

An Automated Sensor Network for Monitoring the Environmental Impacts of SMR Operations

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1. Objective: To study the feasibility of using an automated sensor network to monitor the environmental impacts of SMR operations.

2. Stakeholders: AECL(primary), CNSC, EC, and HC

3. Regulation:

CNSC REGDOC-1.1.5 Licence Application Guide: Small Modular Reactor Facilities

- a. Effluent and emissions control (releases)
- b. Environmental management system
- c. Assessment and monitoring
- d. Protection of the public
- e. Environmental risk assessment

4. Data Needed:

Reliable measurements are required to monitor environmental pathways (air, water, ground conditions, tailings), specifically:

- a. Physical characteristics
- b. Chemical characteristics
- c. Radiological characteristics

5. Current Progress:

Reviewing the recent advancements of radiochemical sensors and industrial automation, including wired sensor networks based on optical fibers, wireless sensor networks, and robotics.

6. Expected Outcome:

This is an one-year project. The outcome will be a report on the feasibility of monitoring environmental impacts of SMR operations using an automated sensor network