



CITY OF RICHMOND

REPORT TO COUNCIL

TO: Richmond City Council

DATE: September 21, 2000

FROM: Greg Halsey-Brandt
Mayor

FILE:

RE: Sumas 2 Energy Generation Facility

RECOMMENDATION

It is recommended that Council send a letter supporting the GVRD Planning & Environment Committee position on the Sumas 2 Energy Generating Facility to the Energy Facility Site Evaluation Council in the State of Washington, and to the Provincial Environment Minister.

A handwritten signature in cursive script that reads "Greg Halsey-Brandt".

Greg Halsey-Brandt
Mayor

Att. 1

REPORTANALYSIS

The attached correspondence from the Chief Administrative Officer of the GVRD outlines the history of the Sumas 2 Energy Generating proposal. The report was discussed at the September 13, 2000 meeting of the GVRD Planning & Environment Committee, with the motion as outlined in item 4.1 being adopted. Unfortunately, the deadline for submissions to the State of Washington Energy Facility Site Evaluation Council, is September 28, 2000, and the GVRD Board meeting is not until September 29th. Therefore, the Planning & Environment Committee is recommending that member municipalities submit their comments and letters of support directly to the Site Evaluation Council in Olympia, Washington.

As you are aware, the Lower Mainland and Whatcom County comprise one large airshed, and emissions do not recognize international borders. This airshed is already rated as having the third worst air quality in Canada. The construction of the Sumas 2 facility would significantly worsen the air quality of our shared airspace, and would certainly not be approved if it was located on the Canadian side of the border. Therefore, it is clear that this facility is being proposed for the wrong geographic location. Urgent consideration should be given to its placement in a more appropriate location, and that the technology to reduce emissions be significantly improved, as outlined in the GVRD recommendation. A more complete analysis is contained in Attachment A, which is available for review in the Clerks' Office.

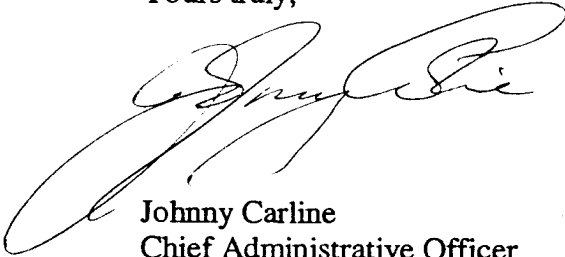


Greg Halsey-Brandt
Mayor

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Thank you for your Council's consideration of these matters. If you have further questions, please do not hesitate to contact us.

Yours truly,

A handwritten signature in black ink, appearing to read "Johnny Carline". The signature is fluid and cursive, with a large loop at the end.

Johnny Carline
Chief Administrative Officer

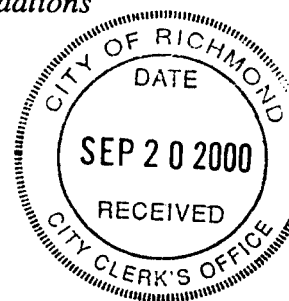
Enclosure

Planning & Environment Committee Meeting of September 13, 2000

Agenda Item 4.1 - Sumas 2 Energy Generating Facility

Main Motion (as amended)

- a) *That the GVRD Planning and Environment Committee forward the report dated August 28, 2000 titled "Sumas II Energy Plant" to the Energy Facility Site Evaluation Council (EFSEC) in the State of Washington, to the National Energy Board, and to the provincial and federal ministers of energy and the environment,*
- b) *That the GVRD Planning and Environment Committee advise EFSEC that it strongly opposes the siting of the proposed Sumas 2 Energy Generation Facility within the bounds of the international Lower Fraser Valley airshed, and if the plant does proceed at the proposed location, then:*
 1. *It opposes the use of Selective Catalytic Reduction technology as a means of controlling the resulting emissions from the proposed facility with its consequential and unnecessary introduction of a toxic air contaminant, ammonia, into the atmosphere,*
 2. *It will only support the application of emission reduction technologies for this proposed facility that: do not introduce ammonia into the atmosphere: are capable of meeting an emission limit for nitrogen oxides of 1.0 parts per million (by volume) or less; and which provide for a minimum removal efficiency of 90 percent for both carbon monoxide and volatile organic compounds, and*
 3. *It further requests that curtailment of the operations of such a facility be considered during periods of adverse air quality, as indicated by an Air Quality Index reading, within the Lower Fraser Valley air quality monitoring network, in excess of 50.*
- c) *That staff be directed to convey the above information to EFSEC in writing, and to also accept the offer from EFSEC to hear oral comments from Canadian governments on September 28th and present further technical information relevant to the Board's position,*
- d) *That staff participate, with federal and provincial government staff, in public drop-in sessions to review the Lower Fraser Valley Air Quality Coordinating Committee Summary Report on the impacts of the Sumas 2 facility on Canadian air quality and public health,*
- e) *That the copies of this report and the related correspondence to the above be provided to the City of Abbotsford and Fraser Valley Regional District;*
- f) *That the Chair of the Planning and Environment Committee forward this report to EFSEC, by the September 28th deadline for submitting written comments on the draft PSD Permit and Fact Sheet, to provide notice to EFSEC of the recommendations approved by the Planning and Environment Committee; and*
- g) *That this report be forwarded to the GVRD Board for endorsement.*





Committee Meeting Date: September 13, 2000

To: Planning and Environment Committee

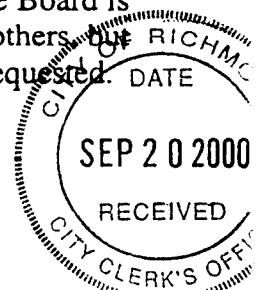
From: Barrie Mills, Manager, Air Quality

Date: August 28, 2000

RE: Sumas Energy 2 Generating Facility

Recommendation:

