

**South Delta Secondary School**  
**Parent Advisory Council**

April 19, 2006

British Columbia Utilities Commission  
6th Floor, 900 Howe Street  
Box 250, Vancouver, B.C.  
V6Z 2N3

By e-mail to: [web.administrator@bcuc.com](mailto:web.administrator@bcuc.com)

Attention: Robert J. Pellatt, Commission Secretary

Dear Sir:

**Re: British Columbia Transmission Corporation (BCTC)  
Project No. 3698395 /Order No. G-70-05  
Certificate of Public Convenience and Necessity (CPCN)  
Application Vancouver Island Transmission  
Reinforcement Project (VITR)**

Please find attached for electronic filing South Delta Secondary School Parent Advisory Council, Intervenor C41's final written submission and arguments on the above project.

As required, we will deliver a hard copy to the Commission and to BCTC.

Yours sincerely,

Janice Ristow  
Intervenor C-41

cc: BCTC  
BCUC e-mail distribution list

**SDSS PAC Final Submissions**

**BRITISH COLUMBIA UTILITIES COMMISSION**

**Re British Columbia Transmission Corporation  
Project No. 3798395/Order No. G-70-05  
Certificate of Public Convenience and Necessity Application  
Vancouver Island Transmission Reinforcement Project**

**FINAL SUBMISSION OF**

**South Delta Secondary School**

**Parent Advisory Council**

**April 19, 2006**

## SDSS PAC Final Submissions

1. The British Columbia Transmission Corporation (BCTC) has applied for a Certificate of Public Convenience and Necessity (CPCN) from this BC Utilities Commission for the purpose of constructing the Vancouver Island Transmission Reinforcement project in the near future. South Delta Parent Advisory Council (SDSS PAC) does not object in any way to the provision of reliable power to the residents of Vancouver Island. However, **SDSS PAC vehemently objects to BCTC's recommended route options through the community of Tsawwassen on the grounds that BCTC's Tsawwassen Option 1 and Option 2 endanger the safety and health of the present 1300 and future thousands of students attending our only public Junior and Senior Secondary High School.**

2. SDSS PAC will be arguing this position on the following issues:

- Public Necessity and Convenience
- BCTC's Misrepresentations and Lack of Public Consultation
- Safety concerns surrounding Seismic issues
- Health concerns surrounding Health issues
- Removal of the Existing 138kV Lines
- Lack of Due Diligence affecting choice of other REAL alternatives

3. Further, SDSS PAC would like to strongly object to what appears to us as a significant change of position in BCTC's route recommendation.

Throughout the entire hearing and up until April 5, 2006, when BCTC submitted their final argument, their recommended route through

## SDSS PAC Final Submissions

Tsawwassen has consistently been Option 2, undergrounding through the existing 138kV right of way. Mr. Michael Costello (former President and CEO of BCTC ), Mr. Bruce Barrett, (Project Manager ), Ms. Jane Peverett (present CEO of BCTC) and Energy Minister Neufeld are all on record as stating that BCTC would not recommend Option 1.

4. Now BCTC is proposing a mechanism by which they are asking:

“The Commission to give BCTC 90 days from the date of the Commission’s CPCN Order to negotiate an exchange of rights with a majority (51%) of the landowners whose properties would be directly impacted (52 owners of property). If BCTC is unsuccessful in negotiating this exchange of rights, BCTC believes that the added costs of underground cannot be justified, and the Commission’s order should provide for overhead construction on the existing ROW.” (*BCTC’s Final Argument*)

The mythical “exchange” that BCTC refers to includes not only keeping their existing overhead rights but acquiring new underground rights as well. The PAC appreciates that this will likely not be a feasible proposal given the strong opposition expressed by the residents throughout these proceedings.

5. Today, BCTC should be well aware of the considerable opposition to Option 2 and should have been aware at the onset of the hearing, as all evidence from TRAHVOL, Municipality of Delta, and SDSS PAC points to overwhelming opposition to this recommendation. Had BCTC done it’s due diligence, it would not have stated at the March 31<sup>st</sup> Town Hall meeting that Option 2 was “the community’s first request”, nor would it have progressed through these proceedings with the assumption that at some point the residents and the parents at the school would

## SDSS PAC Final Submissions

somehow “see the light”, realize that this choice was in their best interest and choose the underground route as the lesser of two evils.

6. The SDSS PAC submits that this late change of position which comes well after the evidentiary part of the hearings is over, leaves us **NO** opportunity to properly cross-examine BCTC on their “new” position – a position which clearly could have profound impact on the school. On several occasions throughout these hearings and specifically when Ms. Kudzin cross-examined BCTC’s first panel, the VITR Project Justification and Alternatives Analysis Panel, Mr. Barrett stated: (re: seismic stability of poles)

As far as giving a guarantee, I don't think anyone could get a guarantee, but they will be designed -- **if there were new overhead structures put there, which we're not proposing**, they would be designed such to withstand these kinds of events.  
*(Vol. 9, 1051)*

SDSS very reasonably assumed from this and several other like statements, that the overhead proposal would not be recommended and proceeded through the hearings on this basis.

