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**International Safeguards
Project Office (ISPO) at BNL**

Raymond Diaz

Presented at the BNL Management Council Meeting
Brookhaven National Laboratory, Upton, NY
September 20, 2016

September 2016

Nonproliferation and National Security Department

Brookhaven National Laboratory

**U.S. Department of Energy,
Office of Science,
BNL Program Development**

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International Safeguards Project Office (ISPO) at BNL

BNL Management Council Meeting

*Presentation By Ray Diaz
International Safeguards Project Office
September 20, 2016*

BROOKHAVEN
NATIONAL LABORATORY
a passion for discovery



OUTLINE

- International Atomic Energy Agency (IAEA)
- United States Support Program (USSP)
- Why IAEA's Mission is important to the World?
- USSP funded work for IAEA Safeguards Dept.

International Atomic Energy Agency

- Established in 1957
- Headquarters in Vienna, Austria
- Focus on Nuclear Nonproliferation:
Preventing development & spread of nuclear weapons
- >140 Countries have IAEA inspection agreements of their nuclear facilities
- SGs Dept. verifies that countries nuclear facilities are abiding by their IAEA agreements
- Budget ~\$360M/yr.



IAEA Headquarters



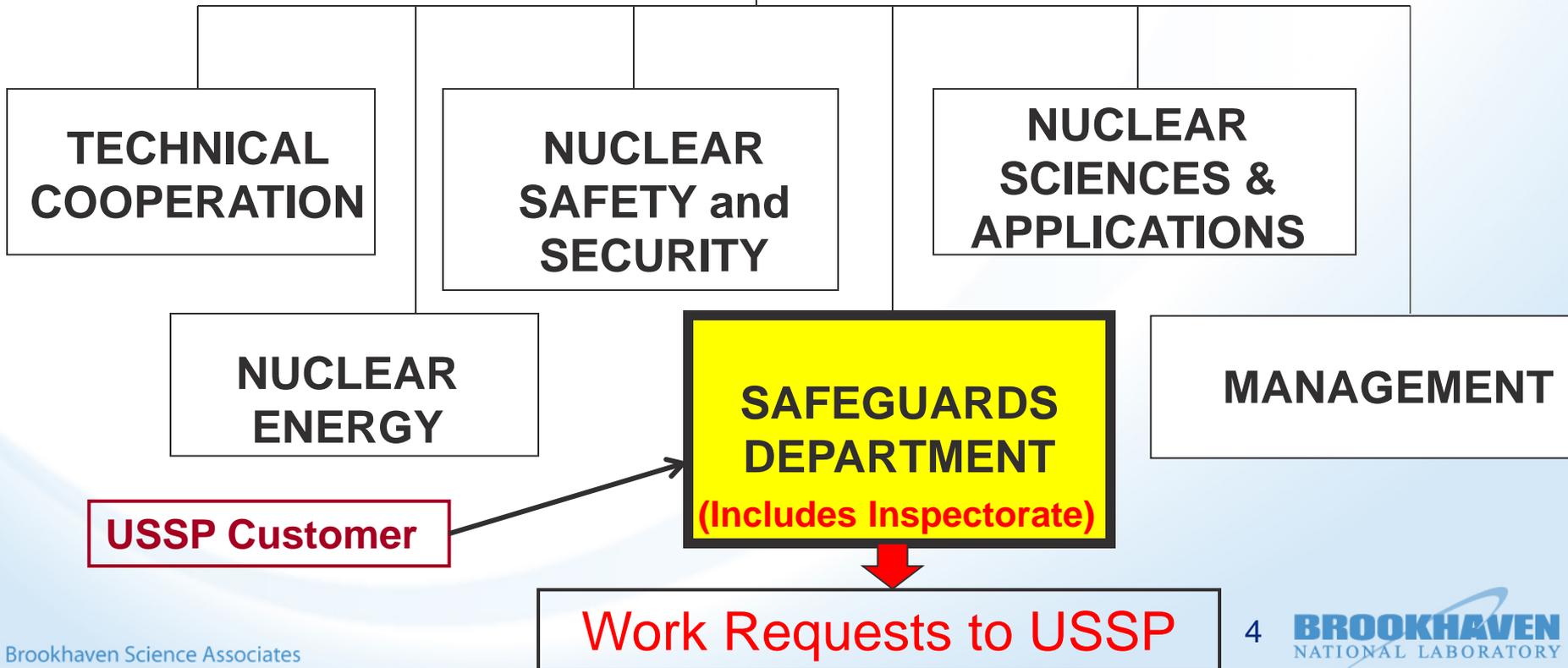
IAEA SGs Inspectors

IAEA Org. Chart



Atoms for Peace: The First Half Century
1957–2007

**Director General
Yukiya Amano**



U.S. Support Program (USSP)

