I sent a letter to the Board of the Regional District of the Central Okanagan in December 2009, giving a scientific and technical evaluation of the Fireboat proving that it could never perform the tasks the chief claims for it. The Board must have regarded my report with some degree of credibility, because they defeated the fireboat motion until more convincing information is provided by Regional District staff.

Dear Directors,

I am fed up with this fireboat issue. as we all no doubt are. But until I am confident that we are being properly informed, I am compelled to continue writing. Last March 27 I asked the Directors (at the Gov. and Services meeting) to seek more information. They wisely asked Staff to prepare a technical report. On Nov. 12, it was presented to the Board. They (and myself) found it profoundly deficient, so they have ordered another study (by Staff) to provide the information required, to use Chairman Hobson's term – to study the "efficacy" of the fireboat proposal.

At the risk of seeming "politically incorrect" I must say I have lost some of my respect for the ability of RDCO staff to deliver unbiased and competent technical reports. Therefore I am presenting my own technical report, carefully researched, for scrutiny. I sincerely request that you read it, not only to save the waste of $250,000.00 of our tax money, but to save our firefighters' lives!

This report will prove that this particular design will never provide us with any multipurpose protection for structural fires, forest fires, or rescue. In fact you can condense the term "multipurpose" to "no purpose". The flaws in the design will risk our firefighters' lives to no purpose as well.

This report is divided into four parts:

1. Common sense
2. Technical
3. Costs
4. Options

1. Common sense

Look at the photos and their captions first.

Common sense tells me that on THIS wild, windswept lake, a boat should have its deck below the waterline and its centre of gravity below the waterline. In this case, the deck is 2 ½ feet above the waterline, and with men and equipment on top, the centre of gravity will be about 5 feet above the lake. Since the pontoons are only 9'6'' apart, it will capsize in any swell higher than 4'. (a common occurrence out here)

At speed, if a wave crashed over the bow, it would flip the boat end over end. (I know, from my experience with a catamaran on this lake.)

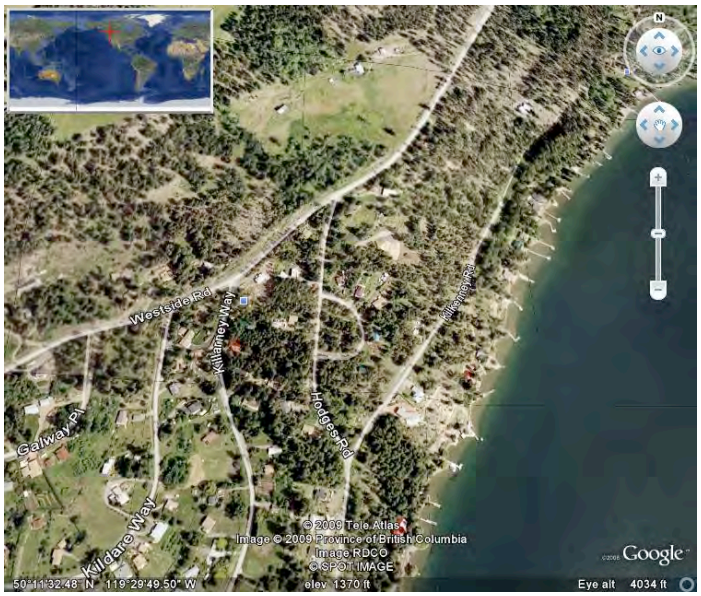
A simple first-year Newtonian mechanics calculation using the classic equation F=Ma where "F" is the centripetal acceleration (tipping force), "M" is the mass of the boat, and "a" the angular acceleration as the boat turns a curve of 80 feet radius at 35 mph. "F" will result in the boat capsizing with its high centre of gravity.

Looking at the top photo, it is obvious that this boat could never be used as a rescue boat. You would have to drag a person from the water 2 ½ feet up to the deck, then over the 2 ½ foot railing onto a pitching boat!