7. By suggesting that a route be chosen based on the pressured acceptance of 51% of the residents living under the Right of Way, BCTC effectively is dismissing all of the very real concerns of all of the other residents, as well as the more than 2000 parents of students attending the school. Alternately, should an insufficient number of people acquiesce to the pressure, BCTC will then resort to an alternative which is equally

## SDSS PAC Final Submissions

unacceptable, again ignoring the very real concerns of a large portion of Tsawwassen's population.

8. Further, acceptance by 51% of the residents will not ensure the underground option, as the many inherent pitfalls including uncalculated expropriation costs for the 49%, construction delays and other factors including potential civil disobedience, may well cause BCTC to still revert to the overhead choice. In the end, will the children of our community bear the brunt of BCTC's failure to negotiate a satisfactory outcome with residents? They are at great risk if the poles are compromised in the event of a major seismic event and at risk from increased levels of EMF exposure. Will BCTC then blame the residents in the right-of-way because they did not capitulate for these inherent risks?

9. BCTC had before it 58 affidavits of residents who refused to choose between the evils of Option 1 and Option 2. During cross exams, other TRAHVOL representatives also refused to be pressured into this choice. As a result of an undertaking to BCTC, the PAC at a regular meeting, discussed this same choice which was put before them and passed a resolution that in essence refused to choose between these two options based on the fact that both options were seen as potential risks to their children and therefore unacceptable. For BCTC to now, at the end of this process, be yet again suggesting that they need to poll people for the support they need to pursue one or the other option is unfair, desperate, and in no

## SDSS PAC Final Submissions

way productive. **On these grounds, SDSS PAC strongly encourages the BCUC to dismiss this mechanism BCTC is proposing.**

### **Public Necessity and Convenience:**

10. The Commission has recommended that intervenors consider the Public Necessity and Convenience when arguing their position. Mr. Hobbs states:

"What are the interests that can be considered as part of the public interest in respect of the matters to be decided in this proceeding? For example, property values and stigma." And in this context, I refer you to the Memorial Gardens v. Callwood Cemetery decision. (*Vol. 40, p. 7542*)

We would ask the commission's indulgence in our, perhaps somewhat simplistic interpretation of this legal case, as we have no legal representation or access to legal books and documents that would enlighten us further as to the intricacies and ramifications of this case. SDSS PAC can only speak to what we believe is in the Public interest in our case. While others at this proceeding may argue eloquently about very valid points with regards to property value, stigma, geophysical advantages or disadvantages, cost factors, seismic factors and private verses public industry involvement; **SDSS PAC has always been and remains committed to ensuring that the health and safety of the children of Tsawwassen are kept at the forefront of any decision made and that their wellbeing CANNOT be put at risk for ANY reason!**

11. We have listened to persuasive arguments against route options based on the potential of cable failure, the presence of eel grass, the possible existence of

## SDSS PAC Final Submissions

artifacts and endless considerations of cost factors. We submit that the interest of the safety and health of our children must take precedence over all of these other issues. Surely the life of even one vulnerable child, put at risk necessarily because of location of their school, is more important than any of these other issues, especially in the light of the existence of alternative routes and technologies that would keep these very children out of harm's way.

12. Further in final instructions, Mr. Hobbs asks:

"Should we be concerned with achieving equity among private interests?"

In the case presently before this commission, we believe that the question is also whether the genuine concerns of our community can outweigh the concerns of Vancouver Island or the Province as a whole. The decision to proceed with Option 1 or 2 has a direct impact on not just the ~150 families who live in the right-of-way, but also on every family in the community who has a child presently attending South Delta Secondary AND every family who may have a child in the future who will attend the school. It also impacts every family whose children participate in community sports which take place at Dennison Park. We should be considering the interests of several thousand Tsawwassen families.

13. Further to this, we would submit that certain interests must always take precedence over others. The health and safety of people, and in particular children must always outweigh other interests. If we in fact embrace this value as a society, then equity among private interests may well not be achieved. Interests such as

## SDSS PAC Final Submissions

cost efficiency, reliability, and aesthetics may well have to be compromised to ensure the health of the individual.

14. We believe there is sufficient evidence before this commission to cast serious doubt as to ensuring the health and safety of our children for the life of the project, should BCTC's proposed Option 1 or Option 2 be implemented. This evidence can be grouped as follows:

A. In the event of a significant seismic event, students may be barred from exiting from over 7 emergency exits, thus compromising their chance to survive.

