

The Statements of Requirements.

When a ship is conceived, two things must happen. First is a mission profile. We have an existing ship that we are replacing so the mission profile stage is done. Then comes the statements of requirements (SORs). Freedom of information is a wonderful tool! You are going to enjoy this one.

SOR 222 The guide cables will be supported along the sides of the ferry using a system of sheaves at each end and amidships. These will incorporate a wear factor sufficient to ensure that they will not require renewal for any less than five years.

Rheinberger's thesis calculates 67 days. There is a ferry that the Transport Ministry of New Brunswick dictates the wire is changed every 100 days. The LeHavre river ferry in Nova Scotia has replaced cables as early as every nine months. BC Ferries is depressing the safety factors to dangerously low levels and then saying 5 year cable life. You decide.

SOR 240 The radiators shall be positioned and configured to minimize exterior noise.

They are air cooling these 450 horsepower engines. Have you ever stood next to a 450 HP diesel engine. This is not going to be an example of one of the nice quiet ships we are used to.

SOR 15 The ferry will be fitted with emergency brakes for clamping the guide cables, comprising a hydraulic tensioning brake that responds to loss of cable tension. This system will allow a damaged cable to be secured, allowing the vessel to winch back on the line.

This is bizarre. These cables are pretensioned to 20 metric Tonnes. That is the weight of 13 Honda Odessays. They yield at 120 Tons (the weight of 67 Honda Odessays). Just imagine an instantaneous release with 67 cars hanging on a wire. I have been standing beside wires that let go at 366 Tonnes and believe me, that is a life altering experience. In my experience the two frayed ends separate at approximately the speed of sound. Nasa would be interested in this brake system. They didn't think this one through very far. OK, let's say this brake system DOES work. Now what? FOI-2013-009 reveals to us that 20 Tonnes of pretension is required to prevent the wires slipping on the bullwheels that drive the ferry. There is no other winch specified. An experienced deck crew on an advanced salvage tug could transfer a broken wire under tension to a spooling winch and perform the miracle of winching back to the shore. This wire is in an underdeck tunnel. The crew is only three. There is no spooling winch. Draw your own conclusion.

SOR15 The ferry will be provided with bollards that will allow a tug to be secured alongside and provide propulsive power in the event of a failure of the traction cable system.



They didn't think this through very far either. This is the Neddles ferry on the Arrow Lakes. It is the model they are copying and expanding. Imagine now you are the tug captain. Where do you tie up? There are 3 wires hanging off each end and a wire down each side. Ferries plan does not include the overhang down the side as this picture shows. OK, let's assume this issue can be overcome somehow. At 40 knots of wind the ferry lifts all 3 wires clear of the bottom. At 4 pounds per foot you have most of 40 Tons of wire hanging on the ferry. This tug needs a bollard pull of at least 20 Tons to rein that amount of force in. This is a 2,000 horsepower tug and that only comes from Vancouver. The tug option has a bit of difficulty passing the red face test.

SOR 93 The cable arrangements will be designed

Incredible! The cables are the fundamental driving factor of the economics of this project. It is the first thing I looked at on this project. I have said 2 and 5/8ths cables are required and have said so for more than a year now. Ferries has the cable arrangements in the SORs and are passing it off to the designer. You decide.

SOR 93 The cable replacement procedure is required to utilize BCF Terminal Maintenance in undertaking this work and must be conducted without interrupting ferry service or using marine rigs.

OK, let's break the drive cable at noon on Sunday of August long weekend. Ferry is dead in the water and will drift freely until it balances at the center of the catenary in the middle of the channel. It has a maximum load. If you free up a 2,000 HP tug, it will arrive from Vancouver in 8 hours. By this time you have 700 cars waiting to get across Baynes Sound. This fact alone makes it the lead story on the evening news. You have a broken wire in a tangled mess on the bottom of Baynes Sound. It would be foolish to not get it out of the way before you ran a new wire. You would risk compromising the new wire. Now you need a winch with an empty drum on both sides of the channel to tidy things up. That's easy if you say it fast. These winches need spooling gear and likely about a 50 Ton pulling force. Try this. Take a skein of butcher twine and pull 50 meters off it than roll it back up without paying any attention to VERY methodically wrapping it. You end up with a tangled mess that takes a lot of patience to deal with. These wires are 6,600 feet long and a tangled anything means you lose time and more importantly you lose the use of the winch. So, we need 2 winches plus skilled and experienced operators to clean up the mess. Now we are going to run a new wire. The tug has arrived and we are going to hook the ferry and the tug (1,000 tons plus 600 tons) to a 56 Ton truck and connect them directly with a wire that withstands 120 Tons of tension. Then this proportionately gigantic weight is going to sail 2 kilometers across Baynes Sound while the truck is perched precariously on the beach. Page 21 of memo two describes this as taking an elephant for a walk with a fly fishing line for a leash. The wire must not free run or it will tangle. The brake must not seize or the truck will be pulled into the water with the momentum of 1600 Tons. This truck needs a very effective brake on its winch. The winches I have been involved with all had water cooled brakes for a job of this scale. By now you have probably 2,000 cars impatiently waiting to get across Baynes Sound in both directions. SOR 93 states that this work must be conducted without interrupting ferry service. Red face test?

Every cable ferry in Canada is either on a river or a lake. You can get around another way by driving up river to the next bridge. This project is the sole access to two islands and the safety factors proposed in the cable design by consultant number 3 are dangerously low.

Pete Kimmerly
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