number of well-qualified candidates from the United States. The IAEA's participants did not support this suggestion and opined that it was not the role of the Member States to assist with preparing vacancy announcements. This might be discussed further with the IAEA, but it is important to recognize that requirements listed on the vacancy announcement must reflect the IAEA's current human-resources needs, and should not be influenced by the qualifications of the candidate pool.

**Use UNVIE more effectively to target key posts that are most available to U.S. candidates.** The United States cannot and does not expect to place a U.S. citizen in every position advertised by the IAEA. The IAEA's policy of geographical distribution in hiring means that each Member State can expect to be successful in placing citizens in positions in proportion with its budgetary contribution. Although the United States supplies 25% of the IAEA's regular budget, it long has accepted that it is not reasonable to expect to place U.S. citizens in 25% of the positions; a fair portion is considered to be 14 to 16%. However, the IAEA Secretariat decided internally that the United States' "fair share" is 12% of the positions.

When U.S. representation is less than 12%, the IAEA gives U.S. candidates some preference in the selection process. Once the United States is at or over 12%, U.S. candidates can be at a disadvantage. (This percentage is not necessarily applied to senior positions.) The number and placement of already employed U.S. citizens within the IAEA's departments, divisions, sections, and units further affects the hiring of new ones. If one or more U.S. citizens already is working in a particular unit or on a particular issue, the United States is less likely to be successful in placing additional representatives therein. Recruitment efforts would benefit from having a clear understanding of the demographics inside the IAEA, together with the pressures placed on the IAEA by its member states for more geographical diversity. Knowing that the selection of a U.S. citizen is unlikely for a particular position, regardless of his or her qualifications, would help ISPO and others allocate their recruitment efforts to those positions where U.S. candidates will more likely be successful. This information also is valuable for the national laboratories, other contacts, and prospective candidates.

**Develop career ladders (career paths) that include IAEA assignments as steps to achieving higher level positions in the U.S. Government and/or national laboratories.** Because IAEA positions generally are temporary (usually two to seven years), candidates would be encouraged to apply if they were confident that the IAEA experience would be followed by good positions in the United States or would give them some advantage in obtaining their next position. Assurances that their former employer (or a new employer) will value the experience they gained while assigned to the IAEA would be desirable. Certain positions, such as U.S. representative to the Standing Advisory Group on Safeguards Implementation (SAGSI), or the IAEA Steering

Committee Chair, benefit directly from IAEA experience. Other positions, such as national laboratory department/division chairperson would benefit indirectly. The career ladders also should include the education, assignments, and training that prepares candidates for IAEA assignments, and makes use of or builds on their IAEA experience. Establishing career paths will be part of the NGS Human Capital Development program. IAEA career ladders should be linked to these career paths that the NGS will develop for human capital development (long-term) and laboratory career paths.

**Develop and maintain a current list of skill sets that are needed by the IAEA.** The skills valued by the IAEA vary according to current safeguards challenges. A list of required skills would not vary dramatically in the short term, but could change substantially over time. Such a list would be very useful to recruiters in assessing the resumes of prospective candidates, and to the U.S. Government when determining what education, training, or foreign assignments are necessary.<sup>9</sup>

**Place consultants and possibly CFEs in key IAEA position in the short-term to expose them to IAEA decision makers.** It often is difficult for any organization to understand a person's qualifications from a resume or through an interview. There is a risk in hiring an unknown candidate because of uncertainty about whether they can successfully fill the new position. The USSP offers human resource assistance to the IAEA in the form of consultants and cost-free experts (CFEs). Taking short-term consulting positions under the USSP gives people an opportunity to work with the IAEA and demonstrate their knowledge and abilities. Accordingly, the IAEA would have some knowledge of a consultant's ability to fill a vacancy in the IAEA environment. They would be more likely to select a "known quantity" than someone with whom they have never worked. The same principle would apply to CFEs, but some participants at the workshop stressed that the SSTS should not consider CFE appointments only as vehicles to place regular staff; there continue to be circumstances where extra-budgetary positions are important in and of themselves.