- a) That the Board forward this report to the Energy Facility Site Evaluation Council (EFSEC) in the State of Washington, to the National Energy Board, and to the provincial and federal ministers of energy and the environment,
- b) That the Board advise EFSEC that:
 1. It strongly opposes the siting of the proposed Sumas 2 Energy Generation Facility, as it is presently proposed, within the bounds of the international Lower Fraser Valley airshed,
 2. It opposes the use of Selective Catalytic Reduction technology as a means of controlling the resulting emissions from the proposed facility with its consequential and unnecessary introduction of a toxic air contaminant, ammonia, into the atmosphere,
 3. It will only support the application of emission reduction technologies for this proposed facility that: do not introduce ammonia into the atmosphere; are capable of meeting an emission limit for nitrogen oxides of 1.0 parts per million (by volume) or less; and which provide for a minimum removal efficiency of 90 percent for both carbon monoxide and volatile organic compounds, and
 4. It further requests that curtailment of the operations of such a facility be considered during periods of adverse air quality, as indicated by an Air Quality Index reading, within the Lower Fraser Valley air quality monitoring network, in excess of 50.
- c) That staff be directed to convey the above information to EFSEC in writing, and to also accept the offer from EFSEC to hear oral comments from Canadian governments on September 28th and present further technical information relevant to the Board's position,
- d) That staff participate, with federal and provincial government staff, in public drop-in sessions to review the Lower Fraser Valley Air Quality Coordinating Committee Summary Report on the impacts of the Sumas 2 facility on Canadian air quality and public health,
- e) That the copies of this report and the related correspondence to the above be provided to the City of Abbotsford and Fraser Valley Regional District, and
- f) That the Fraser Valley Regional District and City of Abbotsford be advised that the Board is unable to financially support the intervention status of the City of Abbotsford and others, but that it continues to offer GVRD staff to assist their intervention efforts, as may be requested.



Recommendation (cont.):

- g) That the Chair of the Planning and Environment Committee forward this report to EFSEC, by the September 28th deadline for submitting written comments on the draft PSD Permit and Fact Sheet, to provide notice to EFSEC of the recommendations which the GVRD Board will consider at its next regularly scheduled meeting on September 29th; and request that EFSEC fully accept, into their adjudication of the proposed Sumas 2 facility, any and all resolutions which shall be adopted at this September 29th meeting concerning that facility.
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1. PURPOSE

To provide information on the proposed Sumas 2 Generating Facility and discuss the impact of the related emissions, in the context of the Board's regional air quality management mandate.

2. CONTEXT

A 660-megawatt (MW) power plant has been proposed near Sumas, Washington. Known as the Sumas 2 Energy Generation Facility, it would be located about one kilometre south of the Canada/US border, near an existing 125 MW power plant. Before such a facility can proceed in Washington, application must first be made to the Energy Facility Site Evaluation Council (EFSEC). This Council was created to provide a one-stop licensing agency for major non-hydro energy projects. EFSEC certification is the state licensing process for the siting, construction, and operation of a major energy project.

Certification and Permitting

Details of the entire certification process are contained in **Attachment A**. Briefly, it involves a preliminary site study, application submittal and review, public hearings, environmental impact statements, adjudicative proceedings/permit review, and a recommendation to the Governor. If the Governor approves the recommendation, a Site Certification Agreement is issued. The latter specifies all of the environmental, social, economic, and engineering conditions that the applicant must meet for construction and operation throughout the life of the project.

In tandem with the certification process, EFSEC also develops any necessary air and water discharge permits. Additional hearings aid in determining the related permit conditions. Under federal regulations, air discharges may require a Prevention of Significant Deterioration (PSD) permit. The Environmental Protection Agency has delegated responsibility for issuing the PSD permit to EFSEC and the latter, in turn, has contracted with the Washington Department of Ecology to draft the permit. The PSD permit specifies the kinds and levels of contaminants that may be discharged to the air. The applicant must prove that the project will meet all local, state, and federal Clean Air Act standards before EFSEC will issue the permit.

The EPA has also granted EFSEC the authority to issue any required National Pollutant Discharge Elimination System (NPDES) permits for discharging wastes in the state's waters. Again, the applicant is required to prove that any discharge to state waters will meet all the standards in the state and federal Clean Water Acts. Any PSD and NPDES permits that are issued become attachments to the previously mentioned Site Certification Agreement.

The Sumas 2 Application(s)

This full certification and permitting process is open and extensive, but it was not the path that was being pursued when the former Air Quality Committee first heard of the Sumas 2 proposal in April, 1999. The proponent had applied to EFSEC for expedited processing of their application, on grounds that the nature of their proposed facility did not warrant adjudicated public hearings or the related environmental impact analyses and public involvement. Both the environmental impact of the facility and the potentially effected area (narrowly focused on the 37 acre parcel of land in which the facility would be developed) were not viewed as significant.

Shortly after the Sumas 2 project came to light at an April 1999 interagency air quality meeting of elected officials from FVRD, GVRD and Whatcom County, an extensive briefing with the proponent and EFSEC officials was arranged at a meeting of the Lower Fraser Valley Air Quality Coordinating Committee (AQCC). The latter is composed of the senior air quality program managers from GVRD, FVRD, the federal and provincial governments, and Whatcom County's Northwest Air Pollution Authority. It provides integrated air quality program management for the common international airshed by coordinating the planning, monitoring and regulatory activities of all the related agencies.

The AQCC soon sent a letter to EFSEC, raising a number of specific questions about the facility and identifying the need for a more comprehensive assessment of its environmental impact. Others also raised concerns and it is evident from their Council minutes that EFSEC, itself, was not confident that all of the required answers to these issues could be provided within the accelerated timeframe for an expedited review.

