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ENERGY FACILITY SITE
EVALUATION COUNCIL

Mr. Allen Fiksdal
Energy Facility Site Evaluation Council
925 Plum Street SE, Building 4
PO Box 43172
Olympia, WA, 98504-3172

Dear Mr. Fiksdal:

Re: Draft Supplemental Environmental Impact Statement for the Sumas 2 Energy Generation Facility (S2GF)

This letter is to advise the Council of Environment Canada's comments on the draft Supplemental Environmental Impact Statement (SEIS).

Air Quality

The Sumas Energy 2 Final EIS (FEIS) adopted by the Council in February 2001 expresses the view that "although the proposed project would result in an increase in air emissions, no significant adverse air quality impacts would occur when the facility is fired with natural gas." (FEIS, 3.1-37)

This opinion on the significance of adverse air quality impacts appears to be based on the finding that when "emissions from the proposed facility were added to "existing" pollutant concentrations to estimate cumulative impacts [the] cumulative emissions of criteria pollutants are below ambient standards." (FEIS, 3.1-37) And further that "ambient air quality standards have been established by EPA and the Washington State Department of Ecology. Primary standards are designed to protect human health with a margin of safety. Secondary standards are established to protect the public welfare from any known or anticipated adverse effects associated with these pollutants, such as soiling, corrosion, or damage to vegetation." (FEIS, 3-1.1)

New studies and opinions continue to be issued regarding the impacts of air quality on human health, which bring into question the sufficiency of these standards for the protection of human health. We wish to bring to your attention the February 14, 2001, opinion of Medical Health Officers (MHOs) Drs. Blatherwick, Guasparini, Loewen, O'Connor and Dr. Copes of UBC (Copes et al, 2001) regarding a study that the MHOs commissioned by Brauer et al. (July 2000) to compare lower mainland air quality between 1994-1998 with that of selected western U.S. metropolitan areas, and estimate the number of deaths attributable to air pollution using data from an epidemiological study conducted for the Fraser Valley.

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The MHOs' stated that *"between 15 and 150 deaths per year in the lower mainland may be attributable to air pollution."*

In addition, there are many non-fatal episodes of illness attributable to air pollution that have not been estimated in this report. These effects include hospitalizations, emergency room and physician office visits, increases in symptoms and restriction of activity."

"Air pollution is an important public health problem. About as many deaths in the lower mainland may be attributable to air pollution as from HIV, accidental falls or traffic accidents."

In response to concerns about the impacts of air pollution, Canadian governments implemented programs to reduce air pollution in the Fraser Valley throughout the 1990's. The Canadian federal government will continue to do so. One example is the Canadian Federal Agenda on Cleaner Vehicles, Engines and Fuels (Canada Gazette, February 2001), which will substantially reduce future air emissions from vehicles and engines.

The FEIS indicates that the S2GF project would result in an increase in air emissions in the region, which will contribute to an increase in concentrations in the ambient air. This would be contrary to previous, current and future efforts to improve air quality in the Fraser Valley and reduce the effects on public health noted in this new reference (Copes et al., 2001).

Greenhouse Gases

We find the discussion of recent global warming research to contain a basic contradiction. The first paragraph asserts, "There is disagreement between atmospheric scientists regarding the likelihood and magnitude of potential global climate change." This is followed by a discussion of two sets of key research documents recently published by the Intergovernmental Panel on Climate Change (IPCC) and the National Academy of Science. The Draft SEIS notes that the National Academy of Science reviewed the IPCC assessments at the request of President Bush and that "The panel concurred with most of the findings by the IPCC". We suggest such concurrence is evidence of agreement, not disagreement, among scientists. In fact, hundreds of climate change experts from many different countries, who comprise the IPCC, are in agreement as to the fundamental aspects of the science underlying this issue. The results of their regular peer-reviewed assessments have been shown to be sound and provide a solid basis of concern over potential climate change. The evidence for human impacts on the global climate is now stronger than ever.

Although there are no national requirements in the U.S. or Canada, the practices and policies adopted by others provide guidance for greenhouse gas offset requirements. To provide some context for the Sumas Energy 2 (SE2) offset proposal, the draft SEIS indicates that the proposal would offset about 6% of the estimated total greenhouse gas

emissions from the project over 30 years. This is compared to Seattle City Light's policy to offset a large part of the greenhouse gas emissions from their increased power consumptions (Resolution Number: 30359, July 23, 2001). The Council should also consider the BC. Hydro commitment, stated in the enclosures, for offsets of greenhouse gas emissions from proposed new plants on Vancouver Island. B.C. Hydro has stated in the enclosed references that they will finance offsets for 5.5 million tonnes of greenhouse gases, an estimated 50% of new GHG emissions from the proposed Vancouver Island plants through 2010.