B. EMF levels that the students are submitted to daily, and involuntarily, are NOT "typical", and there is NOT sufficient proof to ensure that our children will not suffer long term health effects because of this exposure.

15. **With this is in mind, it is our position that BCTC's VITR application which recommends either Option 1 (overhead in the streets of Tsawwassen) or Option 2 (underground in the existing Right of Way through Tsawwassen) IS NOT in the Public convenience and necessity – certainly not for the community of Tsawwassen, nor, would we argue for the broader community of British Columbia.**

### **BCTC's Misrepresentations**

## SDSS PAC Final Submissions

16. The PAC is deeply concerned that the possibility of industrial strength, high voltage overhead power lines is even a consideration, never mind a recommendation. We believed, as did the rest of the community that the overhead lines were “off the table” and that that BCTC would find an alternate route. This was stated in Michael Costello’s letter to TRAHVOL and in letters from Valerie Roddick and Richard Neufeld.

“BCTC has decided it will not construct new overhead 230 kV lines on the 4-kilometre section of the existing right-of-way in Tsawwassen. ...I encourage you to keep in touch with them as they develop a new route”.

**Richard Neufeld, April 1, 2005** (*Ex E-4*)

“By now you will have heard the good news that the BC Transmission Corporation will not be proceeding with the upgrade to the transmission lines along the existing right-of-way.”

**Valerie Roddick, March 18, 2005.** (*Broadfoot Affidavit C3-19A Ex RR*)

It was also widely reported in the media, that BCTC had permanently dropped their plan to install high voltage towers through Tsawwassen.

17. Our belief that these overhead lines would not be constructed, is evident in the letter written from the PAC to the Delta School Board:

“As you are probably aware, on March 17, BCTC announced that it was withdrawing the existing right-of-way as the proposed route for the new high voltage lines to the Island. This is good news for the parents in Tsawwassen”. (*C41-2, pg 10*).

In addition, the students who were actively involved in lobbying against the overhead lines, abandoned their petition, which was to be delivered to the Premier. Our MLA Valerie Roddick was in the process of arranging this presentation prior to the announcement that BCTC was abandoning the

## SDSS PAC Final Submissions

overhead proposal. The Delta School Board also recently wrote to BCTC expressing their concerns that they were also misled.

“On May 3, 2005 Chairman Shauntz wrote to Michael Costello, President and CEO of BCTC on its announcement of March 17, 2005, which indicated that BCTC was not recommending the proposed existing route for the VITR Project and that BCTC would use another yet to be determined route. We are surprised and angered that we now learn that this is not the case and the president of BCTC chose not to correct our and the public perception”. ( C45-4)

18. When given the opportunity to comment on the overhead line proposal during the public hearing, BCTC’s CEO Jane Peverett stated:

“We have made what we believe is a serious commitment not to recommend going overhead. And to go back on a commitment like that for us would be something we would do very, very reluctantly after great consideration and it would have to be for reasons we found highly persuasive. **And for that reason we have put a very high hurdle against going back on that commitment.**” (Volume 16, pg 99 )

We believe that BCTC failed to present any “highly persuasive reasons” during the seven week hearing that would support a return to the overhead proposal. BCTC is now forcing the residents to either give them underground rights or be faced with the overhead towers, which the community is vehemently opposed to,

19. We find this conduct from BCTC, shocking to put it mildly and are concerned about how this is affecting our children. We are trying to raise future responsible citizens who cannot help but be confused by the apparent flip-flop in a government crown corporation’s position. **How can the PAC**

## SDSS PAC Final Submissions

**nurture honesty and integrity in our own children when authorities  
behave in this manner?**

20. BCTC has not been transparent with the school or the PAC throughout this process. A simple, but glaring example is the fact that the high school principal was informed of the impending power lines from an arborist, after he rushed out of the school when he saw four cherry trees on the school property being chopped down (*Vol 24, 5239*). Contrary to Mr. Gabel's contention that:

“There was an intent on the part of the company to reach out to as many people that would have an interest as they possibly could. “”(Vol 9 p. 1237}

at no time has BCTC attempted to inform or consult directly with the PAC or the school authorities (other than the groundskeeper) over the past 16 months.

### **Seismic Issues:**

21. Evidence from this hearing clearly demonstrates BCTC's understanding that Tsawwassen and specifically South Delta Secondary School is located in a seismically active zone. Mr Atukorala, BCTC's expert witness on their "Geophysical panel", confirmed this along with the fact that the probability is high that there will be another major earthquake within the next 200 years. (*Vol. 20, pp. 3566*)

22. Should BCTC proceed with their plan of constructing overhead towers for the high voltage transmission lines, hundreds of South Delta students will be placed at risk in the event of a major earthquake. In fact, SDSS students from their Global

## SDSS PAC Final Submissions

Awareness group were the first people in our community to identify the very real potential danger that both the existing and the proposed overhead towers pose to the school population.

