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Audit of the Canadian Coast Guard Vessel Life Extension Program



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At a Glance

- The Vessel Life Extension (VLE) Program, established under Canada’s National Shipbuilding Strategy (NSS), aims to keep the Canadian Coast Guard (CCG)’s aging vessels operational until new ships are delivered.
- This program is essential to the CCG’s mandate. In Canada’s vast and challenging maritime environment, reliable vessels are critical to safeguarding lives, protecting ecosystems and supporting operations in remote and Arctic regions.
- In 2019, the VLE Program was expanded, with a planned investment of \$2 billion through 2040.
- The VLE Program is sponsored by Deputy Commissioner, Programs; its management—including scheduling and technical authority for vessel life and replacement planning—is shared across directorates under Deputy Commissioner, Shipbuilding and Materiel.
- There are opportunities to better coordinate the VLE Program with new vessel construction by aligning schedules, sharing risk-adjusted information and integrating planning tools to support timely decision making and vessel availability.
- Strengthening risk management would help reduce schedule disruptions and improve program delivery.

 Key Findings and Risks	 Recommendations
Finding 1: Clearer accountability and consistent flow of information between the VLE Program and new procurement activities would better position the program to mitigate potential delays and misalignment.	Recommendation 1: The VLE Program should formalize collaboration and schedule management, ensure schedule integration and improve operational readiness by: • clearly defining, documenting and communicating stakeholder roles and responsibilities; • assigning one accountable owner for schedule coordination; and • implementing a centralized process for real-time schedule updates. OPI: Deputy Commissioner, Shipbuilding and Materiel
Finding 2: Reliable and timely information is needed to support effective decision making.	Recommendation 2: The VLE Program should finalize and implement the VLE Program Management Framework, ensuring it includes processes to: • regularly update key data; • continue tracking and reporting on key performance indicators (KPI); and • maintain and share up-to-date schedule information across all implicated partners. OPI: Deputy Commissioner, Shipbuilding and Materiel

Finding 3: There is an opportunity to improve risk management practices to reduce the likelihood of unmanaged risks.	Recommendation 3: The VLE Program should update and align its risk management tools, particularly the Master Risk Register, by: • actioning mitigations in a timely manner; • standardizing ratings; and • improving risk monitoring and mitigation. OPI: Deputy Commissioner, Shipbuilding and Materiel
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Table 1. Key Findings, Risks, and Recommendations

Background

The CCG is mandated to protect lives, safeguard the environment and ensure safe navigation in Canadian waters. The VLE Program plays a critical role in maintaining the CCG's operational capability by extending the service life of aging vessels while new ships are being built. This ensures continuity of essential activities such as search and rescue, environmental response, and icebreaking.

Managing VLE schedules is highly complex, requiring coordination across multiple directorates and integration with broader fleet renewal activities, shipbuilding timelines and external factors such as shipyard capacity and regulatory requirements. Key stakeholders include Deputy Commissioner, Programs; Deputy Commissioner, Shipbuilding and Materiel; as well as directorates responsible for fleet management, technical services and vessel procurement. Effective planning and collaboration are essential to balance operational needs with resource constraints and evolving priorities.

VLE Program Roles and Responsibilities

Key Stakeholder			Role & Responsibilities
Deputy Commissioner, Programs	Director General (DG), Fleet and Maritime Services	Director, Fleet Renewal Planning	• Owner of fleet recapitalization • Support the long-term planning and coordination for fleet renewal
Deputy Commissioner, Shipbuilding and Materiel	DG Vessel Procurement		• Owner of the construction schedule for the replacement vessels
	DG Integrated Technical Services	Director, Marine Engineering	• Technical authority of the program • Provides engineering expertise and oversight • Responsible for determining vessels' operational life dates and end of service life dates

		Director, Vessel Modification Projects (VMP)	• VLE Program implementer • Manages VMP schedule • Coordinates implementation, including schedule and modification • Monitors and reports on program performance • Manages risks and issues
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Table 2. Roles and Responsibilities of Key Stakeholders in the Implementation of the VLE Program

Key Findings and Risks

Finding 1: Clearer accountability and consistent flow of information between the Vessel Life Extension Program and new procurement activities would better position the program to mitigate potential delays and misalignment.