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Groundwater Quantity

This draft SEIS indicates that the groundwater use by the facility will be decreased by about five per cent from the 2000 proposal. Approximately the same effects as in the 2000 proposal are suggested.

The radius of influence (referred to as the radius of interference in Chapter 3.3) calculations (Figure 3.3-1) for the one foot draw-down are theoretical, meaningful and, through necessity, are based on a number of assumptions that we consider unlikely to be true. This point is raised because of site-specific geological conditions presented in the Geologic Profile (Figure 3.2-2). This profile indicates limited ground water recharge potential south of the border because of the lateral extent of Sumas Valley Clays (Qsc), potential boundary conditions and the presence of significant lenses of fines (Qs and Qsc). These suggest that a significant volume of the groundwaters required to meet new production requirements would come from north of the border. This implies greater draw-downs north of the border and that the range of interference may extend beyond 1 mile from the Sumas well field into Canada.

3

This view is consistent with the FEIS (3.2-5) that states:

The Sumas aquifer in the site vicinity is recharged primarily from precipitation in the uplands to the west and northwest of Sumas, where the aquifer is unconfined. To a much lesser extent the aquifer is also recharged in the valley by downward leakage through the overlying fine-grained alluvial and lacustrine deposits. Groundwater flow in the project vicinity is from the uplands in the west and northwest to the creeks in the Sumas River Valley, and

Although this approach provides an overall indication of the area that could be affected by pumping, it should be recognized that groundwater response to pumping is strongly dependent on the hydrologic properties of the aquifer. (3.2-24)

The Council and applicant should consider preparing a revised outline of the zone of influence based on a more detailed analysis of the heterogeneous nature of the sub-surface geology. The draw-down effect could result in impacts on shallow wells, farm dug-outs and interference with municipal and irrigation wells in Canada.

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The draft SEIS indicates (Section 3.3.2, 2nd paragraph) that “the applicant has committed to providing mitigation for any nearby private wells where the current groundwater use is impaired by increased draw down resulting from the additional pumping related to the S2GF from the Sumas well fields.” For greater certainty, we would like to see an express commitment, should the facility be approved, that all wells and farm dug-outs in Canada and US that are located within the new zone of influence would be included in this mitigation initiative if there are measurable negative impacts.

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To implement this mitigation measure, all wells in Canada should be monitored about every three months for water table level. The greatest effect on water tables, is expected in the area of overlap (zone of interference) between the zones of influence of the three largest well fields in the immediate area -- City of Abbotsford's Farmer Road, Fraser Valley Trout Hatchery and the City of Sumas' municipal well fields. Wells within this zone of interference (estimated to be approximately bounded by Short Street on the west, Huntingdon Road on the north, Sumas Way on the east and the international boundary on the south) should definitely be monitored for effects on water table level, particularly in the summer when the City of Abbotsford is likely to have the greatest usage of its municipal wells.

As a starting point for identifying Canadian wells to be monitored, a list of wells in the area can be accessed at the British Columbia Ministry of Water, Land and Air Protection's web-site on Water Well Data Output: <http://www.elp.gov.bc.ca/wat/waterbot/gwell-out.html>. Monitoring, both pre- and post-operation, should be conducted for several years, as natural seasonal and year-to-year fluctuations in water table level occur. Figure 5 (page 13) in the enclosed report by Hii et al. (1999) presents information on such seasonal and yearly fluctuations on water table levels in the Canadian portion of the aquifer:

Groundwater provides significant base flow to tributaries and creeks discharging into the Sumas River. The Council should ensure that there is a good understanding of the effect of any draw-down that may arise from the operation of the proposed S2GF facility on these base flow discharges and resulting flows in the creeks.

The FEIS (3.2-27) notes this potential effect:

Based on stream measurements taken during pumping tests (Robinson & Noble 1992), pumping from the May Road well field results in a reduction in flow from a nearby spring, which in turn reduces stream flow in the small creek that the spring feeds. As a requirement of the well field permit, this reduction in flow is being mitigated by spontaneous discharge of 18 percent of the well yield into the stream.