23. Evidence indicates that 250 – 300 students who would need to evacuate through the 7 north west exits of the high school may well not be able to do so without contradicting BCTC's own first rule of electrical safety "Stay back at least 10 meters from any fallen power line or exposed underground cable:" (C41-7, Vol. 20, pp. 3578-3580))

24. Further, in response to the following question asked by B. Kudzin:

"with your knowledge of seismic events, which -- you people are experts, and I don't claim to be anywhere near -- and looking at these ortho maps, and taking into consideration the location of the poles, their height, the distance from the school, recognizing the large number of students that could be exiting the building, with all of that in mind, in the event of a major earthquake, and the way that an earthquake happens, and these poles were compromised, would you advise students to take these exit routes?

BCTC's own seismic expert confirms that these exits are not safe.....

MR. ATUKORALA: **I personally, if I was asked the question, I would say no.**  
(Vol. 20, p3581)

25. BCTC's assurances that:

Steel poles can be designed to fail to limit the radius affected by the failure. This is accomplished by designing a collapse point in the upper portion of the pole with greater strength in the lower section of the pole. As a result, in a failure situation the circuits will remain suspended with the upper portion of the pole while the lower portion of the pole remains intact. (B1-83)

**does not constitute a guarantee**

## SDSS PAC Final Submissions

26. Mr Gabel confirms our doubts by saying

**As far as giving a guarantee, I don't think anyone could get a guarantee**, but they will be designed -- if there were new overhead structures put there, which we're not proposing, they would be designed such to withstand these kinds of events.  
(*Vol. 9- p. 1251*)

27. Should a significant earthquake occur in the life time of the new overhead towers and the towers or cables are compromised, our children may well be forced to “exit through the building” to the emergency doors at the far side of the building.

(C41-6) This is a very real possibility as the Delta's Fire Marshall has already alerted the school principal of this recommendation. As Mr. Gabel pointed out:

“You might want to explore with the seismic panel regarding your concern about a seismic event as to whether the building is more at risk than the poles. So I suspect there would be more of an issue of getting people out of a building, (*Vol. 9- 1252*)

The possibility of our children having to make their way through a building after an earthquake has struck, because their nearest emergency exits are blocked by downed power lines, is horrifying.

28. Further, we have recently become aware that blocking the emergency would not meet provincial school safety practices. Nor does it appear in keeping with the government's school earthquake preparedness plan which last year saw the Province budget \$254 million for seismic upgrades to 95 schools as the first part of a \$1.5 billion plan to make BC's public schools earthquake safe.

29. Given the very real possibility of this disastrous event happening in the life time of these lines and BCTC's present awareness of the possible dire

## SDSS PAC Final Submissions

consequences, **SDSS PAC believes that it would be unconscionable for BCTC to proceed with a proposal that would place towers or high voltage lines in such close proximity to our school.** In fact, SDSS PAC questions who would be legally responsible for any consequent death or injury should children be injured in the future as a consequence of BCTC ignoring it's present knowledge.

### **Health Concerns:**

30. Evidence submitted by the PAC, other intervenors and BCTC suggest that there is considerably scientific uncertainty regarding potential adverse health effects of EMF. This uncertainty stems in part from debate surrounding a causal link between EMF and cancer. Despite the ongoing scientific debate, which is clearly not over or resolved, there is one health outcome which all national and international health and regulatory agencies agree on; **a statistically significant link between EMF exposure and childhood leukemia.** The National Research Council (NRC), the US National Institutes for Environmental Health Sciences (NIEHS), the British National Radiological Protection Board (NRPB), the International Agency for Research on Cancer (IARC), the International Commission for Non-Ionizing Radiation Protection (ICNRP), the Canadian Federal-Provincial-Territorial Radiation Protection Committee and Health Canada have all concluded that there is a statistically significant association between EMF levels above 4mG and childhood leukemia, and that is unlikely due to chance. For this reason, EMF has been

## SDSS PAC Final Submissions

classified as “**possibly carcinogenic**” by the IARC (Group 2B). (C41-2 EMF RAPID-pg 161)

31. This information, published in the EMF Rapid Booklet, was provided to parents by BCTC at the January, 2005 open house. In addition, testimony from both TRAHVOL’s expert Dr. Magda Havas, BCTC’s expert Dr. Linda Erdreich and Richard Gallagher, department head of BC Cancer Research and BCTCs expert at the Town Hall Meeting, reaffirmed the link to EMF and childhood leukemia. Under cross-examination, Dr. Erdreich agreed that a number of studies confirm a statistically significant association between EMF and childhood leukemia at levels of 4 mG or more. (Vol. 28, p. 5239) (Erdreich report and Ex. C3-52, Gallageher statement Vol 9, pg 1337). Richard Gallager is also on record at the National Energy Board Hearings as stating:

“With childhood leukemia there is a concern that in a very small proportion of the population of children exposed to the continuous magnetic fields of .4 microteslas, that we may in fact be putting these kids at risk of leukemia”  
(Vol 28, pg 5380.)