Schedule Coordination Responsibilities

Managing the VLE schedule is a complex process that involves coordination among multiple stakeholders and alignment with other non-VLE activities. There are external factors that are beyond the CCG’s control, such as shipyard capacity and prioritization, supply chain constraints, and regional regulatory work coordination, which further complicate scheduling.

DG Vessel Procurement owns the NSS construction schedule; DG Integrated Technical Services manages VLE implementation; and Director, Fleet Renewal Planning is involved in the long-term planning and coordination of fleet renewal. However, there is no unified process or designated lead to integrate these efforts and ensure cohesive scheduling.

The absence of clear integration and structured collaboration among these three groups limits effective schedule management. Information sharing is largely informal and occurs on a vessel-by-vessel basis, rather than through a coordinated approach. As a result, scheduling decisions often lack timely, holistic oversight, leading to potential delays and misalignment between VLE activities and new vessel construction timelines.

Schedule Alignment and Delays

The VLE schedule partially aligns with the construction schedule of replacement vessels. Schedule delays in either could impact operational readiness. Analysis of 69 vessels identified for VLE shows that 23 percent of these vessels face gaps of one to nine years between the end of their extended service life and the delivery of a replacement vessel. Retaining vessels in service for years beyond their intended lifespan increases maintenance costs and the risk of mechanical failures.

Of the 44 VLE work periods planned to start, nearly two thirds started or are scheduled to start later than planned,¹ and 82 percent of those planned for completion took or are expected to take longer than estimated.² Similarly, most new vessels scheduled for delivery during this period were delivered late.³ Delays in the delivery of replacement vessels increase pressure on the VLE Program to keep an aging fleet functional. These delays increase operational risk as vessels may experience increased mechanical or technical failures before VLE work begins or remain in service beyond their intended service life.

Without clear accountability and structured coordination, potential schedule delays and misalignment between VLE work and replacement vessel delivery will continue to increase operational risk and challenge the CCG's ability to maintain fleet readiness.

Recommendation 1:

The VLE Program should formalize collaboration and schedule management, ensure schedule integration and improve operational readiness by:

- clearly defining, documenting and communicating stakeholder roles and responsibilities;
- assigning one accountable owner for schedule coordination; and
- implementing a centralized process for real-time schedule updates.

OPI: Deputy Commissioner, Shipbuilding and Materiel

Management Response

Deputy Commissioner, Shipbuilding and Materiel accepts this recommendation. The VLE Program will work with key stakeholders to reinstate a centralized process and define clear roles and responsibilities for an integrated schedule with inputs from Vessel Procurement, Fleet Operations and Marine Engineering, leveraging the existing Fleet Capability Management Working Group.

Finding 2: Reliable and timely information is needed to support effective decision making.

The VLE Program depends on the Fleet Renewal Plan to manage the VLE schedule and work. This plan contains end of service life dates and compares the existing vessel's remaining life with the delivery date of its replacement to identify operational gaps or overlaps. This information is provided by multiple stakeholders among the Fleet Renewal Team, DG Vessel Procurement, and Marine Engineering.

While coordination processes exist, there are opportunities to improve the consistency and reliability of information provided. Construction schedules for replacement vessels are not regularly updated or shared. Delivery dates based on initial Treasury Board (TB) submissions and contracts for vessel

¹ This includes 25 percent of work periods that started 1 month to 1.4 years later and 39 percent that are planned to start in the future, ranging from 6 months to 4.7 years later.

² This includes 29 percent completed in more time than planned (from 1 month to 1.7 years more) and 53 percent planned to be completed in more time than planned (from 1 month to 1.7 years more).