The lake is cold and rough most of the time. It would be difficult to hold the boat steady unless beached. The impeller could not be run, as the boat would have to be far offshore so it would not be clogged with sand in about 30 seconds. After disembarking with their gear and hoses, the firefighters would have to wade fully clothed up to their waists in ice cold water to push it off.

The boat has a two inch pipe for the monitor. It would only be able to deliver 150-200 gpm at 150 psi (the pump's recommended operation parameters) with a range of 100 feet. Not only would this be ineffective in fighting a structural fire, but since most lakeshore residences are set back more than 100' from the shore, the monitor could NEVER reach them. The chief's claim that it could spray a stream of water up to Valley of the Sun (2500 feet away and 600 feet vertical above the lake) is absolutely impossible by any stretch of the imagination.

The cabin (5' by 6') would not have enough room for any one except the pilot. The firefighters would have to remain unsheltered and unsecured on top of the deck.



The Lake is at 1122 ft. elevation. The following table shows the vertical elevation of Westside Road above the communities on each of their access roads. Marchbank (255'), Killkenney Rd (365'), Udell Rd. (415'), Killarney (374'), Elliot Rd. (239'), Valley of Sun (556'), Upper Fintry (728'), Hi Farm (836' and 8 km. distant). It would be a major effort to lay a hose line from those locations to a boat. The hose line would have to be secured, as it would weigh tons when fully charged.

The technical part of this discussion will demonstrate that NO APPRECIABLE AMOUNT OF WATER CAN BE DELIVERED TO THESE ELEVATED LOCATIONS WITHIN THE OPERATIONAL PARAMETERS OF THE PUMP. In fact, the best operational point of the pump (BEP) is 1000 gpm at 150 psi (345 ft. head). There would be no flow at or above that point. And that does not count friction loss in the hose.

The claim by Jeglum that water could be pumped 8 km. to the Hi Farm is impossible. That's like pumping water from the lake to 8 Mile Ranch! The claim by the chief that water could be backpumped into the water mains to charge the hydrants is impossible. Not only would it contaminate our water supply, but no water could reach the hydrants!

Common sense says you do not deliver water from the lowest point in the Valley when it is not necessary. I have responded in Engine 102 (in a practice) to most of these so-called inaccessible places in 15 or 20 minutes and had the, 500 gal. reserve in the truck pumping almost immediately while the firefighters carried the transfer pump down to the lake. It would be possible to mount an interior attack on a home with our 500 gallons (with foam), ladders, axes, fans, SCBA.