### 6.3.2 Preparing Candidates for IAEA Jobs

**Provide training to improve knowledge in critical areas, such as the nuclear fuel cycle.** For many IAEA jobs, the successful candidate needs knowledge in more than one area. For example, familiarity with the fuel cycle is helpful in almost all safeguards positions. For satellite imagery analysts, a basic knowledge of it is insufficient; they should also be knowledgeable of indicators of nuclear facilities. Participants suggested that the DOE could augment the skills of good candidates via supplemental training. Several training courses developed for other purposes could be delivered as is, or customized, to better qualify prospective candidates. In areas where the United States has limited capability, such as reprocessing, the DOE could offer opportunities for candidates to attend training or take assignments in other countries to gain the needed experience.

**Establish exchange programs between U.S. Government agencies and private industry to foster the development of skills.** The IAEA will be more interested in a candidate with experi-

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<sup>9</sup> In late 2008, NA-24 completed a Skills Set study under NGS. The Skills Set includes laboratory projections of future IAEA human resources needs.

ence in multiple sectors than a person who has worked in the same position throughout his or her career. Getting experience in another sector also may improve a person's contribution to their current position. Exchange programs, for junior or mid-career staff, for example from the DOE to Areva, would give candidates better insight into industrial and safeguards issues, and may improve the candidate's skills. Temporary assignments at the U.S. NRC would afford opportunities to gain experience in domestic inspections. Assignments at the IAEA, the goal of the workshop, could be viewed as an opportunity for acquiring international experience that would benefit the candidate's U.S. organization, whether public or private. Since almost all IAEA vacancy announcements emphasize the importance of international experience, a program that develops and cultivates overseas experiences would be invaluable for many potential U.S. candidates.

**Foster an understanding of IAEA jobs for better interview performance.** Better knowledge of what a specific IAEA job entails will enable prospective candidates to present themselves better, improve their chances of selection, and help them prepare for the job. One way to give them such information is to ask former IAEA employees, particularly inspectors, to mentor prospective candidates. Having someone offering first-hand information improves the candidate's understanding of the position. Another route to deliver such information is via the video, "Day in the Life of an Inspector." The ISPO has a brochure outlining the job requirements of safeguards inspectors; participants noticed that it does not discuss travel, an important aspect of an inspector's job. This brochure should be updated with data on how much travel to expect, travel conditions, and the support provided. Other brochures should be written to describe other key positions, such as open source information analyst or safeguards trainer. For greater clarity, such brochures might include first-person accounts of jobs.

**Leverage JPOs and NGSi summer intern programs.** JPO positions and NGSi summer internships expose young people to international safeguards and the IAEA. These short-term assignments must be followed by other opportunities if expectations are that the individuals stay in the international safeguards community. The USSP and NA-24 should keep track of these people, and try to provide additional opportunities for them. Whenever possible, the ISPO works to find jobs for JPOs in the national laboratories or to inform them of opportunities in the U.S. interagency. JPO assignments also can be used to introduce individuals to the IAEA for regular staff positions

**Assist candidates with the application and interview process.** Several suggestions were made to increase a candidate's chances of being selected for a position. First, offer assistance to candidates in presenting themselves in the application process. Understanding how the IAEA reviews applications, we can use this knowledge to ensure that applicants put the correct information in their applications. Knowing how to prepare their applications will improve the IAEA's assessment of their applications. The ISPO has a brochure describing the application process; it should be updated based on the results of this workshop, and periodically corrected and improved. Second, help candidates improve their performance in interviews. The IAEA interviews by videoconference, which might be awkward and intimidating for people inexperienced with that medium. Holding videoconferencing practice sessions could greatly improve their performance. Another way might be to ask interviewees to provide lists of questions that were asked in their interviews that then can be shared with future candidates. Knowing the types

of questions that were asked of other candidates can help prospective candidates prepare, even if those questions were for other positions. Third, assist candidates in improving their qualifications and fill gaps in their knowledge and experience; this might involve preparing materials, short courses, or orientations (possibly using web-based or distance-learning technologies).