³ There were 13 new vessels planned to be delivered from 2022 to 2025. Of these, 9 were or are planned to be delivered later than estimated, with an average delay of 3.7 years.

procurement are not regularly updated to reflect evolving project risks. Additionally, the schedule date in the Fleet Renewal Plan was calculated using inconsistent approaches. Fragmented and unreliable information increases the risk of operational gaps, misaligned schedules and costly delays in fleet availability.

The VLE Program has established a Program Management Framework to provide a structured, standardized approach to planning, executing and monitoring the program, which includes KPI and guiding principles for scheduling. The program tracks and reports on KPI related to schedule, scope and fiscal forecast.

The framework also outlines a set of guiding principles for scheduling that define how VLE projects are sequenced. These principles, revised in 2016, have not been updated and are no longer formally followed. The transition to updated guidance limits consistency in scheduling. An approved framework and standardized processes would enable the effective alignment of risk among stakeholders.

Finalizing this framework, along with timely schedule updates, is critical to enabling informed decisions and strengthening overall program governance.

Recommendation 2:

The VLE Program should finalize and implement the VLE Program Management Framework, ensuring it includes processes to:

- regularly update key data;
- continue tracking and reporting on KPIs; and
- maintain and share up-to-date schedule information across all implicated partners.

OPI: Deputy Commissioner, Shipbuilding and Materiel

Management Response

Deputy Commissioner, Shipbuilding and Materiel accepts this recommendation. The VLE Program will implement the revised framework and concurrently leverage the existing Technical Operating Steering Committee and Project Steering Committee to report on key program data.

Finding 3: There is an opportunity to improve risk management practices to reduce the likelihood of unmanaged risks.

The VLE Program has established a risk management plan based on best practices from the TB guide. Risks are regularly updated and reported to oversight committees. However, current practices are not fully aligned with the risk management plan, leaving gaps in implementation. For example, the Master Risk Register, last reviewed in April 2024, requires updates to ensure consistency with the risk management plan.

Opportunities to improve risk management practices include:

- clarifying and standardizing risk ratings;
- implementing mitigation measures in a timely manner;
- improving consistency in tracking actions; and
- aligning roles in the accountability matrix with those recorded in the register.

Updating and harmonizing these elements will support stronger risk oversight and more effective decision making. Consistent follow-up and mitigation of critical risks will enable the program to reduce delays and support CCG fleet operations.

Recommendation 3:

The VLE Program should update and align its risk management tools, particularly the Master Risk Register, by:

- actioning mitigations in a timely manner;
- standardizing ratings; and
- improving risk monitoring and mitigation.

OPI: Deputy Commissioner, Shipbuilding and Materiel

Management Response

Deputy Commissioner, Shipbuilding and Materiel accepts this recommendation. The VLE Program will formalize the risk management approach and ensure alignment with departmental and TB risk management guidelines.

Conclusion

The VLE Program plays a vital role in sustaining CCG fleet readiness and supporting operational requirements. By designating a process owner to improve schedule integration, ensuring timely and reliable information for decision making, and fully implementing risk management practices, the program can mitigate potential delays, strengthen effectiveness and maintain operational continuity.