The Sumas 2 proponent subsequently withdrew its application for an expedited Site Certification Agreement to enable it to carry out additional assessments of both the facility's design and its impact. The Air Quality Committee was advised of this withdrawal in September 1999, through receipt of a letter from EFSEC that provided information on the extended review process that would now begin. EFSEC also advised that Canadian air quality agencies were to be included in establishing the criteria for the newly required environmental impact assessment.

A revised application was submitted to EFSEC in early 2000 that provided major design changes to the original proposal. Generating capacity was reduced by 10%; water usage by 75%; wastewater flow by 25%; nitrogen oxides emissions by 33%; and the turbines will be internally housed to reduce noise. However, while the original design used natural gas as the only fuel, oil firing was now introduced by adding a new distillate fuel storage system and dual firing capacity.

The design of the facility continues to change in response to concerns that have been raised by government agencies and the public. For example, the proponent has very recently committed to reducing nitrogen oxides emissions by another 33% to 2 parts/million (ppm), when firing with natural gas (emissions during periodic oil firing are estimated to be 6 ppm).

Reviews and Hearings

In the Spring, EFSEC released a draft Environmental Impact Statement, which has formed the basis for public discussion of the proposed facility. This initially took place in general public meetings and has also been the subject of a series of adjudicative proceedings. The latter are trial-like hearings to allow the applicant and opponents to present information to support their

cases. To participate in these hearings and join all aspects of the legal process, parties likely to be affected by possible impacts of the energy facility's siting petition EFSEC for intervenor status.

The following parties were accorded intervenor status: Sumas Energy 2, Inc., the Department of Ecology, the Department of Fish & Wildlife, the Department of Community, Trade & Economic Development, the Washington Utilities and Transportation Commission, Whatcom County, the City of Sumas, the City of Abbotsford and the Abbotsford Chamber of Commerce (British Columbia, Canada), the N.W. Energy Coalition and the Washington Environmental Council, the Bonneville Power Administration, and Constance Hoag (a Whatcom County Councillor).

None of the members of the AQCC agencies applied for intervenor status. The agencies have been working together to assess the impacts of the project through the Province of BC, pursuant to the latter's role as the relevant signatory to the BC/Washington Environmental Accord. The agencies have also been carrying out extensive modeling of the Canadian air quality and health impacts of the proposed facility and will be submitting a detailed report of their findings to EFSEC in the end of September. A draft of that report is included as **Attachment B**.

A formal AQCC group intervention was actually pursued through the Province; however the Province determined that its direct contact with EFSEC and other relevant political and administrative levels in Washington State provided the best forum for advancing any concerns related to the project. It was also recognized that these initial proceedings would be followed by additional hearings on the conditions for the PSD permit, which are just now about to begin.

Provincial and GVRD staff did provide detailed technical support for the City of Abbotsford, in that City's preparation of material for the adjudicative proceedings, and a GVRD and/or Provincial staff member has attended all general and adjudicative proceedings and public meetings. The FVRD has provided financial support to the City of Abbotsford and, as noted in **Attachment C**, has requested that GVRD also financially support that City.

On August 3, 2000, the Minister of Environment, Lands and Parks sent a letter to EFSEC (**Attachment D**), advising that she could not support the Sumas 2 plant, as proposed. She states that decisions regarding the location of such facilities must take into account the environment in which they will operate, and notes that the Fraser Valley airshed already suffers from significant air quality and visibility issues. As the air quality impacts and potential health risks posed by the proposed plant outweigh its benefits, EFSEC is requested to not approve the facility.

In addition to the adjudicative hearings, in which direct participation is limited to intervenors, a series of public hearings continues to be held to hear testimony from the public and others on the Sumas 2 project. Two such hearings occurred in late July, and a third is scheduled for September 27 in Everson, Washington. Because of their unique ability to comment on Canadian air quality impacts and standards, EFSEC has also offered to take oral comments from the Province and any other non-intervening governments, such as the GVRD, at a special time set aside on September 28. This would be in addition to EFSEC's receipt of the earlier cited AQCC Summary report.

As development of conditions for a possible PSD permit proceeds in tandem with all of the above, a draft PSD Air Discharge Permit and reinforcing draft Fact Sheet have been prepared by Washington's Department of Ecology. EFSEC released these draft documents for public comment on August 25, noting that this release should in no way be interpreted to represent their

future conclusions, conditions or recommendations to the Governor. Written comment on these draft materials can be submitted by September 28, and an additional hearing in Everson will be provided in the evening of September 28 to hear any oral comments from the public and others.

Following all the hearings and submissions of materials, EFSEC will study the record, weigh the evidence, and then recommend that the Governor approve or deny the project application. If it finds the project should proceed, it will recommend that the Governor approve the project and will draft a Site Certification Agreement for his signature. If EFSEC finds the project will have significant impacts that cannot be mitigated, or it is not in the best interest of the state, it will recommend that the Governor deny the project.

The Governor has 60 days to consider the recommendation and may:

1. Approve the recommendation, and execute the draft Site Certification Agreement
2. Deny the application
3. Direct EFSEC to reconsider certain aspects of the project or draft Site Certification Agreement (if one was included in the recommendation).

The Canadian Challenge

At the end of this very long process, Canadian agencies and citizens may have very little to do with the final approval or denial of the proposed project, but will have a very intimate interest in its impact on the receiving environment which they share with their US neighbours.

The potential annual emissions from Sumas 2 are estimated as: 156 tons of nitrogen oxides (NO_x); 106 tons of carbon monoxide (CO); 45 tons of sulphur oxides (SO_x); 156 tons of volatile organic compounds (VOC); 223 tons of inhalable particulate (PM₁₀); and 9.3 tons of sulphuric acid mist. Ammonia would be the main emitted toxic air pollutant (with a potential annual level of 276 tons), with lesser emissions of other toxic air pollutants such as benzene, acrolein and polycyclic aromatic hydrocarbons.

