

ITEM	19
MANAGER'S REPORT NO.	17
COUNCIL MEETING	93/03/22

TO: CITY MANAGER 1993 MARCH 17

FROM: ACTING DIRECTOR PLANNING AND BUILDING

SUBJECT: CHEVRON CANADA REFINERY  
REPLACEMENT OF SULPHUR RECOVERY PLANT  
STATUS OF REVISED PROPOSED

PURPOSE: To provide updated information on the proposal by Chevron Canada to revise its plan for replacement of the sulphur recovery plant.

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RECOMMENDATION:

1. THAT this report be received for information purposes.

R E P O R T

1.0 BACKGROUND

On the agenda for the 1993 March 08 meeting of Council was an item of correspondence in the form of a copy of a letter from D.W. Reed, Vice-President and Refinery Manager, Chevron Canada Limited to the Assistant Air Quality Director of the GVRD, dated 1993 February 17.

The letter presented Chevron's response to the GVRD's letter to Chevron on 1993 February 11. The February 11 letter advised that the Company's request for a variance to the terms of the existing GVRD Air Quality Management Permit was not granted for reasons related to the absence of a dispersion model based on projected SO2 stock emissions. The lack of information specifically relates to the projected 6 tonne/day increase in sulphur dioxide emissions from the refinery during the projected period of shutdown under the proposed revised scenario advanced by the company.

As reported to Council on 1992 August 10, the existing sulphur recovery plant is to be replaced with a new unit, in conjunction with the installation of a distillate hydrotreater under PPA #10529.

Members of Council will recall that representatives of Chevron Canada informed Council on 1993 January 18 of their proposal to revise their construction program for the replacement such that the refinery would operate for a period of time (initially projected from 1993 March 08 through 1993 September 01) without the benefit of a sulphur removal and recovery facility.

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Concerns were expressed at that time regarding whether this situation, extending over a period of approximately 25 weeks, would be acceptable, particularly during a season of the year when atmospheric conditions (such as inversions) can figure in the onset of air quality problems. A memorandum submitted to Council at that time indicated that staff of the Burnaby Health Department were reviewing and evaluating the information submitted, taking into consideration the significance of the impact of increased sulphur dioxide emissions beyond the permitted levels on air quality in North Burnaby, as well as the potential health effects on neighbouring residents. It was indicated at that time that a report would be submitted to Council once the necessary information was obtained from Environmental Health Services.

2.0 ENVIRONMENTAL HEALTH SERVICES COMMENTS

The Acting Chief Public Health Inspector has provided the following comments following review of the revised proposal:

"The revised proposal by Chevron particularly relating to the shutdown and demolition of the existing Sulphur Plant prior to installation of the Sulphur Recovery Plant has been reviewed. While being sensitive to Chevron's safety concerns which have prompted them to propose the noted revised proposal, staff presently cannot support Chevron's revised proposal for the reasons noted below.

Discussions with the G.V.R.D. officials have revealed concerns which have been submitted in their letter dated 1993 February 11 to Chevron Canada Limited (see Attachment #1). These concerns are also supported by Environmental Health Services which relate specifically to:

The lack of technical supporting information on localized areas of sulphur dioxide plume impacts in absence of the sulphur recovery plant being in operation. The dispersion modelling work requested by the regional district will assist in identification of these areas and through monitoring, potentially assist in minimizing impacts on local residents.

For Council's information according to the regional district officials, 23 odour complaints have been filed with their office against Chevron during Sulphur Recovery Plant shutdown periods identified by Chevron in their 1993 January 12 submission. While it can be argued that the odour complaints should not be the driver in making a decision on this issue, a study conducted by Dr. D.V. Bates of U.B.C. recognizes health-related concerns associated with sulphur dioxide emissions."

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3.0 SUBSEQUENT RESPONSE BY THE G.V.R.D. TO THE  
1993 FEBRUARY 17 LETTER FROM CHEVRON CANADA

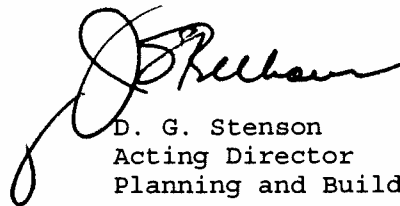
Burnaby has been provided with a copy of the response from the Assistant Air Quality Director of the G.V.R.D. to Mr. Reed's letter of February 17. The response (see Attachment #2) indicated that the potential local impacts of the increased SO<sub>2</sub> emissions have not been addressed, and that without the required information (on the results of modelling studies and monitoring programs and curtailment plans should the modelling studies indicate potential problems), a variance can not be granted.