Because applicants must apply to the IAEA for positions via its web-based system, the ISPO often has no knowledge of potential candidates until they are placed on a short list. The ISPO should devise ways to encourage applicants to notify the U.S. that they were considering submitting an application or have applied. (For example, the IAEA could ask applicants to indicate on their application if they wish the IAEA to share it with the U.S. Government.)

### 6.3.3 Target Key Management Positions

**Target important positions and groom high potential candidates so that they have the required skills and attributes; maintain a "ready-list" of potential candidates to fill important positions.**<sup>10</sup> The list of targeted positions should be maintained for ten to fifteen years. Director of Safeguards Concepts and Planning is a position that is very important to the United States, and for which the United States always should be ready to nominate strong U.S. candidates. To be prepared, the U.S. Government should have a "ready-list" of the names of candidates who are qualified, or are on a track that will qualify them, and who could be called on to serve at the IAEA as far out as fifteen years; special attention should be given to ensuring that their qualifications remain strong. For example, they should be offered opportunities to participate in special professional development programs and given special opportunities, such as assignments at the DOE, State, and UNVIE. The ready list should include multiple names since candidates' professional and/or personal circumstances may make them unavailable when the position becomes available. This recommendation applies to a relatively small number of key positions that should be identified, and reviewed periodically. Management at relevant U.S. Government agencies, e.g., the NRC and State, should be kept apprised of important positions and of the steps that enhance applicants' success in obtaining IAEA positions.

**Establish mentoring programs to develop difficult-to-teach management skills, especially decision making under conditions of uncertainty, people skills, and diversity.** IAEA requirements for management positions are evolving, with more consideration in the selection process given to management experience and performance. Candidates for management positions may need assistance in developing management skills, particularly in a high stress, multicultural environment. Establishing an assessment center process or other resources to assess skills should be considered.

**Prepare high-potential candidates.** Many training courses have been developed for U.S. and international audiences. Periodically, they could be delivered to candidates identified by their organizations as good prospects for future IAEA employment. Being included in such a special program could be treated as a perquisite, but would ensure that candidates' resumes are complete by the time they are ready to apply for IAEA employment. For example, several U.S.

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<sup>10</sup> NA-24's Skills Set assessment identified technical staff at the national laboratories who are interested in taking assignments at the IAEA. The "roster" identifies their technical skills.



Government agencies established leadership programs to attract young engineers into the nuclear industry.

### **6.3.4 Increase Resources Dedicated to Recruiting**

**Increase the level of recruiting efforts.** Participants considered the ISPO's level of effort for recruiting for IAEA Safeguards positions to be insufficient. A half-time administrative assistant at ISPO is responsible for recruiting activities. Other ISPO staff, one consultant, and Argonne National Laboratory staff members accompany her at trade shows and career fairs. The overall effort is between three-quarters to one full-time equivalent (FTE). In light of the results of this workshop, ISPO's recruiting efforts should be reviewed and scoped again to determine the needed level of effort, for which the appropriate level of funding should be made available.

**Establish a position within UNVIE to address NGSi issues, including recruitment and human capital development on a very detailed level.** As described earlier, an additional full-time equivalent at UNVIE could help to enhance the recruitment process in many ways. Much depends on assembling and maintaining data about the applications of U.S. candidates, including for example: Who has applied? What are their backgrounds? How did they fare? What are their plans for returning to the United States, and how did returnees fare? Gathering much of this information necessitates on-going contact with the Secretariat and with U.S. citizens in the Secretariat. A position created to represent NGSi at the U.S. Mission in Vienna, among other things, could be given responsibility for gathering information on the current placement of U.S. citizens, individual experiences, and job opportunities, and could offer support to arriving and departing U.S. citizens.

## **7.0 Recommendations**

The primary purpose of this report is to document the discussions of the NGSi Workshop on Enhanced Recruiting for International Safeguards. Using these results, the authors organized the findings in a format useful to NA-24. The workshop recommendations are prioritized below, beginning with goals that can be quickly and easily achieved (near-term goals) and ending with activities whose goals will be realized over the long-term. Within each category, efforts were made to list the recommendations in order of priority, although this was not always possible.