Based on the most recent 1998 emission inventory, these emission levels place the Sumas 2 plant within the top 10 point sources in the region for each of these air contaminants. Existing regional air quality has not met Canadian and GVRD ambient air quality objectives and additional information has recently come forward, which seriously questions the efficacy of these criteria to adequately protect public health.

As the primary authority for air pollution control and air quality management within the Greater Vancouver Regional District, the GVRD Board has a number of alternative positions it can take on both the project and its participation in the related examination processes which will take place this month. It is also apparent that both the Sumas 2 proponent and the regulating agencies have legitimate alternatives before them to mitigate the issues at hand.

3. ALTERNATIVES

Emissions Controls

On August 25, 2000, EFSEC released a draft PSD Fact Sheet as the technical and policy foundation for specifying conditions in any PSD Permit. It is authored by Washington's Department of Ecology, which is also contracted to write the actual PSD permit. The full 19 page

Fact Sheet is appended to this report as **Attachment E**, and notes that the most recent proposals for the facility include:

- a) Two 334.5 MW combined-cycle, combustion turbines and associated components;
- b) A 4.5 mile pipeline, delivering 112 million cubic feet per day of Canadian natural gas;
- c) A 5.9 mile transmission line to BC Hydro's Clayburn Station, just outside Abbotsford;
- d) A process/potable water pipeline from a modified City of Sumas water system, delivering a maximum of 849 US gallons per day to the plant site; and
- e) A wastewater discharge pipeline to a modified City of Sumas sewer system, certified for a maximum discharge of up to 260 US gallons per minute.

The Fact Sheet's primary role is to review how Best Available Control Technology (BACT) has been applied to reduce the plant's emissions. The "Best Available" part of BACT is a judgement that considers cost effectiveness, economic, energy, environmental and other impacts. The BACT assessment is made on a contaminant-by-contaminant basis, and while such a process generally results in good technical solutions, it usually does not venture into holistic and innovative considerations. Therefore in this application of the BACT assessment process, demand-side management issues such as questioning the need for the plant; or a wholesale plant relocation to another less sensitive airshed; or using renewable energy sources such as wind, wave and solar power are not considered.

The BACT assessment goes through a systematic analysis of options for controlling each contaminant. It reviews the availability of specific technologies, starting with those that provide for the most complete removal of pollutants. Comparing these top systems to the next most effective, it makes judgments as to the real environmental need for the better systems, based on the incremental cost for their installation. By such a process, the Sumas 2 Fact Sheet eventually discounts the need for installing the top control systems, and in one important area, for any real system at all. The principal chosen control technology adds an air pollutant the Fact Sheet notes is toxic in its own right, which could well aggravate existing visibility problems in the airshed.

The latter pollutant is ammonia, and all of the potential annual emission of 276 tons results from simply selecting a Selective Catalytic Reduction (SCR) system over the more effective SCANOX Catalytic Absorption system. The US Environmental Protection Agency certified SCANOX technology as the Lowest Achievable Emission Rate (LAER) technology for gas turbine power plants, some time ago. The LAER rating is one step cleaner than a BACT designation and is usually applied in areas that are not attaining US ambient air quality standards.

The SCANOX technology is new and has been first applied to smaller capacity combined-cycle units. The supplier of this technology has aggressively pursued the adaptation of the technology to larger capacity units, however, and now offers it on the market for such applications. The Fact Sheet does note that a proposal has been made for a 510 MW unit in California, but then expresses undocumented concern for applying SCANOX technology to the Sumas 2 plant.

However, the Environmental Protection Agency has given their documented support for applying SCANOX technology to large capacity combined cycle turbine units. The related position of the Regional Administrator for their Region 1 office is noted in **Attachment F**, in dealing with a surge in proposals for such units in its New England area. He states that "Based on the information currently available to us, the Region now considers SCANOx a technically feasible

and commercially available air pollution control technology that is expected to obtain emission levels for criteria pollutants such as NO_x, CO and VOC comparable or superior to previously-applied technologies for large combined cycle turbine applications."

How good is the technology? The Fact Sheet notes the SCONOX vendor has guaranteed a 2 ppm level NO_x emission (which the Sumas 2 proponent recently offered to match with their chosen SCR technology). However, test results of the SCONOX technology indicate that it is capable of meeting a 1 ppm level or lower. In early February, the supplier provided a firm quote for a proposed 840 MW power plant to be located in the heart of Los Angeles. The SCONOX project would be the cleanest power plant in the world with a 1 ppm NO_x emissions rate. Other promising test results continue to be measured, which has even prompted SCONOX's vendor to suggest emissions from an 840 MW power plant could "be roughly equivalent to 2 city buses"¹.

There are understandable risks and pitfalls in any of us trying to become instant experts on SCONOX technology. However, the information that is readily available suggests that a far greater burden of proof should be placed on both the proponent and the Washington Department of Ecology, as author of the Fact Sheet/PSD Permit, to unequivocally prove that the technology cannot be successfully applied to the Sumas 2 proposal. The technology's additional prowess at removing other air contaminants further underlines the urgent need for this assessment.

The Fact Sheet itself notes that, compared to the chosen SCR technology, SCONOX would cut CO emissions in half, and reduce VOC emissions by 90 percent. Then the Fact Sheet goes on to discount an alternative option for VOC control (catalytic oxidation), which would have reduced emissions by 80 percent and opts, instead, for selecting natural-gas firing and "good combustion practices" as the sole means of reducing this contaminant. This does little to reduce this precursor to urban smog that combines with NO_x to create ground-level ozone. But perhaps the most disturbing consequence of choosing an SCR system over an SCONOX one is that SCR will potentially allow 276 tons of the toxic air contaminant, ammonia, to annually "slip" into the air. In the alternate BACT technology (SCR), ammonia is directly used in NO_x removal and, because of the ongoing variability in an emission's concentration in the latter, periodically is used in excess to the quantity is absolutely required to remove all of the NO_x. Ammonia slip refers to that surplus amount which then escapes, unused, into the atmosphere.