Annex A: Management Action Plan

Recommendation 1: The VLE Program should formalize collaboration and schedule management, ensure schedule integration and improve operational readiness by: - clearly defining, documenting and communicating stakeholder roles and responsibilities; - assigning one accountable owner for schedule coordination; and - implementing a centralized process for real-time schedule updates. OPI: Deputy Commissioner, Shipbuilding and Materiel	Management Action 1 Deputy Commissioner, Shipbuilding and Materiel accepts this recommendation. The VLE Program will work with key stakeholders to reinstate a centralized process and define clear roles and responsibilities for an integrated schedule with inputs from Vessel Procurement, Fleet Operations and Marine Engineering, leveraging the existing Fleet Capability Management Working Group.	
	Deliverables 1.1 In consultation with key stakeholders, the VLE Program will: - formalize roles and responsibilities, including assigning a lead to coordinate between VLE and Vessel Procurement in the terms of reference for the Fleet Capability Management Working Group; - create a centralized process for real-time schedule updates; and - designate a single accountable schedule owner within the VLE Program.	Timeline June 2026
	1.2 Use the existing Fleet Capability Management Working Group to consolidate the schedule information and to improve communication and collaboration.	August 2026
	1.3 Incorporate a consolidated schedule into the VLE Program Project Steering Committee briefings to inform decision making.	October 2026
Recommendation 2: The VLE Program should finalize and implement the VLE Program Management Framework, ensuring it includes processes to: - regularly update key data; - continue tracking and reporting on KPIs; and - maintain and share up-to-date schedule information across all implicated partners. OPI: Deputy Commissioner, Shipbuilding and Materiel	Management Action 2 Deputy Commissioner, Shipbuilding and Materiel accepts this recommendation. The VLE Program will implement the revised framework and concurrently leverage the existing Technical Operating Steering Committee and Project Steering Committee to report on key program data.	
	Deliverables 2.1 Finalize and then start implementation of the revised framework, standardize the application of project methodology and strengthen program governance.	Timeline June 2026
	2.2 VMP will leverage the existing Technical Operating Steering Committee and Project Steering Committee meetings to communicate schedule changes.	May 2026

	2.3 Update the strategic plan and communicate the established KPIs and program targets.	June 2026
	2.4 Monitor and compare the KPIs' baseline and the trend line of VLE Program performance. Brief the Project Steering Committee annually.	April 2027
Recommendation 3: The VLE Program should update and align its risk management tools, particularly the Master Risk Register, by: • actioning mitigations in a timely manner; • standardizing ratings; and • improving risk monitoring and mitigation. OPI: Deputy Commissioner, Shipbuilding and Materiel	Management Action 3 Deputy Commissioner, Shipbuilding and Materiel accepts this recommendation. The VLE Program will formalize the risk management approach and ensure alignment with departmental and TB risk management guidelines.	
	Deliverables	Timeline
	3.1 Establish standardized risk ratings and include them in the revised VLE Program framework prior to implementation.	June 2026
	3.2 Formalize and continue monthly project risk register meetings with stakeholders, which will include reviews of mitigation actions and their timely implementation.	September 2026
	3.3 Develop a standardized program risk register to be reviewed on a quarterly basis that will be included in the Project Steering Committee briefings.	October 2026

Table A.1. Management Action Plan

Annex B: About the Engagement

This engagement conforms with the Internal Auditing Standards for the Government of Canada, as supported by the results of the Quality Assurance and Improvement Program.

Objective

The objective of the audit was to assess the effectiveness of the VLE Program's scheduling and risk mitigation strategies in reducing operational disruption and ensuring fleet readiness.

Scope and Approach

The scope focused on the alignment of the VLE Program's project schedule with the new NSS vessel construction schedule. It included an examination of existing CCG fleets' schedules, VLE Program phase 1 and the deliveries of new vessels. It also reviewed mitigation measures for a list of sample risks identified in the VLE Program.

Exclusions: management of the replacement vessels' construction schedules, individual VLE project management, external stakeholder interactions and technical engineering details.

Methodology

- Review of documents relevant to the VLE Program
- Interviews with key stakeholders
- Data analysis of projects and construction schedules
- Review of policy and guidelines related to risk management

The audit reviewed a sample of individual VLE project schedules to determine whether the progress made by the VLE Program during the audit scope period aligned with those schedules. This assessment focused on the VLE projects for which work was ongoing during the audit period.

Period Covered

The audit covered the period from March 2022 to April 2025. To assess the alignment between the VLE Program's project schedule and the NSS vessel construction schedule for the CCG's vessels, the audit focused on a snapshot of the schedules at a specific moment in time within the audit scope.