One issue that the participants did not consider was the need to understand or identify the IAEA's human-resource requirements. Alicia de Reynaud presented information on this, and several workshop participants provided input. To develop a strategy to meet the need, it must be defined more clearly. This issue could be addressed in conjunction with developing an integrated recruiting plan (Recommendation 7.1a).

### **7.1 Near Term (0-12 months)**

- A. Develop an integrated recruiting plan that includes all stakeholders and their activities.
- B. Identify positions in the IAEA's Department of Safeguards that are important to U.S. interests. Create a timeline showing their likely availability, and the probabil-

ity of success for U.S. applicants. Develop a "ready list" of candidates who could fill those positions on a 20-year horizon. Ensure that relevant U.S. Government agencies and their managers are aware of steps that could enhance competitiveness.

- C. Poll U.S. citizens currently working in the IAEA's Department of Safeguards to see where they learned about the IAEA, and how they found out about their position, and gather other information relevant to U.S. recruitment efforts.
- D. Continue to hold "alumni" sessions during the INMM Annual Meeting to discuss U.S. citizens' experiences with IAEA recruitment and assignments. Invite spouses to attend. Consider other venues for these meetings (such as the meetings of the American Nuclear Society and INMM Chapters.)
- E. Compile a list of questions asked during interviews for IAEA positions (from exit interviews of the candidate), and distribute them to future candidates for preparing for interviews.
- F. Identify steps that could be taken with the IAEA to increase the transparency of the recruitment process to the U.S. Government and to the applicants.

## **7.2 Medium Term (6 months to 24 months)**

- A. Increase coordination of U.S. recruiting efforts. Establish a central unit for overseeing all recruitment activities related to IAEA Safeguards positions.
- B. Increase the level of recruiting efforts.
- C. Address issues of inconsistent treatment of national laboratory and Federal employees who wish to take assignments with the IAEA. They include leaves of absence and retention of security clearances. Educate national laboratory management on the importance and value of IAEA assignments and experience.
- D. Prepare a report to document career ladders and the education, training, and special assignments that support them.
- E. Prepare or improve brochures on the following issues:
  - 1. Spousal employment
  - 2. Benefits
  - 3. Job requirements for IAEA positions
  - 4. Preparing for interviews
- F. Develop a formal program to assist re-entry of U.S. citizens into the U.S. workforce when they complete their IAEA assignments.

- G. Obtain projections of IAEA posts from UNVIE and circulate them to U.S. contacts. Identify those jobs likely to be open to U.S. citizens.
- H. Increase efforts to recruit candidates from outside of the national laboratories' population by developing points-of-contact at professional societies and government agencies other than the DOE.
- I. Using the "ready list" (recommendation Section 7.1b), groom candidates for important positions to ensure they meet the necessary requirements for the targeted position.
- J. Document best recruiting practices.
- K. Provide opportunities for candidates to practice interviewing using videoconferencing systems.
- L. Poll U.S. candidates who would like to work at the IAEA to see where they learned about the IAEA, and how they found out about their position. Gather other information important to U.S. recruitment efforts. Include in the survey people who considered working with the IAEA but did not apply.
- M. Study U.S. perceptions about the IAEA's compensation package to determine which issues are of real concern. Determine how to explain compensation and benefits in clear terms.
- N. Investigate novel tools (i.e., those not currently used by ISPO, ANL, or others) that could improve outreach and recruitment (i.e., YouTube).
- O. Develop and maintain a current list of skill sets required by the IAEA.
- P. Begin tracking USSP Junior Professional Officers and NGSi interns so that they can be contacted in the future about jobs at international safeguards.
- Q. Begin the process of working with the IAEA on transparency, for example, by taking advantage of the IAEA's benefits calculators.

### **7.3 Long Term (18 months to 5 years)**

- A. Develop a family orientation program based on the orientation that ISPO presented for new recruits (CFEs and regular staff), and programs like those conducted by State for foreign assignments.
- B. Prepare a report on job opportunities for accompanying spouses in Vienna and elsewhere in Europe.