Air Quality - Attainment, Containment, or Decay-ment

One of the chief reasons why the Fact Sheet applies a BACT, rather than LAER, assessment of control technology is that the latter is primarily considered for "non-attainment areas". The EPA defines a non-attainment area as a locality (county) where air pollution levels persistently exceed National Ambient Air Quality Standards. Designating an area as non-attainment is a formal rulemaking process and EPA normally takes this action only after air quality standards have been exceeded for several consecutive years. The analysis is a statistical one, using three years of data to calculate if an area has attained the standards. Management plans must be put in place in non-attainment areas to bring them into compliance with the standards within a specified timeframe.

In the current context, Whatcom County would be considered an attainment area, as local air quality monitoring data passes the related statistical calculation. However, this calculation does not allow for the fact that Canadian and GVRD air quality objectives are more stringent than the

¹ Goalline Environmental Technologies, Catalytic Solutions for Clean Air, Vol. 1, Issue 2

US criteria. Neither does it recognize that Canadian jurisdictions decided, over a decade ago, to not wait until air quality deteriorated and then develop reactive "management plans". Instead, proactive Canadian plans include federal NOx/VOC and smog management plans, BC Clean Air Strategies, and formal Air Quality Management Plans from both the FVRD and GVRD.

In 1994, the GVRD adopted Canada's first regional Air Quality Management Plan (AQMP). The primary AQMP goal was to reduce common air contaminant² emissions by 38 percent (from 1985 levels). To that end, the AQMP contained 54 emission reduction measures, and the Board also approved 33 specific policies and recommendations. To date, the 38 percent reduction target has actually been exceeded, with emissions now 40 percent less than they were in 1985. On a per capita basis, the emission reduction is nearly 60 percent.

The AQMP predicted that lower emissions would result in improved air quality, and this has also occurred. Peak levels of the individual contaminants in the air we breathe are down by up to 55 percent from 1987 and, with one exception, average levels are also down (by up to 36 percent). The exception is ozone³, the principle constituent of photochemical smog, for which average levels are actually 13 percent higher than in 1987.

While it seems that we can generally breathe easier, in recent years we have begun to break down the measurement of particulate matter into its finer constituents to reflect their greater importance to public health. We also include estimates for these fine particulate fractions in our inventories of emission sources, as well as additional estimates for the greenhouse gas emissions associated with climate change. The emission inventories also include forecasts for future levels.

Emissions of both fine particulate and ozone precursors are predicted to slowly increase, as a result of future regional growth. Increased energy use will also result in higher emissions of greenhouse gases. We may already be observing the initial signs of climate change in the extreme global weather events of the past few years, and we note that the seven hottest years on record have all occurred since 1990. While the international Kyoto protocol aspires to reduce greenhouse gas emissions by six percent in 2010 (from 1990 emission levels), our inventory forecasts show us missing that mark by nearly 30 percent.

New data on the health effects of fine particulate and ozone are also appearing, and they suggest that there is no "absolutely safe" level for human exposure to these contaminants. Scientists have identified Reference Levels, above which statistically significant changes in human health effects can be observed. In this regard, the related Science Assessment document states that "the strength of the epidemiological evidence for mortality and respiratory hospitalization effects at current levels of ambient air are significant, consistent, coherent, robust and compelling."⁴

Locally, an Environment Canada report has concluded that these Reference Levels are exceeded 43 percent of the time for ozone, and 5 percent of the time for fine particulate. The 43 percent figure is actually an average based on 1999 monitoring data for Surrey, Langley and Chilliwack. As noted in the figures of **Attachment G**, in Langley, 50 percent or more of the ozone readings

² Common air contaminants include Carbon Monoxide (CO); Sulphur Oxides (SOx); Nitrogen Oxides (NOx); Volatile Organic Compounds (VOC) and Total Particulate Matter (PM)

³ Ozone is not directly emitted into the air, but is chemically generated by the reaction of its precursors, VOC and NOx, in the presence of sunlight. Hence, we use the term "photo - chemical smog".

⁴ National Ambient Air Quality Objectives for Ozone – Science Assessment Document, page S-50

can annually exceed the related Reference Level. The underlying message seems clear - any improvement in ambient levels of these pollutants should have public health benefits.

The Environment Canada report is included as **Attachment H**, and indicates that every 10 part per billion (ppb) increase in one-hour maximum ozone levels equates to a 1% increase in respiratory hospital admissions and 0.6% increase in all non-accidental mortalities. Locally, UBC medical studies also associate rising fine particulate levels with premature deaths; and increased hospitalizations, emergency room visits, days of restricted activity, and school absenteeism, due to respiratory symptoms. Nationally, Health Canada estimates for annual premature deaths attributable to air pollution in major cities have been 5,000, from which a figure of around 500 might be prorated for the Lower Mainland. Other studies by local health officials are beginning to confirm this latter estimate.

Background levels of ozone within pristine areas can be above the determined Reference Level at which health effects can statistically be observed. The elderly and those with existing respiratory problems first feel these health effects, and then as air pollution levels increase progressively, more of the general population. Higher background levels may therefore mean that a broader cross-section of the community is potentially at ongoing risk to certain health effects, and this must be considered in decisions to add additional pollutants.

Work to reduce emissions continues, directly through AQMP reduction measures, and indirectly through both the Livable Region Strategic Plan and Translink's strategic plans. But the arrival of each new resident to the region brings additional cars, home furnaces, barbecues, etc. which add to the existing pollution load. Individually, each additional emission may only be a small one but, if left unchecked, the collective impact will be significant. On a larger scale, individual facilities such as the proposed Sumas 2 plant present additional planning problems, as it would singly add a substantial new emission load to the region's airshed.