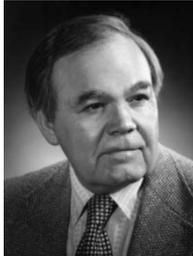
Purpose: Respond to IAEA SGs Dept. requests for technical work to assist in addressing their high priority needs to ensure peaceful use of nuclear energy

USSP History:

- 1975 – US delegation to Vienna led by Senator John Glenn
- 1977: - USSP established under BNL leadership of Herb Kouts and sustained by BNL NNS
 - ISPO runs day to day USSP operations
- First & largest funding contributor of the 21 existing Member State Support Programs to IAEA SGs
- Over \$345 Million funded with over 1160 work tasks completed



John Glenn



Herb Kouts



Joe Indusi

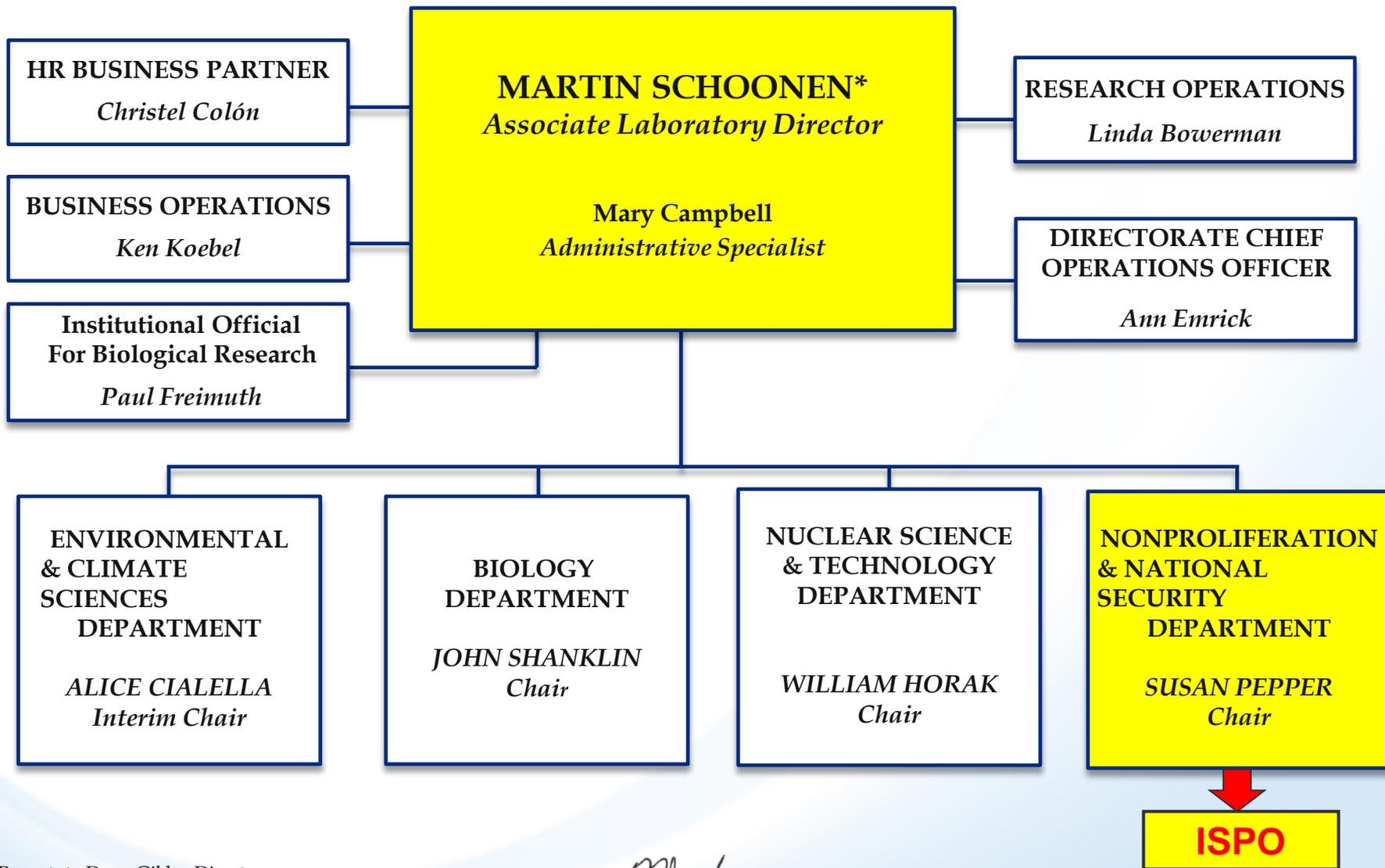


Susan Pepper

International Safeguards Project Office (ISPO)

- Technical & administrative management of USSP
- Funding recommendations to U.S. gov. interagency Subgroup on Safeguards Technical Support (SSTS)
 - **SSTS:** **DOE** (Chair) Kevin Veal, **DOS** – Pete Sprunger, **DOD** – Craig Campbell, **NRC** – Santiago Aguilar
- Addressing ~45 pending requests and ~ 70 active tasks
- Recruitment of U.S. citizens for IAEA SG positions:
 - Regular Staff
 - Cost Free Experts
 - Junior Professional Officers
- FY17: **\$7.8 Million** from **DOS** to **BNL** to fund:
 - 9 ISPO staff members
 - 0.35 FTE BNL Procurement Dept. (MPOs & Contracts)
 - Work by U.S. national labs & private sector