- C. Develop a network of current and past IAEA employees and spouses who will serve as ambassadors to help orient prospective candidates and recent recruits. Formalize the host family program (this could become an employment opportunity for an accompanying spouse).
- D. Develop a program to help prospective candidates obtain the knowledge and skills that they need to be selected for IAEA assignments. The program should use training developed under the USSP and other programs; develop additional training as required, and establish exchange programs between the national laboratories, industry, government, and other member states.
- E. To raise candidates' visibility within the IAEA, and therefore improve their chances of being selected for a position, provide financial assistance from the USSP or other sources so the candidates can attend meetings of experts and consultants at the IAEA. Consider how to use CFE positions for the same purpose.
- F. Establish a mentoring program for candidates for management positions to help develop difficult-to-teach management skills.
- G. Establish a position within UNVIE to address NGSI issues, including recruitment and human-capital development, on a very detailed level.
- H. Develop a campaign to increase the visibility of the IAEA within the United States using a celebrity spokesperson or a public-service announcement.

## **8.0 Conclusions**

The present recruiting process for international safeguards aims at providing the IAEA with qualified U.S. candidates for most of the positions advertised. The organizations responsible for recruiting for IAEA safeguards positions are doing a good job, and, in most cases, are meeting the needs of the United States and the IAEA. In the short term, the United States will continue to propose well-qualified candidates for jobs at the IAEA's Department of Safeguards. However, there are actions that the United States should take for continuous improvement, to be competitive in current and future markets, and to ensure the long-term viability of its recruiting efforts.

Global and domestic trends are underway that are placing stress on the traditional recruiting process. Modern safeguards regimes rely heavily on technology, information management, satellite imagery, and all-source information analysis. More than ever before, safeguards inspectors must be "nuclear detectives" able to integrate diverse data streams and make safeguards decisions on a State level. The need for exceptionally talented, skilled, and intelligent individuals who can work in an international workplace is increasing dramatically. All of this is happening against the backdrop of the nuclear renaissance, which means that the U.S. Government must compete with private corporations for a small pool of people who possess the skills in demand by the nuclear and technical marketplace. Accordingly, traditional U.S. recruiting practices must change to provide the IAEA with the skills that are necessary to implement modern safeguards

regimes. This will require new approaches for communicating with key demographic groups, such as social networking and internet-based advertising.

Most importantly, NA-24 must provide the foundation for a competitive recruiting process. This means competitive compensation systems, job continuity, improved job security, accommodations for the disruptions that families experience when moving overseas for a short-term assignment, and training opportunities to ensure that U.S. candidates obtain and maintain the skills that are valued by IAEA and the U.S. Government.



**Appendix A**  
Workshop Agenda

**Workshop on Enhanced Recruitment for International Safeguards  
October 22 and 23, 2008  
Brookhaven National Laboratory – Brookhaven Center (Bldg 30)**

Agenda

Wednesday, October 22, 2008

8:00 am	Registration and Morning Coffee	
8:30 am	Welcome and Introductions	Susan Pepper (ISPO)
8:45 am	DOE Perspective	Dunbar Lockwood (DOE/NA-24)
9:00 am	What is International Safeguards?	Michael Rosenthal (BNL)
9:15 am	Review of Workshop Objectives	Michael Rosenthal (BNL)
9:30 am	Review of IAEA Recruiting Efforts	Catherine Monzel (IAEA)
10:00 am	IAEA Safeguards Program and Staffing	Alicia de Reynaud (IAEA)
10:30 am	Coffee Break	
10:45 am	Review of US Recruiting Efforts	Susan Pepper (ISPO)
11:15 am	Addressing the Challenges Associated with the Recruitment of Skilled Professionals in Support of International Safeguards	Mike Brown (Hay Group)
11:45 am	Preparation for Breakout Sessions	Colin Carroll (Sonalysts)
12:00 pm	Lunch Break	
1:30 pm	Group Photo – Bldg 30	BNL Photographer
1:45 pm	Recruitment Session 1 – Professional Technical Support Staff	Susan Pepper, Colin Carroll, Fred Litty