Will reductions in the emissions from existing sources allow future growth and clean air quality progress to happen together, or will we need to temper our aspirations for one or both of these? How will we weight the benefits of economic growth against possible increases to health related costs? Serving the answers to these and other questions will be the mission of the next integrated AQMP for the airshed, which GVRD and FVRD staff are now developing together.

There are three possible air quality paths that lie before the region's citizens:

1. A Healthy Horizon – Attainment of air quality that more fully protects human health.
2. Preserve & Protect – Containment of emissions to prevent further air quality deterioration.
3. Delay the Decay – Reduction in the rate of emission growth to delay the decay-ment!

None of these three paths would appear to be well served by the present Sumas 2 proposal.

Ambient Air Quality Objectives and Targets

As the Fact Sheet's BACT conclusion for lesser emission controls for Sumas 2 relies, in part, on its inference that local air quality has "attained" the desired quality level, some discussion of alternative air quality goals and objectives will clarify the limitations of this determination.

The Fact Sheet includes a limited air quality analysis of the plant's impacts on the environment. It includes short sections on predicted compliance with national US and Canadian ambient air quality criteria, and assesses other impacts, such as visibility and pollutant deposition on flora and fauna. Analysis of the plant's impact on ground level ozone primarily focuses on the more lenient US air quality criteria, indicating any increase in ambient concentration would not exceed their "allowable increment". Analysis of particulate levels focuses only on the coarser fraction (PM10); confuses the related GVRD objective as a "Maximum Desirable" target; and states that it is unlikely that the plant would cause the latter to be exceeded (the objective is used to indicate an Index of 50; the Maximum Desirable target is half that amount). Similarly, visibility impacts and deposition impacts on vegetation, soils and aquatic resources are viewed as insignificant.

Interpreting air quality objectives can be confusing, at best, but is made more difficult when jurisdictions seemingly disagree on the health and other environmental implications of given levels of an air pollutant. As all jurisdictions draw from the same or similar scientific resources for guidance on these matters, it would appear that any differences are caused by the weight that is given to the implications of the basic information. Thus the economic consequences of action may be set against the public health consequences of inaction and both are poorly served if the related analyses are not broadly inclusive.

In the past, GVRD has defined clean air by the degree to which air quality measurements meet adopted air quality objectives for individual contaminants. Most of these objectives have been federally adopted, but in the absence of some related criteria, the GVRD Board has also adopted its own. Both these yard-sticks and measured parameters have changed with time. Thus dustfall readings have given way to soiling indices that measure the blackness of the dust, then total suspended particulate levels, and finally to the fine particulate which actually goes deep into our lungs. Dustfall on our porches was unsightly, but we now know that fine particulate is unhealthy.

In the past, federal yard-sticks or objectives have been designated as Maximum Desirable, Maximum Acceptable and Maximum Tolerable objectives with the following general meanings:

Max. Desirable	Long term goal for air quality, anti-degradation limit for unpolluted areas
Max Acceptable	Adequate protection against most environmental effects (pre 1995)
Max Tolerable	Act, without delay, above this level to protect health of general population

In 1989, the GVRD Board directed staff to implement the Maximum Desirable Objectives in the region. Most recently, new Canada-wide Standards for fine particulate and ozone have been published. These are statistical standards calculated over multi-year periods and are intended to help track air quality improvements over time. The Reference Levels for ozone and fine particulate are below the new Canada-wide Standards, but local authorities are encouraged to adopt more stringent objectives, wherever possible, to minimize any adverse health effects.

The Fact Sheet raises the subject of non-attainment, which in the case of Ozone, refers to comparisons with the more lenient US standard. Non-attainment is further classified into many degrees, which **Attachment I** visually shows with comparisons to Canadian air quality objectives and the Reference Level. The maximum ozone level in GVRD for 1988 is also shown for comparison. In the wake of the AQMP measures implemented by all government levels, air quality measurements currently comply with the Maximum Desirable Objectives over 95 percent

of the time, but future levels are less certain. The current AQMP projections are for air quality to slowly deteriorate towards the higher levels of the past, without additional emission measures.

The system for classifying US non-attainment status is changing with their adoption of new ozone standards. While the new 0.08 ppm standard is numerically lower than the current 0.120 ppm one-hour standard, they are calculated over a longer eight-hour period. Since many US cities have sustained ozone episodes that are above the current one-hour standard, this will reduce the overall pollution load that their citizens experience. However, it will not fully address ozone's health impacts, as the Canadian Reference Level of 0.020 ppm clearly indicates.

Canada has also adopted new Canada-wide standards on a similar eight-hour basis to the US standard. The new eight-hour standard is 0.065 ppm, which primarily addresses eastern Canada's experience with higher ambient levels. The latter are caused, to a large degree, by the substantial long-range transport of emissions from the eastern US states. However, this is not the situation in the Lower Fraser Valley airshed. In this area, the quality of the air we breathe is overwhelmingly influenced by our own homegrown emissions.

In promulgating the new standard Canada has clearly stated that while these standards seek to improve air quality in some areas, they will not fully protect public health. Provincial and local air quality jurisdictions, such as the GVRD, are strongly encouraged to adopt more stringent criteria, where possible, to protect public health. As GVRD air quality is already very close to being in full compliance with the Board's Maximum Desirable target, there seems little reason to allow it to degrade to the higher levels of the heavily industrialized eastern areas of the continent.

