

Design and Implementation of a Source Control Program for PFAS at the Fire Fighting Training Area (FFTA), CFB Comox, Comox BC

Korene Torney, SLR Consulting (Canada) Ltd

The project was developed on behalf of Public Services and Procurement Canada (PSPC) / Government of Canada and the Department of National Defence (DND) to address risks from per- and polyfluoroalkyl substances (PFAS) source materials at the firefighting training area (FFTA) at CFB Comox, Lazo, BC.

Prior to the mid-2000s, DND training utilized firefighting foams that resulted in PFAS concentrations above federal environmental criteria in multiple media. Data indicated the FFTA was a primary contributor to PFAS in downstream surface water and remediation was expedited to reduce PFAS concentrations in site discharges (e.g., storm water and surface water) and replace the FFTA infrastructure. The scope of work included source control and FFTA civil design, construction, excavation, soil management, and restoration.

In the design phase, SLR evaluated FFTA infrastructure needs, site constraints, PFAS treatment technologies, and project logistics including CFB Comox and environmental remediation requirements. Novel in-situ and ex-situ PFAS treatment options were evaluated and presented with advantages, disadvantages and costs. The chosen strategy focused on source control that targeted excavation of the highest concentration materials. Excavated soil was either thermally treated or stabilized with amendments and reused on site. SLR's approach considered federal, provincial and international regulatory requirements, including obligations under the Basel Convention and under both Canadian and US environmental regulations regarding management

of contaminated and hazardous wastes. Site specific soil remedial objectives were developed to support decision-making in identifying soil for off-site thermal treatment/disposal and soil for stabilization/on-site re-use. Proficiency metrics were developed to ensure that a Qualified Professional with significant PFAS experience provided oversight of the treatment processes (both thermal and stabilization methodologies) and certified compliance with the project requirements.

Project implementation complexities included contaminant class segregation and geo-referencing; thermal treatment processes; stabilization and reuse methodology; FFTA civil works, and logistics related to airport operations. The final civil design maximized the new FFTA size while managing costs and separating training water from that of natural precipitation/storm water. The final training oval incorporated a heat resistant concrete center surrounded by asphalt and gravel driving rings. Storm water is directed to the site drainage system through a new bioswale. To facilitate water quality testing, training water is captured and directed to storage tanks through a manual valve system.

Korene Torney

Korene Torney, P.Geo, PMP, SLR Consulting (Canada) Ltd., Senior Project Manager. Responsible for FFTA Source Control Project remedial options assessment, concept design, and contract support during implementation.