4:30 pm	Wrap-up of the Day's Activities	All
5:00 pm	Adjourn – Social Hour	All

Thursday, October 23, 2008

8:00 am	Morning Coffee	
8:30 am	Recruitment Session 2 – Safeguards Inspectors	Susan Pepper, Colin Carroll, Fred Litty
10:15 am	Coffee Break	
10:30 am	Recruitment Session 3 – Management Positions	Susan Pepper, Colin Carroll, Fred Litty
11:45 pm	Lunch Break	
12:00 pm	Report Preparation/Lunch Break	Facilitators, Note Takers, and Elected Speaker*
2:00 pm	Presentation on IAEA Employment for BNL Roster**	Alicia de Reynaud
3:00 pm	Coffee Break	
3:30 pm	Presentation of Workshop Findings and Recommendations	Les Fishbone
4:30 pm	Adjourn	

\* Les Fishbone

\*\* This presentation has been planned for members of the BNL community who have expressed interest in working for the IAEA. Workshop participants who are not involved in the report preparation are welcome to attend.





# **Appendix B**

## **Workshop Participants**

LAST NAME	FIRST NAME	AFFILIATION
Boyer	Brian	Los Alamos National Laboratory (LANL)
Brown	Mike	Hay Group
Caroll	Colin	Sonalysts, Inc.
Coblentz	Laban	Rensselaer Polytechnic Institute (RPI)
Cockerham	Rob	Department of State (DOS)
Czerwinski	Ken	Harry Reid Center
Dreicer	Mona	Lawrence Livermore National Laboratory (LLNL)
Durst	Casey	Pacific Northwest National Laboratory (PNNL)
Ehinger	Mike	Oak Ridge National Laboratory (ORNL)
Eipeldauer	Mary Dawn	ORNL
Fankhauser	Jana	PNNL
Fishbone	Les	BNL
Hooper	Rich	Consultant
Hypes	Phil	LANL
Jay	Jeff	Savannah River National Laboratory (SRNL)
Kendall	Shirley	BNL/Diversity Office
Lersten	Cindy	Department of Energy (DOE) NNSA/NA-24
Lichliter	Bill	Retired
Litty	Frederick	Sonalysts, Inc.
Lockwood	Dunbar	DOE/NNSA/NA-243
Luchi	Paola	DOS
Mathews	Carrie	PNNL
Mininni	Margot	DOE/NNSA/NA-242
Monzel	Catherine	International Atomic Energy Agency (IAEA)
Naurocki	Gloria	American Nuclear Society (ANS)
Nicholas	Nancy Jo	LANL/Institute for Nuclear Materials Management (INMM)
Occhiogrosso	Donna	BNL
Osiecki	Cathy	BNL/Office of Educational Programs
Patterson	Jade	UN Industrial Development Organization (on sabbatical)
Pepper	Susan	BNL/International Safeguards Project Office (ISPO)
Queirolo	Albert	BNL/ISPO
Refalo	Lee	Savannah River National Laboratory (SRNL)
Reynaud	Alicia	IAEA
Romano	Catherine	RPI
Rosenthal	Michael	BNL
Schanfein	Mark	Idaho National Laboratory (INL)
Sokova	Elena	Monterey Institute for International Studies (MIIS)
Tolk	Keith	Sandia National Laboratories (SNL)
Uzzle	Mike	ORNL
van Dalen	Monica	MIIS
Walker	Jillian	United States Mission to the United Nations
Walker	Kathleen	BNL
Wallace	Rick	LANL
Ward	Barclay	Retired
Wonder	Ed	DOE/NNSA/NA-243

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**Appendix C**  
Raw Results

Raw Results:

The following tables were tabulated by a small group of workshop participants on Friday, October 24, 2008. In trying to prioritize the recommendations made during the workshop, the subset realized that a number of factors had to be considered. The factors are explained briefly below.