32. Furthermore, there are no epidemiological studies which have specifically considered the long-term effects of children being exposed to EMF level in excess of 10 or 15 mG . Dr. Erdreich agreed in cross-examination that it would be “**inappropriate**” to conduct a study where children are purposefully exposed to 15 mG for an extended period of time. (Vol. 28, p.5283) Our students will be exposed to levels well over 15mG on a daily basis for over five years of their lives and the

## SDSS PAC Final Submissions

current state of scientific research provides no comfort that they will not suffer from the effects of long-term exposure at these high levels.

33. The PAC also cannot take comfort from the fact that these EMF levels are within “international guidelines”. As Ms. Kudzin stated under cross-examination from Mr. Carpenter:

**Mr. Carpenter:** “And if this Commission found at the end of the day that its decision was consistent with the WHO Precautionary Principle, would you accept that?”

**Ms. Kudzin:** “I find that very difficult to answer Mr. Carpenter because when it comes into the realm of child safety, I think a lot of times we don’t much care who the authority is, who is saying this is okay or this is safe, as a parent if we’re concerned that there still is a level of risk, we are going to have concerns about absolutely accepting that”. (*Volume 24, pg. 4534*)

34. Throughout this proceeding BCTC consistently cites the guidelines or exposure limits developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in collaboration with the World Health Organization (WHO). That guideline is 830 mG, and BCTC relies heavily on the fact that our students will never be exposed to levels about that guideline. However, the WHO states:

“..the ICNIRP guidelines for EMF exposure....are intended to prevent health effects related to short-term acute exposure. This is because ICNIRP considers the scientific information on potential carcinogenicity of ELF fields insufficient for establishing quantitative limits on exposure.”

The ICNIRP guideline is for exposure for any 24 hour period and is based on short-term immediate health effects such as stimulation of peripheral nerves and muscles. The guideline does not consider cancer or other long-term health effects as a possible outcome. **This is not reflective of the very long-term exposure our**

## SDSS PAC Final Submissions

**students will be exposed to both at school and in the community.** (*Havas report at p. 8, Erdreich cross, Vol. 28, p. 5297*)

35. The PAC presented evidence during the hearing that Dr. Anders Ahlbom, an acknowledged international expert and one of the authors of a key meta-analysis study concerning EMF and childhood leukemia, and the current chair of the ICNIRP Standing Committee of Epidemiology, **would try to avoid living in a house with young children where EMF levels were in the 10-20 mG range.** (*Vol 28, 5417*) BCTC has continually stated that they are not EMF experts and that we must listen to the “experts”. If the Chair of the organization that sets BCTC’s exposure guidelines would not live in a house with these levels due to concerns about potential risk to children, how can the PAC take comfort that our children will be safe when exposed to levels much greater than 10-20 mG?

36. Further the PAC would like to note that parents have just learned that ICNIRP is in the process of re-examining the guidelines as noted in the following email sent from an intervenor in another BCUC proceeding on April 12, 2006.

To: hans karow

Subject: Re: EMF exposure guidelines

Dear Mr. Karow,

thanks for contacting ICNIRP regarding your health concerns.

1. Yes, ICNIRP has began the process to revise the exposure guidelines for static and also for low frequency fields. As you might be aware, ICNIRP’s guidelines for limiting exposure to fields up to 300 GHz are based on the scientific knowledge of the years 1997/1998. Research has been going on since then and ICNIRP has issued

## SDSS PAC Final Submissions

an in depth review of the scientific evidence concerning the relevance of low frequency electric and magnetic fields for human health (2003). The WHO is going to publish an Environmental Health Criteria Document on this topic in 2006. In view of new research data and their reviews, **the ICNIRP guidelines will be revisited**. The process will not be finalized before the end of the year.

2. and 3. I could not open the ppt. presentation by Dr. Havas, but according to the title I suggest, that it deals with the inconsistency between the known biophysical effects of low frequency fields and the results from experimental studies on one hand, and the epidemiologic results on childhood leukaemia on the other hand. Also this apparent conflict will be addressed during the revision process.

I hope, I could provide you with the information you have been looking for.