Environment, Biology, Nuclear Science, and Nonproliferation (EBNN) Directorate



*Reports to Doon Gibbs, Director
ESH Coordinator - Bob Colichio, Pat Carr

Approved: 
Martin Schoonen

January 1, 2016
Date

Brookhaven National Laboratory

International Safeguards Project Office

Raymond Diaz - Project Office Head

Teresa Montuori - Administrative Support

New York

Joe Carbonaro - Task Monitor

Josh Tackentien - Task Monitor

Ron Webster – Task Monitor

New Hire #1 – Task Monitor

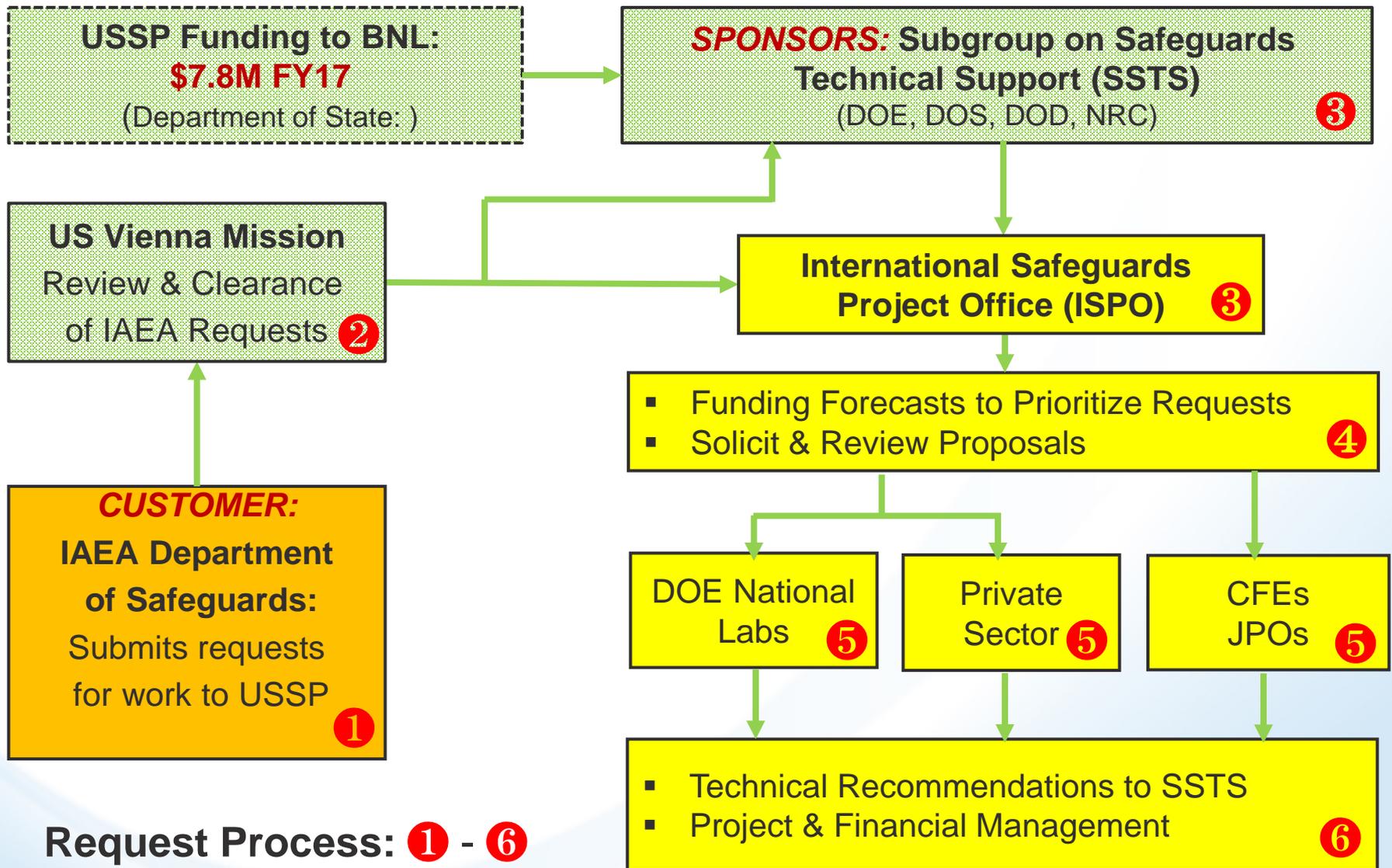
New Hire #2 – Task Monitor

Deborah Johnson - Financial
Specialist

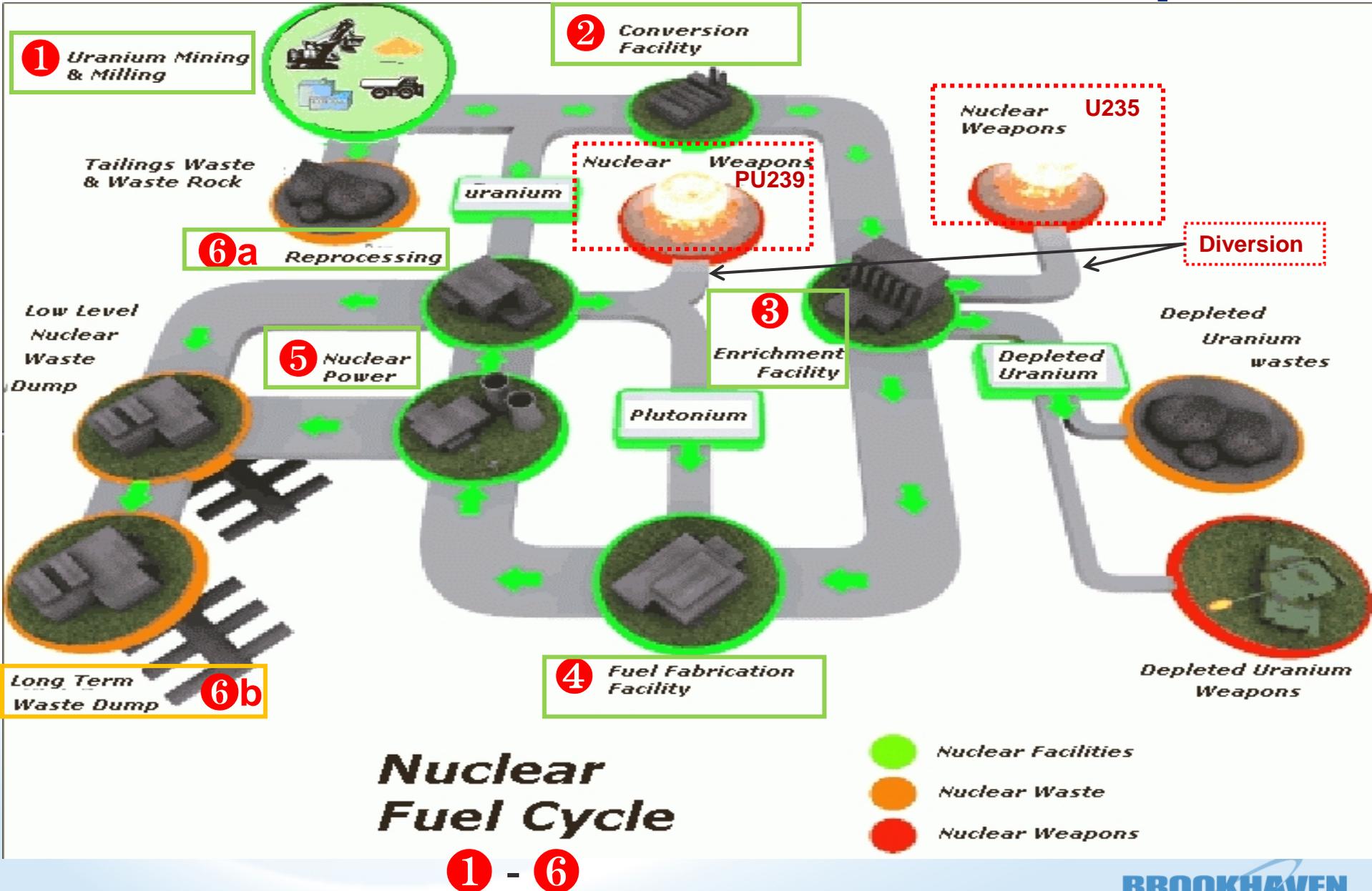
Vienna

Barbara Hoffheins - Liaison Officer