The significance of any effect of the increased groundwater pumping on the quantity of water available for base flow to streams in the zone of influence should be evaluated and considered by the Council. Should the facility be constructed, we recommend that appropriate mitigation measures be required, and that a monitoring program designed to measure any impact of the facilities operation on groundwater flow to nearby streams be

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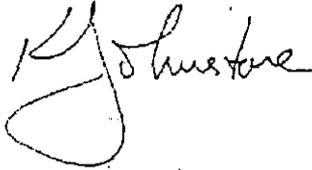
required. This monitoring program should be able to verify predictions of the effect of the increased groundwater pumping on surface waters, and the effectiveness of the mitigation measures. The groundwater monitoring program currently proposed does not appear to be designed to verify predictions of no effect on streams, nor to verify that mitigation measures are effective in protecting flows in creeks.

6

We have included some suggestions that we believe will assist with data presentation in the attachment.

The Council's continuing consideration of our comments is appreciated.

Sincerely yours,



Kirk Johnstone
Manager, Aquatic & Atmospheric Sciences Division
Pacific & Yukon Region
Environment Canada

cc: Ministry of Water Land and Air Protection, Province of British Columbia
Peter Andzans, City of Abbotsford
Mary Barrett, Counsel for the Environment, Washington

References Attached

BC Hydro, 2001: Request for proposal for 5.5 million tonnes of greenhouse gas offsets.
<http://eww.bchydro.bc.ca/news/2001/feb/feb01-23a.html>

Canada Gazette Part I, 2001. *Federal Agenda on Cleaner Vehicles, Engines and Fuels*.
Vol. 135 No. 7, Ottawa, February 17, 2001.

City of Seattle, 2001. Resolution Number: 30359: A resolution outlining Seattle City
Light's strategy for meeting the goal of zero net greenhouse gas emissions and
establishing specific greenhouse gas mitigation targets and timelines.

Copes, R., J. Blatherwick, R. Guasparini, N. Loewen, B. O'Connor, 2001. Air Quality in
the Lower Mainland: Patterns, Trends and Human Health. South Fraser Health Region.

Hii, Basil, Hugh Liebscher, Mike Mazalek and Taina Tuominen. 1999. Ground Water
Quality and Flow Rates in the Abbotsford Aquifer, British Columbia. Environment
Canada, Aquatic and Atmospheric Science Division, Pacific and Yukon Region.
Vancouver, B.C.

References Not Attached

Copes et al. refer to the following secondary reference in their paper. The following
reference is not attached because of its size. A copy can be provided on request.

Brauer, M., J. Brumm, and S. Ebel: 2000. Evaluation of ambient air pollution in the
Lower Mainland of British Columbia: Public health impacts, spatial variability, and
temporal patterns. Final Report to: Administrative Council of Lower Mainland Medical
Health Officers, Vancouver, British Columbia, 56pp.

Data Presentation

The following revisions are suggested for better understanding and clarity of points presented in the report.

Figure 3.2-1 Land Use Within May Road and Sumas Well Field Capture Zones

1. The theoretical radius of 1 foot drawdown interference presented in figure 3.3-1 is significantly larger than that presented in Figure 3.2-1. The new radius of influence should be placed on Figure 3.2-1 to show the future land areas and land use practices that could affect Sumas well field water quality.
2. The location of the geological cross section profile (Figure 3.2-2) should be indicated on Figure 3.2-1.

Figure 3.3-1 Theoretical Radius of Interference: May Road and City of Sumas Well Fields

1. Why does the map and radius of interference stop at the international border?
The radius of interference of the existing well field and increased future groundwater demand will extend the cone of depression and radius of influence further north across the border and should be included in this figure and analysis.
2. Please identify the scale of this map.

Environment Canada October 18, 2001 Comments on Draft Supplemental Environmental Impact Statement for the Sumas 2 Generating Facility

References Attached

BC Hydro, 2001: Request for proposal for 5.5 million tonnes of greenhouse gas offsets. <http://eww.bchydro.bc.ca/news/2001/feb/feb01-23a.html>

Canada Gazette Part I, 2001. *Federal Agenda on Cleaner Vehicles, Engines and Fuels*. Vol. 135 No. 7, Ottawa, February 17, 2001.

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Hii, Basil, Hugh Liebscher, Mike Mazalek and Taina Tuominen. 1999. Ground Water Quality and Flow Rates in the Abbotsford Aquifer, British Columbia. Environment Canada, Aquatic and Atmospheric Science Division, Pacific and Yukon Region. Vancouver, B.C.

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