Sincerely,  
Gunde Ziegelberger

Dr. Gunde Ziegelberger  
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As several other European countries have already altered their guidelines to a significantly lower level than those established by ICNIRP 9 years ago, it is not inconceivable that this very organization that BCTC looks to for direction may establish new guidelines which will be well below those of the proposed project. In this event, how tragic for our children, that they are unnecessarily exposed when prudent precaution today could place those lines elsewhere.

37. Health Canada does not have any guidelines for EMF exposure and states that it does not consider such guidelines necessary because the scientific evidence is not strong enough to conclude that **“typical exposures”** can cause health

## SDSS PAC Final Submissions

problems. (C41-2, pg 54) Health Canada relies on North American research, which indicates that “typical exposures” are less than 2 mG. (Ex B 1 – pg 86). Our students EMF exposure levels, presently 30 mG on their playing field, and estimated between 340 – 393 mG with the proposed VITR, cannot be considered “typical” and the PAC cannot take comfort in Health Canada’s position, which is not applicable to our situation. (B1-101)

38. The PAC believes that BCTC has selectively interpreted The World Health Organizations Framework for Precaution. This document clearly states, “siting decisions should consider ways to reduce people’s exposure”. The document also recommends:

“ Thus we have for the one health outcome warranting full cost-benefit analysis of possible precautionary measures, childhood leukemia. The disease affects children, it is perceived with dread, the exposure is largely involuntary. The size of risk, potentially in the order of 1 in 2000 lifetime risk of childhood leukemia is unlikely to be regarded as negligible by any society. Under the proposed WHO Precautionary Framework all of these factors argue for adopting greater rather than lesser protection.”  
(C41-2, pg 46).

39. As parents, listening to BCTC’s paid consultant who is on record as “not being fond of the Precautionary Principle” is in no way reassuring that our children’s best interests are being considered. (Vol 28, pg 5258) Many countries around the world have adopted standards much lower than the WHO/ICNRIP including Sweden, Holland, Germany, Italy and Australia to name a few and have put restrictions in place for siting lines near schools. (C41-2, pg 63). **Dr. Erdreich presented no evidence to support her absurd claim that Europeans are invoking the**

## SDSS PAC Final Submissions

**Precautionary Principle when “the science may not really support their doubt”.** (*Vol 28, pg 5259*)

40. The PAC is perplexed by BCTC’s position on EMF and their practice of “prudent avoidance”. Although BCTC states they do not have a policy regarding EMF, they admit that they do try to use “no-cost, low-cost” measures in attempting to minimize expose. As Mr. Gabel stated at the hearing:

“I think they’re the kind of things that I referred to earlier, which are low-cost, no-cost kind of alternatives, which are taking advantage of cancellation-affected circuits and the location of lines within the middle of right-of-ways further away from homes... Certainly trying to minimize EMF exposure at the edge of the right-of-way where people would live”. (*Volume 10, pg 1499,*).

BCTC also admits that there is “uncertainty” and “public concern” regarding EMF.

Mr. Barrett stated at the hearing

“It’s suggested that there’s considerable uncertainty... people have expressed a serious concern”. (*Volume 18, 3205*)

**If BCTC is so confident that there are no adverse health effects associated with long-term exposure to EMF at levels below 830 mG, why do they suggest mitigated such effects?**

41. In addition BCTC’s attempt to minimize exposure “at the edge of the right-of-way” does not reduce, but in fact increases the level of EMF our children will be exposed to, as our high school sports field is “in” the right-of-way. Furthermore it is not clear to us why BCTC isn’t recommending other low-cost options other than Option One and Option Two. Both of these options will significantly increase the

## SDSS PAC Final Submissions

EMF levels our children will be exposed to at school and on the playing field for five years of their lives. It will also expose all children in the community who participate in team sports to potential adverse health effects.

42. **In summary, the PAC strongly advocates that the Commission must follow “prudent avoidance” and deny BCTC’s application to route VITR either overhead or underground by our school, as the risks of doing otherwise are too great for any student or parent to bear.** The Commission cannot deny that the risk associated with EMF and childhood leukemia is well established in the scientific community and this fact was not contested during these proceedings. Other school districts in Canada including Edmonton, Alberta and Yorkville, Ontario have adopted prudent avoidance policies (*C 41-2 pg 90, pg 103*) Many countries around the world have also placed restrictions on installation of power lines near schools and homes to protect innocent children from a potential health hazard. **It would be unconscionable for BCTC to necessarily expose thousands of children over a 60-year period to this potential health and safety risk with all of the ensuing stress and anxiety that would follow for them and their parents.**

### **The Existing 138kV towers**

43. At this point, SDSS PAC would like to argue in support of TRAHVOL’s complaint to remove the existing 138kV wooden structure. All of the above evidence

## SDSS PAC Final Submissions

and arguments pertaining to the dangers of the new proposed towers is equally applicable to the existing wooden structures.

