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Mrs. Erica Hamilton
Commission Secretary
B.C. Utilities Commission
900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

July 17, 2008

Dear Mrs. Hamilton,

Re: FortisBC ~ Certificate of Public Convenience and Necessity for the Okanagan Transmission Reinforcement Project ("OTR Project") ~ Project No. 3698488

BCUC's project's website: <http://www.bcuc.com/ApplicationView.aspx?ApplicationId=188>

FortisBC's project web site:
http://www.fortisbc.com/about_fortisbc/rates/cpcn_applications/otr_project.html

Following please accept – without prejudice - my final submission into subject hearing, addressing mainly the EMF issue.

HT-numbers refer to pages in [Transcript Volume 3 - Hearing - June 24 2008](#) .

1. During the oral part of subject hearing FortisBC's EMF expert Dr. Bailey impressed me again about his way of pro-industry testifying. This in a way that most parties he has always been addressing are -more or less innocently- falling prey to his statements about the EMF's harmless nature, up to the ICNIRP's / WHO's 833 milliGauss threshold level. As the Dr. Bailey's Exponent corporation web site "Capabilities" reads, and Dr. Bailey is indeed duly doing his consulting job:

"...we assist clients to overcome seemingly insurmountable obstacles"

[source: <http://www.exponent.com/capabilities/>]

I have yet to find out, whether Dr. Bailey has ever assisted EMF concerned intervenors in power line hearings, so concerned intervenors, and especially honest/industry independent scientists finally can/will succeed in government agencies' acceptance of lowering the EMF exposure guidelines to 1-2 milliGauss, as recommended by the BioInitiative Group:

".....While new ELF limits are being developed and implemented, a reasonable approach would be a 1mG planning limit for habitable space adjacent to all new or upgraded power

lines and a 2 mG limit for all other new construction. It is also recommended for that a 1 mG limit be established for existing habitable space for children and/or women who are pregnant (because of the possible link between childhood leukemia and *in utero* exposure to ELF). This recommendation is based on the assumption that a higher burden of protection is required for children who cannot protect themselves, and who are at risk for childhood leukemia at rates that are traditionally high enough to trigger regulatory action. This situation in particular warrants extending the 1 mG limit to existing occupied space....” [source: http://www.bioinitiative.org/report/docs/section_1.pdf , page 22]

2. In the FortisBC Osoyoos transmission and substation CPCN March 2006 oral hearing, Dr. Bailey admitted there is an international accepted agreement on epidemiology research that there is an association of childhood leukemia levels very below 833 milliGauss: at magnetic fields between 3 and 4 milliGauss. EMF expert and scientist Dr. Blank confirmed this as well in the subject oral hearing (HT 445 / 12 – 21)

3. FortisBC representative and senior employee Doyle Sam of course can not afford to agree that living in a home exposed to power line magnetic fields up to 833 milliGauss is not safe. (HT 397/line 11-20), which I fully understand and would state so if I were in his position in the subject hearing.

4. During cross-examining Dr. Blank, FortisBC legal representative Mr. McIntosh pointed out about certain EMF reduction (HT 463 / 17-26, HT 465 14 – 21), in other words FortisBC via Mr. McIntosh indirectly admit and address a safety issue within the 1 up to 833 milliGauss level: 1 milliGauss being “1/833” safer than 833 milliGauss, whereas ICNIRP and WHO do not mention any safety level differentiations. So why did Mr. MacIntosh address the 1 milliGauss margin at all and not just leave it by the safe level from near zero to 833 milliGauss?

5. In the 1998 West Kootenay Power Oliver-Osoyoos 63 kV transmission line upgrade hearing case, the Commission’s invited EMF expert Richard Gallagher, head of BC Cancer Research, testified and stated that very high magnetic fields are in the order of 3 – 4 milliGauss and up (see **Enclosure 1**, page 4, line 9 – 14).

6. FortisBC EMF panel and legal counsel are heavily pointing and relying to government agencies guidelines and/or recommendations, all which are not standards (enforced). Thus the actual burden of responsibility lies with ICNIRP/WHO/Health Canada, which agencies are influenced, if not pressured, by industries and politics.

Government agencies can not be trusted, a good sample: Canadian Parliament banned the Ethyl Corporation’s fuel additive methylcyclopentadienyl manganese tricarbonyl (MMT) in April 1997 because of being a dangerous neurotoxin. Ethyl took its suit to NAFTA, Canada settled with Ethyl and agreed to allow the corporation to resume sales of MMT, to pay Ethyl a substantial amount of compensation, and Canada also agreed to mislead its citizens: it announced that “*MMT poses no health risk.*” [source: <http://www.monbiot.com/archives/1998/08/13/running-on-mmt/>]

Present ICNIRP/WHO and Health Canada EMF exposure guidelines are not to be trusted as well as being safe.

7. It is understandable that with regards of the EMF issue, for FortisBC and the Commission agreeing that there is indeed concern as warned by independent scientists (including Dr. Blank during the oral hearing HT 444 / 22 – HT 478 / 9), would set a dangerous precedence, inducing a very very costly domino effect. To circumvent this problem, the Commission is respectfully asked to decide on the safer alternate uphill route Option 2B even without mentioning the EMF issue in the decision. Besides, Option 2B route from the cost’s point of view is also cheaper than the FortisBC proposed Option 1A.

8. In conclusion, when Dr. Blank asked the Hearing Commission Chair:

“How strong a guarantee does one get that once it’s up, if you don’t get the kind of a result [[[1 milliGauss at the edge of power line right-of-way...Karow]]], that you tear it [proposed power line...Karow]]] down ?

Dr. Blank’s question was left by Commission Counsel Fulton and Commission Chair as a rhetorical question. The Option 2B route will put this rhetorical question to sleep.

