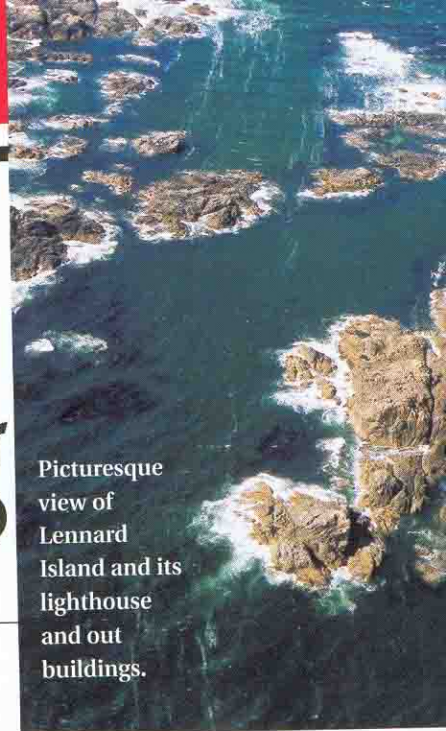


Keeping the Lights Burning

BY TONIA JURBIN



Picturesque view of Lennard Island and its lighthouse and out buildings.

One of the primary functions of the Canadian Coast Guard is to maintain the navigation aids along the coastline. In the early 1990s there was talk of automating and de-staffing the lightstations, but by 1998 a decision was made to maintain staff at 27 lightstations. There are staffed lightstations from Green Island north of Prince Rupert to Trial Island south of Victoria. During the period from 1994 – 1998 it was expected that the lightstations would be de-staffed and therefore much of the routine maintenance of the facilities that support occupancy was scaled back. By 1999 some of the maintenance issues had become critical to the operational reliability and safety of the sites.

The Lightstation Rejuvenation Project started in 1999. Over a 5 year period the CCG will spend about 25 million dollars upgrading the staffed stations. Upgrades include everything from pressing items in terms of safety and reliability such as the boat landings, helicopter pads and suspended walkways, to the mundane but no less challenging items such as toilets, garbage handling and wastewater collection. The first step of this undertaking was to establish the scope of the project by listing and ranking the deficiencies at each site applying a 'weighting' criteria to safety, system reliability and protection of the environment. This project also offered a perfect opportunity to upgrade the bulk fuel storage facilities to meet the new regulations. Fuel delivery is an expensive and a high risk activity so upgrades included plans to ensure that the lightstations will have capacity to store a year's supply of fuel. (Unstaffed light stations are solar powered).

In the past 100 years or more, fuel handling and storage regulations had not been environmentally friendly; as a result a large part of the upgrade includes development of a management plan for contaminated soils. Because of the remote-

ness of these sites, the CCG has had to find innovative ways to

treat the soil in-situ rather than slinging it one metre at a time for removal and treatment. Extensive testing was carried out

to assess the potential for migration of the contaminants, and one of the design criteria for new construction has been to minimize the excavation requirements of tainted materials.

Lightstations are located in strategic locations along the natural travel corridors. As such, many of the sites were important to the native peoples as strategic defense positions, or for seasonal harvesting. Many of these sites contain cultural deposits and are classed as protected archaeological sites that may not be destroyed, excavated or altered without permits. In anticipation of uncovering prehistoric middens, or piles of ancient refuse, archaeological impact assessments were conducted at 17 of the stations. As work must stop when artifacts are uncovered, the crews were trained to recognize middens and therefore avoid 'false-alarms' that could play havoc with construction schedules. When a genuine artifact or midden is encountered, permits must be obtained

before work can continue under the guidance of an archaeologist and a First Nations representative.

"At some of the sites our biggest problem is water" explains Kevin Carrigan, the Project Manager of the Lighthouse Rejuvenation Project, "both having enough fresh water and dealing with the waste water. The primary source of water is roof top collection of rainwater that is stored in cisterns. Water supply is a problem at four sites in particular where low annual rainfall does not provide adequate supply. At Chrome Island we are experimenting with a desalination plant that has been operating for a year. It seems to be working well but it



The Carmanah Point lighthouse was built in 1891 and is occupied by Jerry and Janet Etzkorn.



Triple Island lighthouse and its helipad.

...sive, and the pumps require routine maintenance." Preliminary results indicate that the \$35,000 unit will be a viable alternative to roof top collection.

"We have also been looking for an alternative to ocean dumping of sewage that is generated at these sites. As an alternative to common septic systems, we currently have 11 composting toilets at 6 sites. Human waste is composted over a three year period and in theory the compost will have a coliform count lower than what would be found in a public swimming pool. We won't be adding more units until the evaluation is complete. So far they look promising because these toilets also address the water conservation issues. We have one incinerator toilet that is also looking promising."

Three of the 27 stations have a BC Hydro hook-up with a diesel back-up system. The rest of the sites are self-sufficient with respect to energy (they use on-site diesel generation) however the use of 'green energy' is not within the scope of this project.

Lennard Island, near Tofino was built in 1904 as an important site for aiding steamers that were often blown off course by storms. As new federal standards now prohibit buried fuel lines, a new fuel pipe complete with the foundations to support it is being installed. The double walled fuel storage tanks, as well as the generating rooms, are being relocated so that the power is moved across

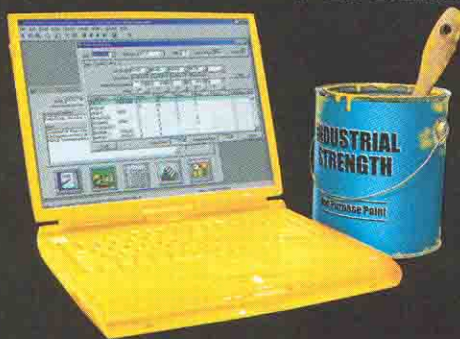
has its own set of challenges, it was difficult to build a salt water intake that would stand up to the harsh environment, the membranes that are used in the desalination process are expensive,

and the pumps require routine maintenance." 2000 visitors a year, and when someone drops in they are sure to be treated to fresh baked cookies. Many of the lightstations have wonderful gardens and well maintained green houses. The helipad there has just been refurbished. On going activities include installing the new fuel tanks, monitoring the composting toilets, upgrading the pathways and soil remediation. To treat the contaminated soil, it is taken to a peripheral area of the station and treated with fertilizer and lime to accelerate the hydrocarbon degradation in a process the CCG refers to a 'land-farming'.

Most of the work is done by one of five CCG in-house construction crews that are supported by blacksmiths, electricians and mechanics. There are many exceptions however where a contractor's special equipment or experience is invaluable, Triple Island is a prime example of where a contractor was called in to help out. ♦

the island instead of the fuel. Carmanah Point, commissioned in 1891, is located along the famous West Coast Trail in Pacific Rim National Park. This active site actually sees about

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