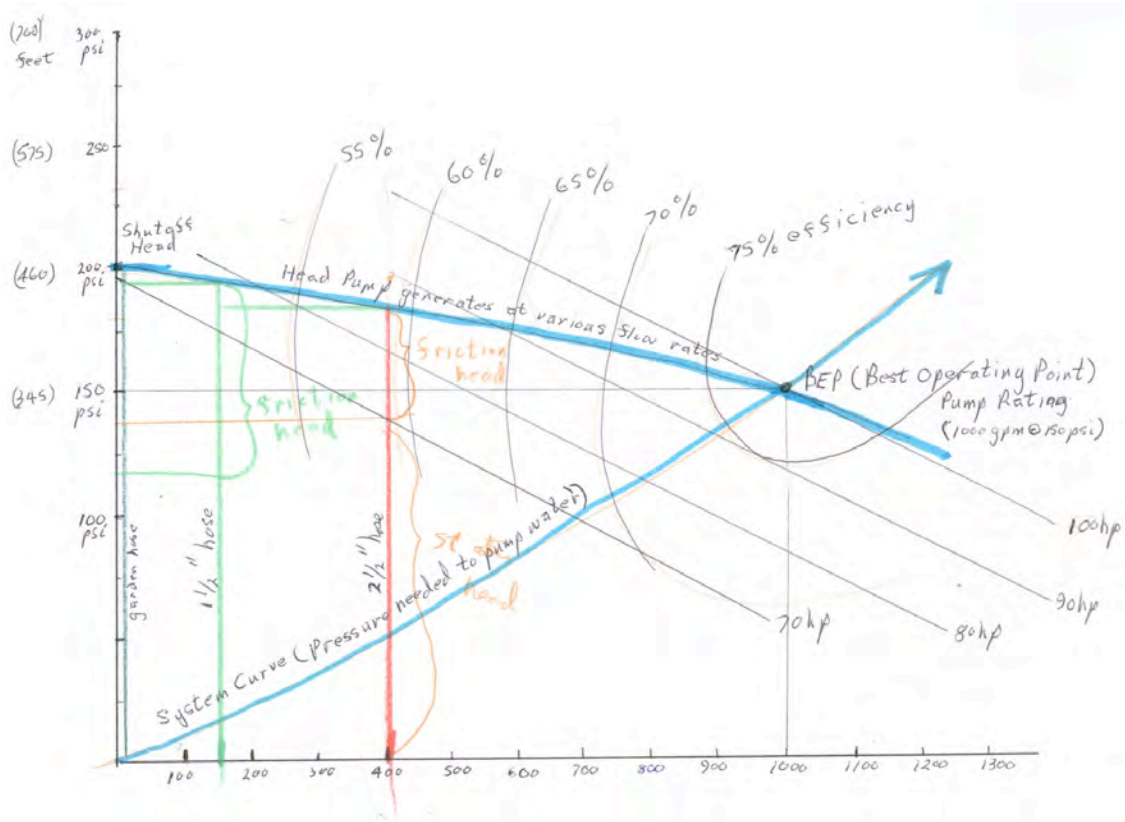
With the boat, the firefighters would have to drive down to the boathouse, get the boat into the water, don their survival gear, find the structure (in the dark?), get off, don their turnout gear, push the boat off the beach, drag hose 200 feet up to the structure. Then what do they do? Watch the house burn I guess, since they have no tools.

I can't see how they could do all that in less than an hour- and to no purpose! As the chief claimed on the Morning Star "It will pump water wherever we want it to go. It's a fire truck that floats on water". This statement is unrealistic and cannot be supported by fact. The Fire Adjusters would not recognize this boat, as its response time is more than 15 minutes, it is not effective once on site, and cannot be operated 24/7 as is required.

In one weekend four people obtained 260 signatures on a petition against the boat. Those residents had the common sense to see through the bogus arguments presented by the chief. No doubt our Directors have common sense as well.

2. Technical

I am not aware of the specificities of the pump being ordered except that is rated at 1000 gpm at 150 psi. So the curve below is one I obtained for a typical pump of that rating. We will assume the shutoff point for the pump is 200psi (460 ft). That is the total achievable head for the pump. If you dropped your hose to 400 ft. let's say, you would get a theoretical flow of 400 gpm. Note that you have increased the revs (hp) of the pump and it is operating outside its ideal range and is less efficient and vibrating. At that point the total head consists of the static head (400 feet) PLUS the frictional head (a reasonable value could be 100 feet.) Thus the total head necessary to pump 400 gpm is 500 feet which is above the curve and therefore impossible. So for this particular curve you could not pump higher than 360 feet and at that height you would only get a few gpm. On the graph you COULD get 400 gpm, but only up to about 330 feet. For a 1 ½ inch hose the frictional losses would be greater and you could only get up to about 250 feet.



If you want to get more complicated then you could define "head" as static head + head loss (from friction, reducing hose size, closing nozzles etc.) Head loss "H" = K q (squared) or H=K (qxq) where "q" = flow rate and "k" is a constant describing system characteristics. Increasing "K" will move the system curve upwards. The pump would no longer be operating at its BEP. Another way of looking at it is cross section ratios. A 2 1/2" hose has 1/3 the cross section of a 4" hose thus can carry only 1/3 the gpm: a 1 ½' hose can carry only about 1/7 the gpm. Therefore the boat with its 4" discharge could only pump about 400 gpm thru a 2 ½" hose and 150 gpm thru a 1 ½" hose. A garden hose would be close to shutoff head and blow up!!

Conclusion: the boat cannot deliver appreciable amounts of water even to Westside Road.

