Summary of Annual Compliance Monitoring Report: Calendar Year 2020

This annual compliance monitoring report for the 2020 calendar year has been prepared as per licence condition 3.2 of the Whiteshell Laboratories (WL) Licence NRTEDL-W5-8.00/2024 and Canadian Nuclear Safety Commission (CNSC) REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills* as a summary report of annual compliance monitoring and operational performance.

This annual compliance report provides Canadian Nuclear Laboratories (CNL) 2020 performance data for WL and is organized by 14 Safety and Control Areas (SCAs)[1], as well as a report on each of the WL nuclear and non-nuclear facilities.

The following provides overall performance highlights for 2020 activities:

- There were no serious process failures at WL.
- All licensed activities continued to be carried out safely and securely.
- No member of the public received a radiation dose that exceeded any regulatory limit.
- No worker at WL received a dose in excess of any of the respective radiation dose limits for radiation workers, as defined in the Radiation Protection Regulations.
- All releases of radioactive material in WL effluents during 2020 were below their respective Derived Release Limits (DRL).
- Significant progress was made on decommissioning of Building 200, the former Active Liquid Waste Treatment Centre (ALWTC), with the building now partly demolished.
- The WL site maintained safe and compliant performance under COVID-19 Pandemic conditions and protocols.

Below is a summary of the annual compliance report for calendar year 2020.

- **SCA - Management System**: WL has continued its focus on implementation of the corporate management system, as well as the WL Quality Assurance program for decommissioning, based on Canadian Standards Association (CSA) N286.6 and aligned with CSA N286-12, monitored through many means including audits, inspections, self-assessments and program/management system reviews.
- **SCA - Human Performance Management**: A significant effort towards training individuals in human performance related areas was initiated as a result of the fieldwork pause in November, and training of Apparent Cause Analysts is complete.

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[1] The CNSC evaluates how well licensees meet regulatory requirements and CNSC expectations for the performance of programs in 14 safety and control areas.

- **SCA - Operating Performance**: WL decommissions and operates its facilities according to prescribed programs and procedures, and monitors safety performance in the operational area through the concept of "events". The total number of internal event reports raised continues to show a strong reporting culture. There were four CNSC reportable events.
- **SCA - Safety Analysis**: Effective Safety Analysis Reports and Facility Authorizations continue to be in place for WL's nuclear facilities, helping meet health, safety, security, environmental and regulatory requirements. The ALWTC Safety Analysis Report and Facility Authorization documents were obsoleted as the facility is now being demolished.
- **SCA - Physical Design**: The Certificate of Authorization was renewed with Engineers Geoscientists Manitoba, authorizing CNL to engage in the practice of professional engineering in Manitoba.
- **SCA - Fitness for Service**: The Periodic Inspection Plan (PIP), previously developed to confirm the ongoing fitness-for-service of the concrete storage facilities at the Waste Management Area (WMA), continued implementation with no significant issues identified. Regular preventative or corrective maintenance and testing of WL's safety-related systems were carried out to ensure the systems were fit-for-service.
- **SCA - Radiation Protection**: No worker received a whole-body dose (including committed) in excess of any of the respective dose limits for radiation workers as defined in the Radiation Protection Regulations, and average individual doses remain a small fraction of these limits. Maximum dose to a person working at WL was 3.0 mSv and collective doses remained below 50 person-mSv (33.3 person-mSv) for 2020. Members of the public received no measureable radiation doses. The Controlled Area reduction initiative was completed for the WL site north side.
- **SCA - Conventional Health and Safety**: Implementation of CNL's Occupational Safety and Health program at WL continues to drive improvements in safety and safety culture. Safety advisories are regularly issued to staff about imminent issues that could impact their safety.
- **SCA - Environmental Protection**: The results of the radiological and non-radiological effluent monitoring program demonstrate that controls for the release of potentially hazardous substances currently in place at WL continue to provide substantial protection of the environment. Radiological emissions were 0.00019% of the Derived Release Limit (DRL) for air emissions and 0.67% of the DRL for liquids. The monitoring program confirms that the WL site is operating in a manner that protects workers, the public, and the environment. WL maintained their ISO-14001 registration, and are compliant to a number of CSA environmental standards.
- **SCA - Emergency Management and Fire Protection**: The Emergency Management program at WL was focussed on supporting COVID-19 planning and coordination efforts.

- **SCA - Waste Management**: WL continued to reuse or recycle as much material as was practicable. Radioactive, clearable and hazardous wastes were generated from both ongoing operational activities and decommissioning projects, including disposition of 554 m^3 of radioactive waste to Chalk River Laboratories (CRL), and 513 m^3 (109,031 kg) of recycled waste shipped off-site.
- **SCA – Security**: The Security Program at WL supports the CNL Corporate Security mandate and addresses the regulatory requirements for high-security sites. Nuclear Security Officers assigned regular duties continued to meet the physical and psychological fitness requirements for Security Officers as required by the CNSC. The CNSC Order, which included the requirement to stand up a Tiered Response Force, was closed.
- **SCA - Safeguards**: There were no issues identified with International Atomic Energy Agency (IAEA) Safeguards inspections conducted at WL. The IAEA Technical group visited for planning use of remote camera monitoring equipment to support the upcoming fuel shipping campaign to CRL.
- **SCA - Packaging and Transport**: There were 230 radioactive transport packages making up 36 loads that were safely and successfully sent off-site, including approximately 528 m^3 of low-level waste and 26 m^3 of intermediate-level waste shipped to CRL.
- **Other matters of regulatory interest**: One virtual meeting of the WL Public Liaison Committee took place, with the other meeting replaced by a written update due to the COVID-19 pandemic. Numerous public information sessions and Indigenous engagements (mainly virtual) were held on the Whiteshell Reactor 1 (WR-1) in-situ decommissioning and overall activities of the WL Closure Project.
- **Facilities** (operating nuclear facilities, permanently shut down facilities, facilities being decommissioned and the non-nuclear facilities): All the licensed activities in these facilities continue to be carried out safely and securely with acceptable radiation doses to personnel and releases to the environment. The following notable facility-specific activities took place: significant progress in decommissioning the Active Liquid Waste Treatment Centre, Building 200, with the building now approximately 50% demolished; all waste has been removed from Shielded Modular Above Ground Storage (SMAGS) in preparation to turn the Building 923 into a Cask Loading Facility; work to prepare for extraction of waste from the Intermediate Level Bunkers and Standpipes continued with commencement of off-site fabrication of extraction equipment; operational cleanout of the Health and Safety Facilities Buildings 402 and 305 was started in preparation for decommissioning/demolition; plus three non-nuclear facilities, the Containment Test Facility Building 303, Waste Clearance Facility Building 304, and the WR-1 Organic Monitoring Building 424 were demolished.

CNL is committed to achieve high standards of operational safety and security. The information and data presented in this report support the conclusion that safe and secure performance is being achieved at the Whiteshell Laboratories site, while enhancements are being implemented to further improve results.