Priority: The recommendations were divided into three priorities:

- 1 – High
- 2 – Medium
- 3 – Low

Category: This refers to the category of IAEA staff that the recommendation applies to:

- G – General
- M – Management
- I – Safeguards Inspector

Impact: Refers to the impact the participants through the U.S. Government could make by implementing the recommendation:

- 1 – High
- 2 – Medium
- 3 – Low

Ease: The ease with which the U.S. Government could implement the recommendation (cost is factored in here with more expensive recommendations being considered more difficult to implement):

- 1 – Easy
- 2 – Medium effort required
- 3 – Difficult or expensive

Increase the number, quality or both: Will the recommendation increase the number of candidates, increase the quality of candidates or increase both:

- N – Increase the number of candidates
- Q – Increase the quality of candidates
- B – Increase both the number and quality of candidates

Priority	Category	Impact	Ease	Increase the Number, Quality, or Both	Action
1	G	1	1	B	Increase level of recruiting efforts (at ISPO??)
3	G	1	1	B	Link to development of NGSI career paths for human capital development (longer-term) and Lab career paths (keep in mind for report writing)
3	G	1	1	B	Develop an integrated recruitment plan (including role for DOE, DOS, ISPO, Labs, NRC, DOD) to better position US (capabilities as well as to promote candidates) for a sustainable mechanism. Devote the resources to implement.
3	G	1	2	B	Document and disseminate “best practices” for recruitment
3	G	1	2	B	Gather statistics What do Americans that go to the IAEA as inspectors do – if and when they return to the U.S. What happens to the US staff that stay at the Agency (possible use of a database to track careers); interviews with inspectors to find out their experience and histories exit interviews Identify other metrics needed for self-assessment (need to be numerical, suggest key words for answers) document success stories to understand what has worked in the past (best practices) Rewrite to generalize
3	G	1	2	B	Foster understanding of specifics of job Update Inspector brochure, develop brochures on other positions (include first person accounts of jobs) Benefits calculator for US potential candidates needs for making informed decisions. Account for standard of living differences and do analysis for different US locations. Develop family orientation to help adjustment – leverage existing materials, possibility development of video materials, look for applicable “benchmarkable” programs (e.g. DOD, DOS), host family before they leave the US
3	G	1	3	B	Implement an integrated recruitment plan (including role for DOE, DOS, ISPO,

Priority	Category	Impact	Ease	Increase the Number, Quality, or Both	Action
					Labs, NRC, DOD) to better position US (capabilities as well as to promote candidates) for a sustainable mechanism. Devote the resources to implement.
2	G	1	3	B	Strategically place consultants and possibly CFEs <del>in long term positions</del> in mind to make them a known quantity – exposure at the Agency and UNVIE – subject to other constraints (Note: SSTS should not only consider CFE appointments as vehicles to place regular staff)
3	G	2	1	B	Semi-annual (frequency to be determined) updated list of skill sets that are needed (IAEA and other source input needed)
3	G	2	1	B	Leverage JPO and NGSI summer intern programs Link to strategic positions (assigning CFEs and consultants strategically) Get them into the labs and other safeguards-relevant positions Use this as a way to introduce them to Agency for regular staff positions Increase awareness of the IAEA as an employer and an institution
1	G	2	3	B	Evaluate the establishment of exchange programs among government agencies and/or private industry (e.g., DOE to Areva) to foster the development of skills: exchange programs, for junior staff, at DOE Labs, facilities, others....etc, to go to the NRC – to get more technical staff to have US domestic inspector experience and allow NRC inspectors to go to IAEA to get international experience and bring it home.
3	I	2	3	B	Consider working with IAEA to broaden job descriptions and range of expertise considered as necessary to meet inspector job requirements.
	G			N	Compensation
2	G	1	1	N	Broaden application pool outside the US Lab population: NRC a good source of potential candidates for recruitment for IAEA inspectors Military population with experience in nuclear, nuclear navy, environmental sampling, investigating nuclear programs; reserves with experience internationally -- on the ground. DTRA/On Site Inspection Agency population Safeguards and security staff at the Labs (NA-70) Private industry (use Trade newspapers, journals, job ads) – IT