3. COSTS

Boat

I have contacted the makers of this boat for pricing. The "bare bones" price without options is $110,000. The trailer is $6500, and freight is $1500.

Total is $118,000. (with exchange @ 1.08 is $127,000)

With taxes the total is $143,000.

With survival suits and lifejackets the total is $151.000.

With training course is $155,000.

Boathouse

Coast Guard guys (in Bamfield) I have talked to told me a boat must be "in the water" to mount a quick response. Whether on land or in the lake, a structure able to house such a large boat securely would cost well over the $30,000 allocated. If in the water, the cost of an access dock and a "Hydro-hoist" would add another $20,000. Not to mention the hoops the environment people would make us jump through.

Total cost with boathouse is $200,000 minimum.

The chief is on record as saying he would patrol the lake three days a week with two or three fire fighters. I don't see the purpose of this exercise except to use up our tax dollars. Fuel would cost at least $100.00 per hour, and wages at least $50.00 per hour. If he did 100 six hour shifts it would cost $90,000 per year PLUS the cost of maintenance and repairs.

DIRECTORS! We implore you to spare us this ongoing tax burden!

4. Options

The insurance underwriters have said they will underwrite a stationary suction pump on the lakeshore connected to a system of piping and standpipes which will deliver the required water volume 24/7. There is a multitude of portable pumps (both floating and stationary) available to deliver the required volumes for between $1500.00 and $5000.00 apiece. The chief's claim in the media that a floating pump would cost between $80,000 and $120,000 is absurd.

It seems logical to me (and to many others) that a pumping system installed at each beachside community would provide immediate and continuous protection for the structures. The residents could operate them until the FD arrived and during the forest fire

season to wet down the brush. They could also set up sprinkler systems to operate during the dry season, an option denied to those off the Lake.

Speaking from personal experience with the Terrace Mountain Fire, I worked with the people up at the Hi Farm for two years doing fuel modifications and installing standpipes and sprinklers fed by a pump on Shorts Creek. They did this at their own expense. When the fire was approaching, they activated the sprinklers, and installed more of them with the help of UBCM crews. As the fire raced towards them, they filled the fuel tanks to run sprinklers for 24 hours, and then ran themselves. The fire raced to within fifty feet of their homes, around, and over them. Not even an outhouse was lost!!

A similar system would be very effective in protecting the lakefront homes, and at much less cost.

Perhaps you should realize also that the entire fire department and all their apparatus were evacuated from the District during the Terrace Mountain Fire. So sprinklers fed by lakeshore pumps would be the only salvation for them.

You should also realize that as the fire approached, crews were trying to protect the upland interface with conventional equipment. It would be foolish to divert resources down to the lake. Doesn’t the chief realize that when the fire front reached the lake, all the District would have been consumed?

So common sense tells me that all the District could be better protected by maneuverable bush trucks with portable pumps, able to patrol for spot fires, working with a pumper designed for rough terrain. Station 102 is built next to Shorts Creek at an elevation 500 feet above the lake. Does it not make sense to pump 50 feet from Shorts Creek to the extensive firehall parking area to fill the tenders at 500 gpm? Or does it make sense to string 1500 feet of hose 500 feet vertical down to the lake with great effort and pump 0 gpm?

This bush truck could patrol the District for spot fires, carry men and equipment down to the lake, as well as access difficult areas anywhere in the District.

The referendum for the parcel tax was passed on the promise to us (iterated by Carson and Edgson in their campaign) that the money would be used to replace Engine 102 which is nearly 25 years old with an new engine useful for accessing and protecting the entire District. If this money is used to purchase a boat, it is a betrayal of the promises made to us, and a misappropriation of the funds. The budget for the boat was passed under false pretenses without our knowledge or consent, hence must be declared illegitimate. If the Directors approve the boat, they are complicit in this betrayal.

Frankly, If I were a Director, I would be so fed up with this whole farce and the efforts made to misinform or not to inform me, that I would defeat the motion, not only because of its lack of merit, but because I was really ticked off at the political shenanigans employed in attempting to pass it.

Respectfully submitted by Dave Robertson