Option 2B would be a Win-Win-Win solution for intervenors, for FortisBC and last not least for the British Columbia Utilities Commission.

Respectfully submitted,

Hans Karow, CORE

ENCLOSURE 1 FortisBC OTR CPCN Intervenor Final Submission Karow

Following is an excerpt of transcript page 183 – 187 of West Kootenay Power CPCN TL 44 Oliver-Osoyoos public hearing on June 24, 1998; [yellow highlighted by Karow]

Page 183

snip by Karow ////

20 CROSS-EXAMINATION BY MR. HOBBS:

21 MR. HOBBS: Q: Mr. Gallagher, you have indicated in your

22 evidence that there are some epidemiological studies

23 that have shown a weak statistical association between

24 magnetic fields and cancer, but that they are not

25 compelling. Is it fair to say that even those studies

26 that have shown that weak statistical association, even

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1 those studies have not shown or proven causality?

2 MR. GALLAGHER: A: Again, you are trying to infer

3 causality from a small body of evidence, and I would say

4 that that's the wrong technique. You don't infer

5 causality by taking all the positive studies and looking

6 at them only. You infer causality by taking the whole

7 gamut of studies.

8 So if you are asking do I think there are

9 problems with some of those positive studies, yes, there

10 are problems in exactly the same way there are problems

11 with many of the negative studies. Again, what you are

12 trying to do is strike a balance between the validity of

13 a study and the kind of results, the validity of the

14 techniques used and the results they are getting out.

15 MR. HOBBS: Q: Earlier you gave evidence that they have

16 been studying, that epidemiologists have been studying

17 this issue since the '60s. In your opinion, will

18 epidemiological studies ever establish a cause or a
19 relationship between EMF, electro-magnetic fields for
20 that matter, both electric fields and magnetic fields,
21 ever establish a cause and effect with human health?
22 MR. GALLAGHER: A: That's a good question. I don't know
23 whether they ever will. My own view is that the
24 probability that there is a strong relationship here
25 that we have somehow missed today, my view is that that
26 is an unlikely scenario. The one thing that
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1 epidemiologic studies will ever be able to do is to
2 convince you that electro-magnetic fields are totally
3 safe.
4 So probably I would fall somewhere in the
5 middle. I would think that we are going to continue on
6 with a number of studies over the next few years which
7 will show equivocal results, that is to say very
8 slightly positive or very slightly negative and that
9 eventually this issue will be an issue which will
10 gradually die out in people's minds as it is replaced by
11 other more central issues concerning healthcare and
12 disease causation.

13 MR. HOBBS: Q: Because of the higher risk level of those
14 other things.

15 MR. GALLAGHER: A: Yes. I mean essentially -- I mean the
16 positive thing about most of the studies to date is that
17 as the methods for evaluating the risk have gotten
18 better, the odds ratios or the relative risks have
19 generally gotten closer to one. And what that means to

20 me is that if we find an effect in the future, the

21 effect is apt to be a very small one.

22 MR. HOBBS: Q: Right. And may be largely attributable

23 to special or unusual conditions.

24 MR. GALLAGHER: A: Is that your word or is that --

25 MR. HOBBS: Q: I'm asking you.

26 MR. GALLAGHER: A: Well, I don't know. Again, I can't

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1 speculate on that.

2 MR. HOBBS: Q: But it's very likely to be a very weak

3 association if there is one.

4 MR. GALLAGHER: A: What is likely is that we will be left

5 with a little hanging question as to whether there is,

6 an effect, at very high magnetic fields for a very very

7 small number of people who are consistently exposed to

8 those.

9 MR. HOBBS: Q: Right. And those very high magnetic

10 fields are in the order of? Can you just put that into

11 perspective?

12 MR. GALLAGHER: A: Consistently exposed to, say, three

13 milliGauss and up, 3.5 milliGauss and up, 4 milliGauss

14 and up.

15 Let me try and put this into context. In our

16 survey of -- or in our study of childhood leukemia, we

17 found that by and large here in British Columbia

18 characterizing people's personal exposure by having them

19 wear a small electro-magnetic field meter in teddybear

20 backpacks on these kids for 48 hours, only about 12 per

21 cent of children in the province were consistently

22 exposed to magnetic fields at the 2 milliGauss level.

23 When we look at consistently exposed to 3 milliGauss, it

24 nose dives to probably under one per cent. I haven't

25 got the figures but --

26 So we would be looking at some potential kind

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1 of effect for a very small number of kids, very small

2 number of adults very highly exposed.

3 MR. HOBBS: Q: All right, thank you.

4 MR. GALLAGHER: A: And I think that's one of the questions

5 I think Mr. Keroul was getting at with his examination

6 of Don Maische's data. What Maische is saying is that

7 if Lynette and the others in this study had examined

8 magnetic fields of 3 milliGauss and up, they might have

9 reached slightly different conclusions than they did for

10 two milliGauss and up.

11 MR. HOBBS: Q: But it's still somewhat speculative.

12 MR. GALLAGHER: A: Well, I mean the hypothesis tested was

13 that 2 milliGauss and up was the cut point.

14 MR. HOBBS: Q: All right. Thank you.

15 THE CHAIRPERSON: Commissioner Kingsley, do you have any

16 questions of Mr. Gallagher?

17 COMMISSIONER KINGSLEY: Not at this time, thank you.

18 THE CHAIRPERSON: I have no questions.

19 MR. FULTON: I have no re-examination, Mr. Chairman, so if

20 Mr. Gallagher might be excused.

21 THE CHAIRPERSON: Thank you very much for participating in

22 this proceeding, Mr. Gallagher.

23 MR. GALLAGHER: A: Thank you.