44. Further, the evidence from this hearing shows that the existing wooden 138kV poles are located closer to the building than the proposed new towers will be and originally **were not built to any seismic standards**. Mr. Williams, the senior geotechnical engineer at Golder confirms:

“Yeah, I think in the early – they date back into the early 50s and 60s, the seismic designs was pretty -- pretty -- in the start of the beginning of a really early design process, so there wasn't much done in those days for seismic design”.  
( *Vol. 20, p.3563*)

Mr. Atukorala also states:

“I believe the seismic design standards have come a long way. If you go back to the early 80s, we were designing for something in the order of 100 year ground motions. The Building Code, that was what was being specified. In 1985, they upped -- the ground motion parameters from 100-year to 475-year, and now we have quite recently this year, 2005, we upped it from 475 to 2475. (*Vol. 20 -p3571*)

45. Notwithstanding BCTC's claim that:

The existing wooden H frame structures, if they fail, will tend to fail parallel to the line of the circuit because of the geometry of the structure. (*B1-83*);

given the present location of the existing wooden poles, the possibility does exist that in a worst case scenario, they could fall as close as 4.6 M from the school emergency exits. Again, we doubt whether BCTC is willing to guarantee the “safe” fall of these structures in the event of an earthquake.

46. SDSS PAC evidence shows that existing EMF levels under these lines are between 30 and 70mG(*C41-2*). We believe these levels are not “typical” levels (*C3-*

## SDSS PAC Final Submissions

55; Vol 28, p. 5265, to p. 5267, B1-11, TRAHVOL 1. 47.2)and continue to put our students at risk as they necessarily participate in gym classes and team sports under the lines.

47. Given our present knowledge of the above stated facts, and also being aware that the present 138kV lines can be retired while still assuring that the gulf islands have reliable power, **we strongly recommend that in order to protect the present and future students at South Delta Secondary School, the Commission direct BCTC to remove the existing wooden poles and lines from the Tsawwassen right-of-way.**

### **Lack of Due Diligence affecting choice of other REAL alternatives**

48. As active and involved intervenors as well as community members, SDSS PAC has learned through these proceedings that BCTC has, due to a lack of due diligence, neglected to analyze and seriously consider several other very viable, and cost effective alternatives. Other intervenors will argue the details of these options, and we will rely on their evidence to prove their validity.

49. Through out the proceedings we have learned that:

- A. Due to lack of due diligence in estimating the real costs of constructing Option 2, **it could well be a more costly option** than both Options 3 and

## SDSS PAC Final Submissions

Option 4. These cost underestimations or omissions include landscape restoration cost, ROW acquisition costs, possible expropriation costs and legal costs affiliated with possible expropriation.

- B.** By BCTC's own admission, and without considering all of the costs mentioned above, the difference in cost between Option 2 and Option 3 is a "wash". (*Vol. 18, p 3195*). Mr. Barrett acknowledged that if the cost differential between Option 2 and Option 3 was Zero or if in fact Option 2 ended up being more expensive, **then BCTC would recommend Option 3.** (*Vol. 18, p. 3200*) In spite of this, Option 3, going through the streets of Tsawwassen, although always considered a feasible option, has not been examined in enough depth to even identify a preferred route choice. (*BCTC Final Argument. Para 156*). **In fact the recommended route choice now seems to have reverted to Option 1!**
- C.** In considering Option 4, following Highway 17, evidence shows that even though the Province already has a ROW through TFN land and owns the highway itself, these two options were never really explored. The concerns of TFN were never really discussed and there were no attempts to negotiate any type of "win-win" agreement that might allow this route to go forward. (*Vol 25., 4777; Vol. 12, 2058; Vol. 17, 3027; Vol 25, 4761*)
- D.** Although BCTC has steadfastly proclaimed that Option 5 is infeasible, evidence surfaced that indicated that there was no detailed site-specific analysis done of the Robert's Bank area and that the BCTC proposed path in the foreshore could have been changed to provide a significantly more

## SDSS PAC Final Submissions

stable route.

- E. Although cable fault due to seismic issues weighed heavily in BCTC's arguments of route choice, the seismic stability of Arnott station, an integral part of the whole VITR, seems to be in serious question.
- F. BCTC could have entered into an arrangement with Sea Breeze Corporation or pursued their own alternatives using HVDC technology which could be considered a "clean" form of electricity given that the use of this technology would mitigate almost all of the parents' and residents' health concerns.
- G. Further, BCTC had the opportunity to seriously engage in discussions with Sea Breeze Corporation with the possible result of bringing forward an alternate proposal which does not travel over a school, sports' parks and people's homes. Evidence indicates that they chose not to even attempt this collaboration.