One issue that increasingly concerns the public is regional visibility. There are currently no local objectives for visibility but, with the recent installation of visibility monitors into the regional monitoring network, the Board will be considering a related benchmark. This could draw on criteria that have been adopted elsewhere, or adopt local targets based on surrounding vistas. These visibility targets would introduce objectives that are based on aesthetic values, rather than health impacts. But as visibility is largely impaired by fine particles in the air, improved visibility would also bring an accompanying benefit to public health.

Regional visibility is briefly discussed in the Sumas 2 Fact Sheet. Oil-firing periods for the plant are identified as the ones most likely to result in limited visibility impacts. Ammonia emissions could also aggravate regional visibility, through its potential role to the formation of secondary particulate. Public comments for the region's existing visibility raise concerns for suggestions of additional degradation.

These visibility concerns, and the region's ongoing experience with air quality levels at which statistically significant changes in human health effects can be observed do not support the Fact Sheet's inference that we have "attained" the quality of air that we either desire or deserve.

Emission Reduction Approaches

The GVRD Board's existing emission control strategies, and potential alternate strategies for the future need to be considered in reviewing the appropriate application of BACT or LAER control technology to the proposed Sumas 2 plant.

In addition to adopting a 38 percent emission reduction target in 1994, the Board also approved specific policies in the AQMP. These ask that new facilities incorporate the most up-to-date control technology, and that existing facilities phase-in best available retrofit technology on a schedule that considers air quality management priorities and economic concerns. While the AQMP advocated that implementation schedules and priorities make optimum use of the community's available resources, it was silent on how this balancing should be accomplished.

Prior to the adoption of the AQMP, the Board had previously directed staff to ensure that the issuance of new permits did not prevent air quality objectives from being maintained, and this provides additional guidance for site-specific evaluations. The proposed Sumas 2 power plant is one example where this direction should be applied to assess whether the additional emissions could cause air quality levels to exceed our ambient air quality objectives.

The reduction measures in the existing AQMP are only a sub-set of those which have been applied in more polluted areas of North America, such as southern California. Some AQMP measures have yet to be implemented and additional measures have already been identified in both the Air 2000 program and the initial studies for the next AQMP. Unfortunately, additional emissions associated with regional growth are also predicted to occur.

The Board could consider several alternate strategies. If it adopted more lenient air quality goals, it could allow additional emissions to proceed, with or without specific control technologies. Alternatively, if improving air quality or maintaining the existing quality is desired, the Board could more closely align its emission reduction strategies with those of southern California. And it could add further reduction measures as they are identified.

Another approach could be to allow additional emission sources, but restrict their operation during periods of degraded air quality. The GVRD permit for the Burrard Thermal plant curtails the latter's operation substantially when Maximum Acceptable air quality levels are predicted to occur. It is the only plant to be so curtailed, but the Board could direct that this principle be broadly applied to all major emission sources. The point at which this curtailment is mandated could also be adjusted to Maximum Desirable levels or any other higher or lower levels.

The Board could also advocate emission freezing or trading, to ensure no net emission increase results from adding new industry or other urban development. A related principle in *Creating Our Future* encourages municipalities to plant two trees for every tree that is cut. An emission-based approach would require that existing emissions be reduced before new ones are added.

The Sumas 2 proponent has actually been pursuing the latter option of emission offsets, in direct discussions with both the GVRD and Province. One approach within the GVRD would see the proponent providing direct financial resources to support the upgrading of existing boilers within the GVRD. Upgrading existing equipment has been one of the issues that stakeholders have raised in the current consultations for developing a GVRD Emission Regulation for such sources.

While some would welcome such an offer of financial support, it would trade less pollution in the GVRD urban core for more pollution in the eastern Fraser Valley. Other than the obvious issue of fairness to the community which is on the receiving end of the equation, this trading is potentially problematic for several reasons. First, the photochemical production of ozone depends on specific quantities and ratios of NO_x and VOC precursors. In some cases, the

reaction can be accelerated or dampened by subtle changes in the ratio. Therefore, redistributing pollutants through trading programs may not only move, but also increase peak levels from one community to another. The impacts can be modeled, in advance, to some degree, but the issue underlines the careful thought which each trading proposal demands.

For growing metropolitan areas, there is an additional consequence of entering into offset and trading programs at too early a stage. Growth will bring an inevitable rise in emissions. If quick upgrades of older equipment are too quickly traded for higher emissions from proposed new sources, there will be no options available to offset the impact of tomorrow's new resident and their associated emissions. If a proposed new source has legitimate options for reducing its own emissions, it will serve the community's long-term interest best if these are fully implemented.

Participation in the Sumas PSD Review Process

A number of input options are available at this critical stage in reviewing the Sumas 2 proposal. As mentioned earlier, EFSEC will continue to hear public testimony at a hearing scheduled for September 27th. It has offered to take oral comments from the Province and any other non-intervening governments, such as the GVRD, at a special time set aside on September 28.

EFSEC has released a draft PSD Air Discharge Permit and reinforcing draft Fact Sheet for public comment by September 28. The Fact Sheet has previously been discussed and the draft PSD Permit is enclosed as **Attachment J**. Comments on these two draft documents can be in the form of a written submission or participation at an additional hearing on the evening of September 28. GVRD could make a written submission and/or participate in the hearing.

The AQCC agencies will also be submitting their Summary Report directly to EFSEC. This will contain analyses of the air quality and health impacts of the proposed Sumas 2 facility. The provincial and federal governments will be hosting public drop-in sessions in the eastern Fraser Valley to review the Summary Report, and the GVRD could attend these, as well.

As previously mentioned, the FVRD has provided financial support to the City of Abbotsford for the latter's intervenor activities and has requested that GVRD provide similar support. While Provincial and GVRD staff did provide detailed technical support for the City of Abbotsford, in that City's preparation of material for the adjudicative proceedings, the Board could decide to provide it with direct financial support. Finally, as noted in **Attachment K**, the City of Abbotsford has requested that the GVRD Board adopt a supporting resolution to ask EFSEC for further assessments of the proposed facility's impact on BC residents.