(Returning to BNL in April 2017)

USSP Work Flow Process



Nuclear Facilities IAEA SG's Inspects



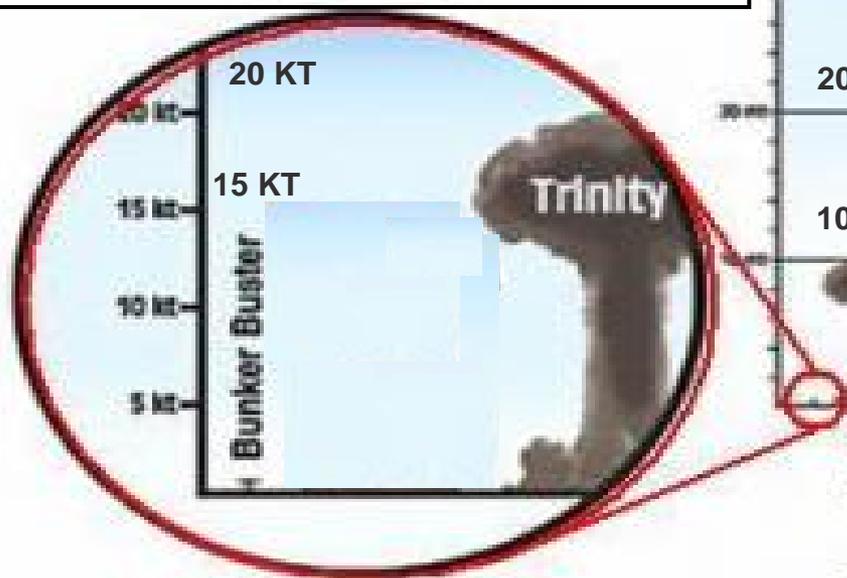
Why is IAEA's Mission Important to the World?

Detonated Nuclear Bombs

Deadly Precision

The new nuke will pack a tiny fraction of the power of WWII and Cold War weapons.