50. Notwithstanding the above, SDSS PAC remains puzzled as to why BCTC seems so intent on NOT considering other very real, viable and preferable options. We can only surmise that there exists a significant concern about setting a precedent in giving up the existing right of way and that the route was "pre-determined" **The SDSS PAC does not agree that this is a valid reason to endanger the safety and health of their children.** When the existing right of way was established and the present 138kV lines constructed 50 years ago, there was no school. Why the school was built so close to the power lines, is no longer of

## SDSS PAC Final Submissions

consequence. The fact is that it is there, meters away from the existing lines, and the proposed lines, exposing students to potential health risks, injury and even death in certain circumstances. With the knowledge we all have today, how can BCTC, in good conscience, continue to promote Option 1 or Option 2?

51. Although SDSS PAC maintains that it is not in their mandate to support or recommend a route for the VITR project, we would be remiss to not comment on the fact that **had BCTC's done it's due diligence, and truly researched some of these possible alternatives before the proceedings, and then genuinely consulted with those parties who are directly affected, they could have put forth an application that truly was in the Public convenience and Necessity.**

### **Conclusion:**

52. Throughout these proceedings, SDSS PAC has been directed by BCTC on several occasions to listen to the "experts" when making their decisions. As most of us lack the scientific and geophysical expertise necessary to discern all of the facts, this comes as sound advice.

53. To this end we have listened to BCTC's own seismic experts advise us that we should expect a significant seismic event in the next 200 years. Further these experts tell us that they cannot guarantee the stability of the poles, in the event of this predicted disaster and most disturbingly, our children should NOT use the

## SDSS PAC Final Submissions

existing exits from the school as may not be safe. **We are listening to these experts and we are not happy with what we are hearing!**

54. We believe our concerns surrounding the seismic stability of both the existing transmission poles and the proposed towers are well substantiated and warrant this Commission's serious consideration. **On these grounds alone, we believe that BCTC should not be allowed to proceed with Option 1, and further, BCTC should be directed to remove the existing 138kV poles as soon as possible.**

The lives of our children may well depend on this.

55. With respect to the relationship of EMF and health impacts, we have heard TRAHVOL's expert Dr. Magda Havas, BCTC's expert Dr. Linda Erdreich and Richard Gallagher, department head of BC Cancer Research and BCTC's expert at the May 31st Town Hall Meeting, all reaffirm the link to EMF and childhood leukemia at levels of 4 mG or more. Our children will be routinely and necessarily exposed to levels much higher. As part of their legal argument, TRAHVOL distributed eight significant scientific studies by a wide variety of international scientists, all indicating to certain degrees a relationship between EMFs and adverse health impacts (*C3-49,52,55,57,78,79,60,61*). **Finally, we have evidence from an acknowledged international expert, Dr. Anders Ahlbom, recommending that we should try to avoid living in a house with young children where levels are in the 10-20 mG range.**

## SDSS PAC Final Submissions

56. This seems to be a significant number of experts who in fact, believe we have something to worry about when it comes to the relationship of EMF and adverse health effects. Granted, there may well be other experts that can provide counter arguments with any of the above cited evidence. **Regardless, we consider the very fact that such a large number of experts (who will argue that EMF does impact health) even exist to be significant.** Clearly, the jury is still out with respect to this issue. Considering that the potentially deadly consequences could fall on our innocent children, this uncertainty alone warrants the dismissal of both Option 1 and Option 2.

57. Finally, the parents of South Delta Secondary School are working hard to raise responsible, interested and civic minded future citizens of this province. Many of these students, who are at the brink of adulthood, are following the events surrounding this proposed project very closely as this is an issue that affects them directly. As a parent, how do we explain to these young people, that the authorities, who we have always taught them to respect, are not listening to them? How do we explain that the cost of this project which benefits them in no way, is more important than their safety or health? How do we explain to these young people, some only a year or two from becoming voting members of our society, that political figures and government corporations don't value keeping their promises? We can only hope that, through these proceedings, that WE all demonstrate that the process does work – that there is real value in being part of a democracy, and that their voices are heard.

## SDSS PAC Final Submissions

58. In conclusion, the SDSS PAC implores this Commission to consider the welfare and rights of the children of Tsawwassen first and foremost in your deliberations. These young people have no voice in these proceedings but stand to lose the most. In fact their very lives may be on the line. **We ask BCUC to reject BCTC's VITR Option 1 (overhead lines in the existing right of way) and Option 2 (underground in the existing right of way) and direct them to go back to their drawing board to develop a proposal that does not jeopardize the health or safety of our children.**

Respectfully submitted on April 19, 2006 by

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Janice Ristow  
Chair, SDSS PAC

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Bernadette Violini Kudzin  
Treasurer, SDSS PAC