4. CONCLUSION

The proposed Sumas 2 power plant would be one of the ten largest point sources of emissions in the Lower Fraser Valley. The related emissions will impact on regional air quality that is already above the Reference Levels where statistically significant changes in human health effects can be observed. Potential regional growth challenges all to minimize any emissions from new facilities. The proposed Sumas 2 emission control technology will add a substantial amount of ammonia, a toxic air contaminant, to the atmosphere. Alternate and additional technologies are evidently now commercially available to substantially reduce the emissions, without introducing ammonia.

As the primary authority for air pollution control and air quality management within the Greater Vancouver Regional District, the GVRD Board has an obligation to advocate that the strongest

possible measures be taken to protect the health of GVRD citizens and those within adjoining communities which share a common airshed. It is recommended that this take the form of specific proposals to EFSEC for the substantial reduction of the emissions from the proposed Sumas 2 plant and also involve direct participation in the remaining opportunities for written and oral comments on the draft PSD permit and Fact Sheet for the facility. The specific proposals are outlined in the initial Recommendation section of this report.

Attachments:

The following documents from the Energy Facility Site Evaluation Council

- A. EFSEC Certification Process
- B. AQCC Issue Summary Report on Sumas 2
- C. Request for Funding Support - July 27, 2000 letter from Fraser Valley Regional District
- D. Minister of Environment letter to EFSEC - August 3, 2000
- E. Draft Fact Sheet for Prevention of Significant Deterioration
- F. EPA Region 1 letter on SCONOX technology for large applications - December 20, 1999
- G. 1995 - 1998 Ozone Measurement Analysis (four charts)
- H. "Smog, an indicator of potential air quality health risk in the Lower Fraser Valley" - Environment Canada, Pacific and Yukon Region Web Site, 2000
- I. Diagram of Ozone Air Quality Targets
- J. Draft Approval of the Prevention of Significant Deterioration & Notice of Construction
- K. Request for Resolution - August 9, 2000 letter from the City of Abbotsford



CITY OF RICHMOND

REPORT TO COUNCIL

TO: Richmond City Council

DATE: September 21, 2000

FROM: David McLellan
Chair, Development Permit Panel

FILE: 0100-20-DPER1

RE: Development Permit Panel Meeting Held on September 13, 2000

PANEL RECOMMENDATION

1. That the recommendations of the Panel to authorize the issuance of:
 - i) a Development Permit (DP 00-174676) for the property at 7351 and 7371 Moffatt Road;
 - ii) a Development Variance Permit (DV 00-174568) for the property at 13611 Smallwood Place;
 - iii) a Development Variance Permit (DV 00-174878) for the property at 13220 Smallwood Place;be endorsed, and the Permits so issued.

2. That a Development Variance Permit (DV 00-174210) for the property at 12033 Riverside Way be denied.

A handwritten signature in cursive script that reads "David McLellan".

David McLellan
Chair, Development Permit Panel

PANEL REPORT

The Development Permit Panel considered five applications at its meeting held on September 13, 2000.

DV 00-174210 – OPUS BUILDING CORPORATION – 12033 RIVERSIDE WAY

This application proposes to vary the number of parking spaces required for a new three-storey restaurant/office building in the Riverside Industrial Park and to allow 40% small car parking spaces. Although the applicant had a traffic consultant justify the parking variances, the majority of the Panel was not convinced that a relaxation from the 177 parking spaces required to the 136 parking spaces proposed was in the public interest. Specifically, concern was expressed that there was no parking allowed on No. 5 Road and that this area is already very busy during the daytime. Furthermore, Panel members were concerned that this variance could set a precedent and was inconsistent with what had been required elsewhere (i.e. Ironwood Mall; Riverside Industrial Park; etc.).

Although the applicant did agree to revise the landscape plans to provide better screening along Riverside Way, No. 5 Road and Featherstone Way, the motion to approve this Development Variance Permit was defeated by the majority of the Panel. Should Council disagree with the Panel, it is suggested that the Permit be referred to a Public Hearing since there was no public comment on the application at the Panel meeting.

DP 00-174676 – AM-PRI CONSTRUCTION LTD. – 7351 AND 7371 MOFFATT ROAD

This proposal is to construct ten townhouse units on a site zoned for both townhouse and apartment use. Because the latter use is usually built on this zoning, the Townhouse and Apartment District (R3) has a 6 m (19.685 ft) setback requirement. The applicant requested that this be varied to the setback found in the Townhouse District (R2) and used for most similar townhouse developments. There were 7 letters from the neighbourhood and one delegation at the Panel meeting. Most of the concerns related to the proposed variance to allow a 3 m (9.843 ft) side yard setback (i.e. reduced sunlight, construction impacts and proximity to the adjacent development at 7311 Moffatt Road). In response, the Panel was advised by staff that the proposed townhouse development would have less of an impact than should a three or four-storey apartment be built on the site. The applicant also indicated there would be no preload on the site and that a soil engineer has indicated that there should not be construction impacts on the adjacent complex to the north. The Panel was satisfied with the design of this infill project and recommended that the delegation advise the owners of the adjacent complex to take an inventory of their units should there be a need for any civil action arising from the construction of this proposal.

The Panel recommends that the permit be issued.

DV 00-174568 – TERANCE J. MAGER – 13611 SMALLWOOD PLACEDV 00-174878 – TERANCE J. MAGER – 13220 SMALLWOOD PLACE

Both of these variance applications are located in the Richmond Automall and are similar in nature. The first involves Cowell Volkswagan and the second Infiniti Nissan. A slight road setback variance is requested to accommodate recent improvements to both dealerships. There was no public comment and the Panel was pleased with the appearance of the buildings.

The Panel recommends that both Permits be issued.

HB:hb