### Treaty Verification: Characterizing Gaps and Emerging Challenges: Thrust Area 1

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1. What are the primary treaties to be explored by the CVT?

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2. What do you see as the primary gaps and challenges for these treaties?

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3. Ideally, what tools/techniques are needed to address the gaps and challenges described above?

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Develop analytical tools and techniques that address cross-cutting areas in nuclear treaty verification:

- Reliable nuclear radiation detection and quantification
- Fuel-cycle monitoring and diversion detection
- Information fusion from diverse high and low throughput sources
- Gaps in nuclear fission data

1. What are the fundamental need facing future CVT-relevant technologies?

2. What tools/techniques are being developed within your thrust area to address these needs?
1. What are the primary treaties that your thrust area supports?

2. What do you see as the primary gaps and challenges for these treaties?

3. What tools/techniques are being developed within your thrust area to address the gaps described above?
Detection of Undeclared Activities and Inaccessible Facilities: Thrust Area 4

1. What are the primary treaties that your thrust area supports?

2. What do you see as the primary gaps and challenges for these treaties?

3. What tools/techniques are being developed within your thrust area to address the gaps described above?

Comprehensive Test Ban Treaty, Nonproliferation Treaty

- Detect small-yield nuclear explosions anywhere on Earth
- Uncertainty management in source identification
- Data collection under Additional Protocol
- Site inspections

Gaps & Challenges

Undeclared Activities and Facilities
Disarmament Verification: Thrust Area 5

1. What are the primary treaties that your thrust area supports?

2. What do you see as the primary gaps and challenges for these treaties?

3. What tools/techniques are being developed within your thrust area to address the gaps described above?

Disarmament Treaties

- Verify warheads instead of delivery vehicles
- Limit the release of classified information while verifying disarmament

Disarmament Verification
1. What do you see as the primary challenges to education and outreach related to treaty verification issues?

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2. What are some concrete things the CVT can do to address these challenges?

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1. CVT Research Fellowships
   – Undergraduate Fellowships
   – Graduate Fellowships
   – Post-doctoral Fellowships
   – Faculty Sabbatical Fellowships
   – National Laboratory Expert Fellowships

2. Career Development
   – Fellows Career Development
   – Fellows Transition to National Laboratories

3. New and Enhanced Academic Courses
   – New Course Development
   – Certificates of Public Policy

4. Outreach
   – Workshops, Summer Schools, and Conferences
   – Underrepresented Minority Summer Undergraduate Research Opportunities Program
   – Institute of Nuclear Materials Management Student Chapters