



**Summary Report
of the IPNDV Joint Working Group Meeting
Utrecht, the Netherlands
June 18-20, 2019**



The International Partnership for Nuclear Disarmament Verification (IPNDV - “the Partnership”) held its latest Joint Working Group Meeting (JWG) in Utrecht, the Netherlands, June 18-20, 2019. More than 80 experts from 20 countries participated.

In addition to the three days of meetings, the Partners conducted a “Walkthrough” tabletop exercise (TTE) reviewing their work from the current phase in a more scenario driven context. Participants also visited the Dutch Organization for Applied Scientific Research (TNO) where they received tours and demonstrations related to the detection of high explosives that could be applicable to future nuclear warhead dismantlement. Summaries of the outcomes of each of the Working Groups as well as the series of exercises and demonstrations planned to occur between now and the end of 2019 follow below.

In addition to their respective programs of work, each of the Working Groups held discussions on possible areas for future work of the Partnership with a view to finalizing a Phase III Program of Work at the December plenary meeting in Ottawa, Canada.

Working Group 4 - Verification of Nuclear Weapon Declarations (Co-Chairs: The United Kingdom and Poland)

Working Group 4 reviewed several papers that had been drafted/edited inter-sessionally in order to advance their deliverables.

- Deliverable 1 is focused on objectives and types of declarations throughout the disarmament process.
- Deliverable 2 is a consideration of the potential options for verification of a declaration of all nuclear weapons within a State.
- Deliverable 3 studies the verification of the absence of nuclear weapons at undeclared locations within a state.
- Deliverable 4 is a collection of more in-depth papers on specific relevant topics including: on the categorization of nuclear weapons, nuclear cultural anthropology, statistical methods for evaluating confidence in compliance, and resolving inspection ambiguities.
- Deliverable 5 provides a readout of the tabletop exercise Working Group 4 conducted on the CFE Treaty.

To aid with Deliverables 2 and 3, the group held a mini-exercise to look at how verification can help build confidence over time. This included three breakout groups looking at a series of inspections over a number of years, with each group focused either on one specific nuclear weapon deployment site, an entire State with 10 deployment sites, or at sites declared not to contain nuclear weapons. Working Groups 4 and 6 held a combined session to discuss absence

measurements and Unique Identifiers (UIDs). This session was set up to allow Working Group 4 to gain a better understanding of which technologies exist for these applications, as well as the limits of such technologies.

Working Group 5 - Verification of Reductions (Co-chairs: The Netherlands and Australia)

Working Group 5 focused on advancing draft deliverables and discussed how to ensure they will be effective IPNDV products. The working group reviewed new text for Deliverable 1, a thorough description of the verification process for each of the 14 steps of nuclear weapon dismantlement. Particular attention was paid to intersessional work done on the cross-cutting issues section and to ensure consistency, including across all working group products. As part of this, the group discussed papers and proposals on:

- A systems approach to verification.
- Measuring to check the absence of nuclear material and confirming the completeness of dismantlement declarations.
- The disposition of high explosives and other non-nuclear components of a NED.

A food-for-thought paper on certification of sensors and dissemination of data was also discussed.

In the Working Groups 5 & 6 combined session, members reviewed the technology options text in the Deliverable 1 draft and continued to iterate and refine the “Step 14 Deep Dive Disposition Pathways and Verification Options” draft for Deliverable 2, a paper that builds on step 14 in Deliverable 1 by evaluating options for disposition of sensitive nuclear material arising from the dismantlement of nuclear explosive devices and for related verification.

It was agreed that a proposed analysis of elements and options for future practical arrangements for multilateral dismantlement verification will be developed as a ‘Food-for-Thought’ paper for this phase of work. Finally, the Working Group also discussed options and ideas for Phase III of the Partnership.

Working Group 6 - Technologies for Verification (Co-chairs: Sweden and the United States)

Working Group 6 held joint sessions with both Working Groups 4 and 5, reviewed upcoming demonstrations, and heard several Working Group 6 technology presentations. In preparation for their combined meeting with Working Group 4, Working Group 6 discussed a set of questions received from Working Group 4 on the challenges associated with surveying a large site for nuclear weapons and the use of UID's on delivery vehicles. From these discussions, Working Group 6 members concluded that wide area searches would probably be difficult given the ease with which treaty-accountable items' signatures could be shielded and the distance from which

measurements would be taken. There was also consensus that, while UID technology was readily available, implementation would depend on the inspected states' willingness to allow contact with sensitive items.

Working Group 6 reviewed the latest version of Working Group 5's 14-step paper and a paper on disposition of materials post-dismantlement prior to their joint meeting with Working Group 5. During the joint meeting, the two Working Groups agreed to continue collaborating on both papers in the coming months, with a goal to have near-final drafts by October.