The 50 MT Tsar bomb (1961)
~ 2500 more powerful than Trinity bomb

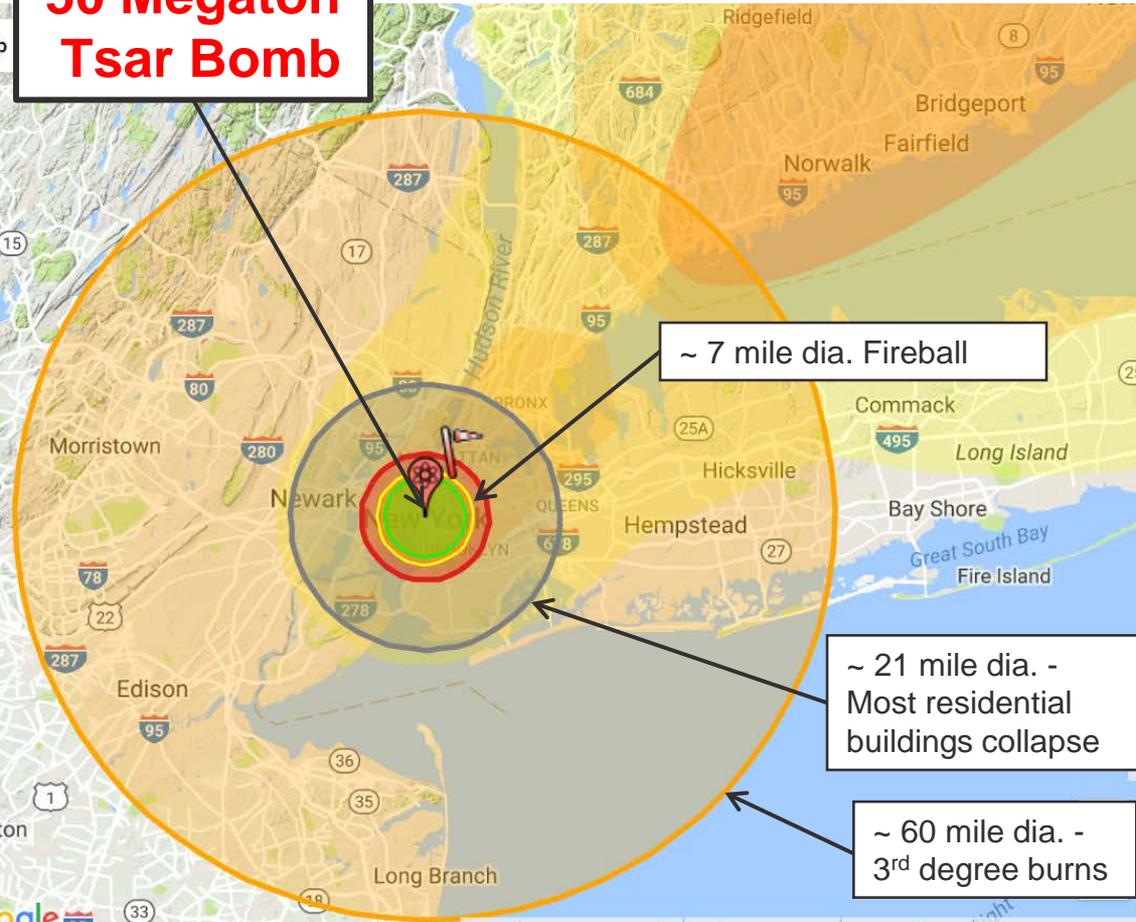


USA Alone has today a total nuclear weapons destructive force of 1800 Megatons.

The Tzar Bomba original design was 100 megatons but was scaled down to 50 Megatons to reduce the resulting nuclear fallout. (Shown Above)

Why is IAEA's Mission Important to the World?

**50 Megaton
Tsar Bomb**



NUKEMAP

2.42 : FAQ

You might also try:
NUKEMAP_{3D}

1. **Drag** the marker to wherever you'd like to target.

Or you can select a preset...

Or type in the name of a city:

Go

2. **Enter a yield** (in kilotons): 50000

"Tsar Bomba" - largest USSR bomb tested (50 Mt)

3. **Basic options:** Height of burst: [?] Airburst Surface

Other effects: Casualties Radioactive fallout

Advanced options: ▶

4. **Click** the "Detonate" button below.

Detonate

Clear all effects

Launch multiple

Center ground zero

Probe location

Note that you can drag the target marker after you have detonated the nuke.

Estimated fatalities:

6,139,410 **Deaths**

Estimated injuries:

3,960,290 **Injuries**

In any given 24-hour period, there are approximately 14,665,209 people in the 1 psi range of the most recent detonation.

USSP Funded Work: *FY17 POTAS - \$14.8 M*

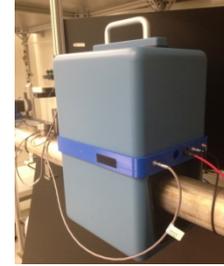
Training



Equipment Development



Cameras



Enrichment Monitor



Seals

Technical Expertise



Sarah Poe
NNS Dept.