Priority	Category	Impact	Ease	Increase the Number, Quality, or Both	Action
					Universities
2	G	1	1	N	Better coordinate recruiting in the US. Plan to integrate recruitment plans with the broader scope of NGSi Human Capital Development (outreach) Coordination among U.S. partners Coordinating with NGSi human capital
3	G	1	1	N	Circulation of IAEA six month projection of posts to Lab points of contact and provide information regarding which posts are open to US candidates (Note: Currently on ISPO website, but information provided by IAEA/Mission does not include all positions)
3	G	1	1	N	Engaging past IAEA employees and spouses to answer questions/provide support (If ISPO had a full time person addressing recruitment, this is something that person could do. The IAEA Alumni group could be part of this)
1	G	1	2	N	Increase opportunities for spousal employment – formal support system
1	G	1	2	N	Re-entry into US workforce upon return to the US (link to NGSi efforts to develop stable funding), communicate to other parts of DOE or USG the importance of supporting IAEA experience. (Note: There are different situations for different people – some are returning to existing jobs, some have broken with their previous employer, some are looking for entry level jobs. The ease “mark” is given based on our ability to make some effort to improve the situation for all – it is not our estimation of success)
1	G	1	2	N	DOE to convey/convince Lab Management and other employers USG support for employees to gain IAEA experience and exposure (e.g. approve foreign travel not necessarily funded by DOE, for interview or “meet and greet” to build the relationship). Allow Lab management access to international safeguards venues to better understand IAEA and international experience. So IAEA opportunities are not viewed as competition. (Balance between Lab priorities and IAEA long-term support). (Note: This is a condition for success. It must be done.)
2	G	2	2	N	Development of uniform security clearance reinstatement and/or retention policies. Important for retention of employees (Note: Will be impacted by approval/rejection of Security Act of 2008)

Priority	Category	Impact	Ease	Increase the Number, Quality, or Both	Action
2	G	3	2	N	Better and creative public outreach/recruiting (e.g., celebrity spokesperson); Take into account tools for attracting the younger generation (YouTube)
3	G	1	1	Q	Use UNVIE more effectively to target key posts that are most available for US; distribute information to contacts; improve communication paths
1	G	1	2	Q	Help candidates succeed Create a process to help applicants present their credentials in the best way in their applications. Training class for improving interview success - - Materials/short courses/orientations to help candidates to help fill gaps in knowledge needed (possible web-based or distance learning). Prepare candidates with high potential – short courses, training, intensive (examples – leadership programs, young engineers group to attract into the industry)
2	G	1	2	Q	Develop career ladders (career paths) that can be presented; great opportunities, fast tracks (high potentials) – stepping stones; clearly inform potential candidates of possible career paths, satisfying careers
2	M	1	3	Q	Target important positions and groom limited set of potential candidates so that they have the required skills/attributes (strategic, long-term); have a ready-list; Fast-track program – special treatment while in holding pattern for high performers (succession planning) (Note: Applies to limited number of key positions)
3	M	1	3	Q	Establish mentor programs to develop difficult-to-teach management skills, especially decision making under conditions of uncertainty, people skills, and diversity. Consider an assessment center process (check with Mike Brown) or other resources to assess skills and help candidates
3	G	2	2	Q	Practice video/regular interviews, help to write a good application; compile a list of questions asked in IAEA interviews (Note: Combine with other prep action)



Priority	Category	Impact	Ease	Increase the Number, Quality, or Both	Action
1	G	2	3	Q	Experience - secondary skills DOE provide supplementary training to augment skill set of good candidates Fuel cycle– limited US experience for reprocessing, so extra training/experience might be needed
3	I	2	3	Q	Mentor relationship to foster understanding of the specifics of the job, it would aid in placement and help inspectors selected to be ready for the job if more information was available early in the process; utilize/update the video (“Day in the Life of an Inspector”); resurrect written materials that will help inform.