Within Working Group 6, Belgium provided an update on the upcoming measurement demonstration planned for September, and Canada updated the group on a planned visit to Canadian Nuclear Laboratories in December following the Phase II plenary in Ottawa. Finland also led a discussion on its proposal for a dedicated dismantlement facility under "optimal conditions," which aims to address a major technology gap identified by Working Group 3 in the Phase I Final Report: technologies enabling measurements of special nuclear material (SNM) and high explosives.

Exercise/Demonstration Planning

Regarding the exercise and demonstration activities planned for later this year, participants addressed the following:

- The French/German organizing team behind the "NuDiVe" exercise held initial meetings with exercise participants, in their various teams (inspectors, hosts, and evaluators). A dry run was held in the exercise location (German research center in Jülich) the week prior to the JWG.
- The Secretariat facilitated the conduct of the day-long "Walkthrough" TTE, which addressed various procedures and technology solutions across the 14 steps that have been developed by the Partners in both Phase I and II. Approximately 45 experts participated. A summary of the results will be included in the Phase II Summary Report.
- The Belgium-hosted technology demonstration assessing various methods to detect the presence/absence of nuclear material during the dismantlement process remains on schedule in September 2019.
- Canada continues planning for a technology demonstration assessing the potential for detection of SNM by muon scattering. This will occur in close proximity to the December meeting in Ottawa.

Summary

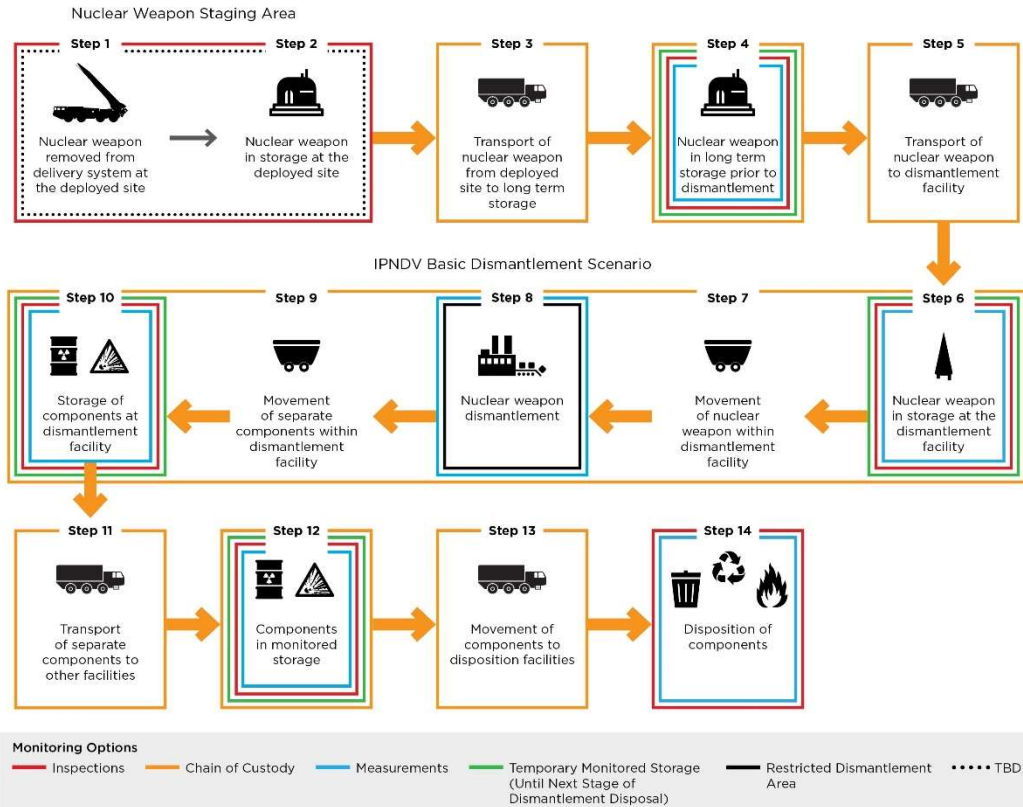
As the Partners close in on the end of Phase II, all of the Working Groups have made good progress and remain on track to deliver a series of papers and reports building on the work of

Phase I. The Partnership is preparing to enter into its third Phase and these products will provide the foundation for more hands-on work as the Partners continue to move “from paper to practice.”



Annex 1- 14 Steps in Nuclear Weapons Dismantlement

MONITORING AND VERIFICATION ACTIVITIES, AS IDENTIFIED BY THE IPNDV,
FOR KEY STEPS IN THE PROCESS OF DISMANTLING NUCLEAR WEAPONS



*We make the assumption that there will be declarations at each step in the process.