Material Accountability



Analytical Laboratory:
- Environmental Samples
- Nuclear Material

Safeguard Concepts



Uranium Enrichment Facility

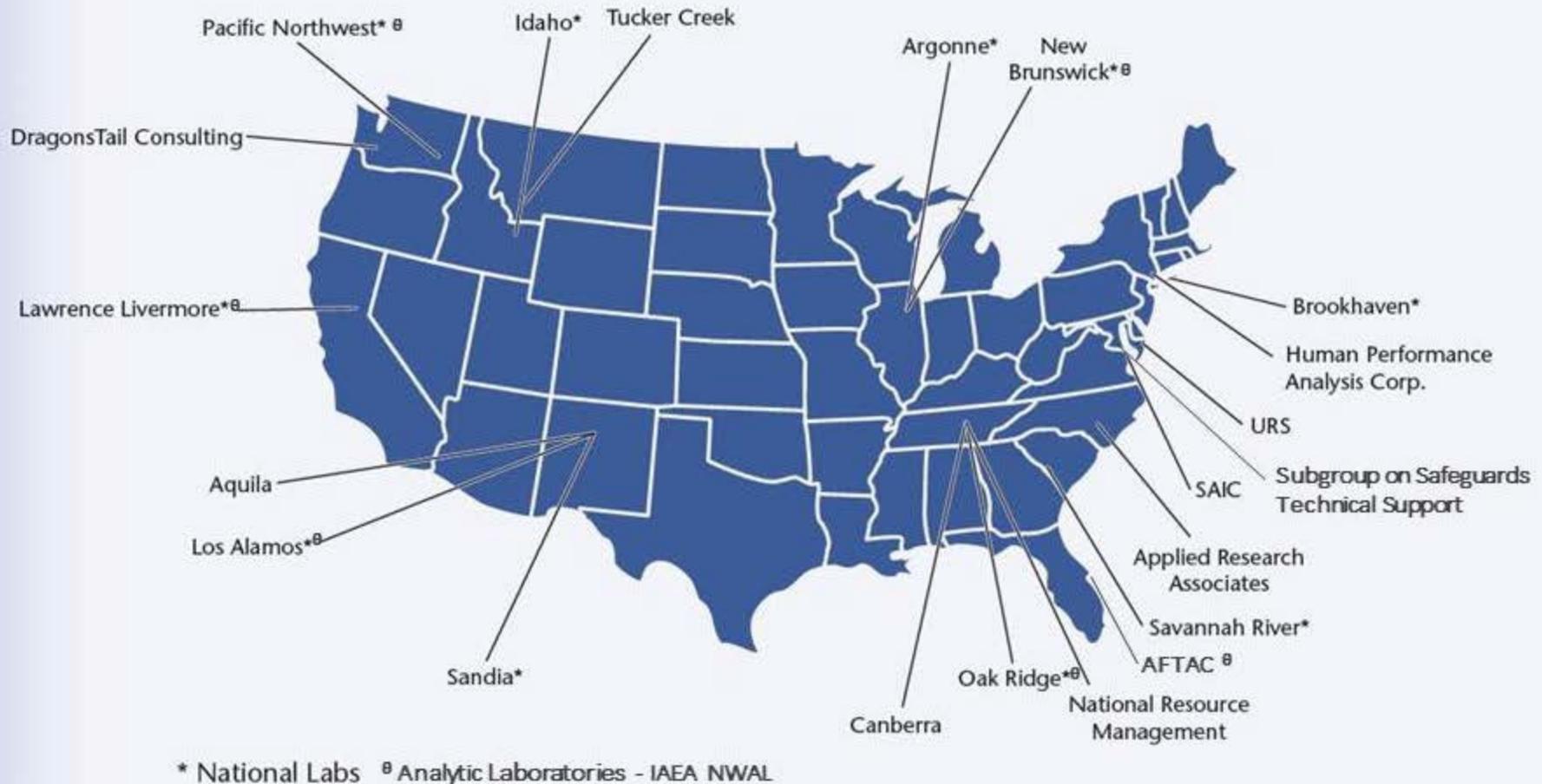
Information Management



Processing Safeguard Info.

