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CANADA'S NATIONAL NUCLEAR FORENSICS CAPABILITY: CURRENT STATUS AND PATH FORWARD

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OUTLINE

Nuclear Forensics (NF) in Canada

Current Status of National Capability Development Initiatives

Path Forward



NUCLEAR FORENSICS IN CANADA

A whole-of-government capability

- Draws upon operational and S&T capabilities from multiple Government of Canada departments and agencies with designated roles within the broader national security apparatus
- Organizations with subject matter expertise in the radioactive and nuclear (RN) R&D and S&T domains play an important role
- Built upon over 70 years of advanced fuel cycle and other RN activities

Over a decade of NF R&D and S&T capability development

- Multiple departments and agencies involved in R&D activities and S&T deployment to support NF-related operations within their designated mandates
- R&D and S&T capability development remain key national program activities



CURRENT STATUS – R&D INITIATIVES

Two new national comprehensive R&D initiatives launched in 2016

Nuclear Forensics Capability Advancement

- Focus is on high technology readiness solutions (e.g., certified reference material development and production, enhanced sensing and detection architecture, laboratory capability development, etc.)
- Objective is to deploy S&T to support national NF operations

Nuclear Material Signature and Provenance Assessment

- Develop, expand and diversify nuclear material signature reference dataset
- Develop and enhance provenance assessment (data analytics and multi-class information harvesting and mining)
- Objective is to enhance and expand S&T RN material attribution capabilities



CURRENT STATUS – OPERATIONS

National initiative to consolidate NF Government of Canada operations

- Multi-departmental/agency initiative involving law enforcement, military, national security, regulatory, foreign affairs, S&T and R&D organizations
- Co-led by the Canadian Nuclear Safety Commission (CNSC) and Defence Research and Development Canada (DRDC) Centre for Security Science (CSS)
- Aligns with national commitments for a whole-of-government NF capability
- Process pursuing a systematic approach for developing the key components of a national NF capability architectural framework
 - Objective is to deliver an agile, responsive, sustainable and comprehensive national NF capability to meet the needs of the nation
 - Achieved through the optimized integration of national resources (people, assets, capabilities, legislated operational mandates, S&T, R&D, etc.)



PATH FORWARD

The national R&D initiatives will lead to the development and deployment of critical operational S&T capabilities

- Designed to meet a combination of near-term (high technology readiness) requirements and longer-term strategic S&T objectives
- Programmatic objectives are aligned with the national NF formalization initiative

National initiative to consolidate NF Government of Canada operations

- Critical process towards a fully deployed and sustainable capability
- Will identify equities and resources required to meet the needs of the nation
- Part of a longer-term multi-step process subject to Government of Canada appropriations review and approval
- Initial milestones expected within the 2019/2020 timeframe



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Subject matter experts from across the Government of Canada radiological and nuclear R&D/S&T and nuclear forensic communities of practice