- Cost Free Experts (11)
- Junior Prof. Officers (8)
- Consultants

Work Performed by U.S. National Labs and Contractors



- USSP has funded more than 80 U.S. contractors

Workshop on Additional Protocols Activities Training (APEX) Course

Task: B.096

Work: **BNL** - LANL

Task Monitor: Josh Tackentien

IAEA Div-Sect: SGCP-CTR

Goal:

- Train inspectors in planning, conducting, and reporting their nuclear facility verification inspections under Additional Protocol agreement (expanded nuclear facility access rights)

Relevant Milestones:

- One course/yr.
- 11 courses at BNL
- 132 IAEA personnel trained
- Used to develop training module for Next Generation Safeguards Professional Network course (BNL participation)

USSP Activity:

- Provides greater assurance of the absence of undeclared nuclear activities at inspected facilities
- Utilizes BNL facilities: BLIP, Magnet Division, Waste Management, AGS

Upcoming Milestones/Issues:

- Next APEX course at BNL June 2017



Research Reactor Design Information Verification (DIV) Course

Task: B.105 Work: **BNL**, ORNL, Belgian SP Task Monitor: Josh Tackentien IAEA Div-Sect: SGCP-CTR

Goal:

- Ensure IAEA inspectors are properly trained to conduct DIV inspections in a variety of country facilities:
 - Graphite reactor
 - Light water reactor
 - Radiological Laboratory

Relevant Milestones:

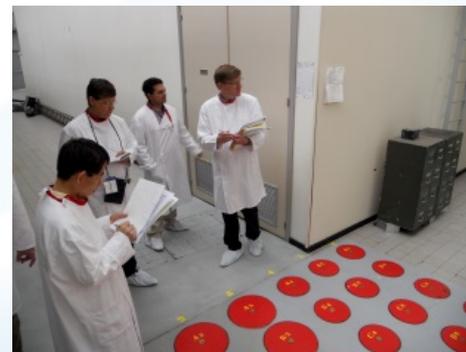
- One course per year
- ~12 inspectors per course
- >150 IAEA staff trained
- Used to develop training module for annual BNL Nuclear Nonproliferation Safeguards & Security Summer course

USSP Activity:

- DIV: Inspectors compare facility design information (ex: drawings) to actual facility configuration
- Two instructors: **Bob McNair** - BNL and ORNL research reactor expert
- Course is held at a Belgian Nuclear Research Facility (SCK) and IAEA

Upcoming Milestones/Issues:

- The 2016 DIV Course will be held in November



ISPO Website - <http://www.bnl.gov/ispo/>



Who We Are

Based at Brookhaven National Laboratory, the International Safeguards Project Office (ISPO) is responsible for the technical and administrative management of the U.S. Support Program to the International Atomic Energy Agency (IAEA) Safeguards Division. ISPO serves as a link between the IAEA and candidates within the United States who are qualified to fill important IAEA positions. We also connect IAEA project managers with domestic contractors who can support technical work in the field of nuclear nonproliferation.

[More about ISPO](#) | [More about the U.S. Support Program](#)



Employment Opportunities for U.S. Citizens at the International Atomic Energy Agency

Cost-Free Experts

A Cost-free Expert (CFE) is someone with a specialized skill that's not readily available among the IAEA professional staff and who works on a task that cannot be financed under the IAEA's budget.

[Cost-Free Expert Opportunities](#)

Junior Professional Officers

The IAEA hires Junior Professional Officers (JPOs) between the ages of 18 and 32 to assist with essential work in a number of technical and analytical tasks.

[Junior Prof. Officer Opportunities](#)

IAEA Staff Positions

Qualified U.S. citizens are encouraged to apply for professional and higher category staff positions with the IAEA. ISPO staff can provide expert assistance and guidance to job applicants.

[IAEA Staff Opportunities](#)

IAEA Employment Benefits

The IAEA offers professional staff members an attractive compensation package that includes a tax-free salary (subject to mandatory deductions for pension contributions and health insurance), a variable post adjustment, and a package of allowances and grants. Staff members are considered international civil servants which entitles them to certain privileges and immunities. More: [Working for the IAEA, A Guide for US Citizens \(PDF\)](#).

How to Apply

If you're interested in a position you see advertised on this website, begin your application by completing the IAEA [Personal History Form \(PDF\)](#). Submit the completed form to ISPO Recruitment Officer [Joe Carbonaro](#). Applications must be received before the closing date stated on the vacancy notice.

Sign up for Job Alerts

Receive email notices of new positions.

[Sign Up for Alerts](#)

[IAEA vacancy forecast through 2016 \(PDF\)](#)

- Overview of USSP
- Advertise IAEA requests:
 - Technical Work
 - CFE & JPO openings
 - IAEA SG Staff openings
- Sign up on our “Job Alerts” & we will email you job openings
- Information to assist US citizens planning to work at the IAEA

**END OF PRESENTATION
AND
THANK YOU**