4.0 CURRENT STATUS

It is our understanding that Chevron Canada has subsequently agreed to carry out a modelling exercise to predict how a shutdown of the sulphur plant would affect areas of North Burnaby and the North Shore. To this end they agreed with the GVRD to the terms of reference for a study, engaged a consultant, and are in the process of completing the simulation model as requested. The model takes into account such factors as topography and weather conditions that might occur, so as to predict the ambient conditions that will result from a prolonged shutdown. GVRD Air Quality staff expect a report to be completed shortly and will be meeting with Chevron officials in a few days. Following the G.V.R.D.'s evaluation, Burnaby will be informed whether a variance of the permit will be granted, and under what conditions.

A further report will be provided when further information is available, and will incorporate comments from the Environmental Health Services Division.

This progress report is for the information of Council.



D. G. Stenson  
Acting Director  
Planning and Building

DGS:lf

cc: Director Administrative & Community Services  
Acting Chief Public Health Inspector



Greater Vancouver Regional District  
4330 Kingsway, Burnaby, British Columbia, Canada V5H 4G8

Air Quality & Source Control Department - Tel (604) 4

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February 11, 1992

File: 632.2.117

Chevron Canada Limited  
1500 - 1050 Pender St.,  
Vancouver, B.C.,  
V6E 3T4

ATTACHMENT #1

**FAXED**  
Feb. 11 1993

Attention: R.E. Gray

Re: Variance Request for Permit GVA0117

Dear Mr. Gray

Thank you for your letter dated January 12, 1993 requesting a variance of the terms of GVRD Air Quality Management Permit GVA0117 to allow operation of the refinery without the use of a Sulphur Recovery Plant for refinery fuel gas desulphurization. The proposal has been reviewed and my staff have met with Mr. Mike Stephen and Mr. Al Smith to further discuss the request. Based on the information provided, your request for a variance cannot be granted at this time.

The reason relates to insufficient information in your submission, specifically in regards to the projected 6 tonne/day increase of sulphur dioxide emissions from the refinery. The exercise of calculating total region-wide sulphur dioxide emissions in your proposal is useful for airshed management planning purposes, however, it has little relevance when looking at the potential local impacts. The combination of meteorology during March through September and the topography in the vicinity of the Chevron facility is conducive to periodic occurrences of poor atmospheric mixing where emissions remain close to the ground and are transported by very light local wind flow conditions. A dispersion model based on your projected SO<sub>2</sub> stack emissions would be required to identify areas of plume impact and the ambient SO<sub>2</sub> concentrations that could be anticipated. If modelling results indicate potential problems, a monitoring program would have to be instituted as well as a curtailment plan to reduce emissions in order to ensure that ambient SO<sub>2</sub> levels remain within standards.

In an analysis of the SRU shutdown log for the period October 16, 1986-February 6, 1991 we note that 81.5% of the SRU shutdown hours occurred during the months from October-February while 18.5% of the SRU shutdown hours occurred during the months from March-September. The lack of data during this period makes it difficult to draw conclusions on the possible SO<sub>x</sub> effects on ambient air during a SRU shutdown. Additionally, if we consider that the odour threshold of SO<sub>x</sub> is in the range of 1.2-12.5 mg/m<sup>3</sup> and that the Maximum Desirable 1 hour Ambient Air Standard is 0.45 mg/m<sup>3</sup>, it is difficult to draw any correlation between SRU

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shutdown, ambient SO<sub>x</sub> levels and number of complaints. It is possible for there to be ambient air standard excursions that may not result in odour complaints by area residents. Also, sensitive individuals may experience adverse health effects without recognizing the cause.

In your letter you state that no public complaints have been received regarding sulphur type odours during these periods. Our records show that one visible emission complaint and 23 odour complaints have been filed, with our office, against Chevron during this time period. Due to inherent problems in responding to and investigating odour complaints, it can be difficult to pinpoint the exact source of complaints, however it can be stated that Chevron is an historical source of odour complaints in the community and that there were refinery odour complaints during the SRU shutdown periods. For this reason we must consider this information in the context of your request for bypassing the major pollution control device for the refinery for such an extended period of time.

In arriving at our decision we considered the disadvantages of your original proposal with respect to a less desirable site, construction difficulties and the increased safety risks. These concerns do not appear to outweigh the concerns of the negative impact of increased SO<sub>2</sub> in the community.

In your original construction approach you have stated that the SRU would have to be shut down for at least a four week period to complete the construction. Please be advised that if you wish to apply for a variance to operate the refinery without a SRU during such a tie-in period, you must also address the above concerns in your request for a variance.

If you have any questions please contact Mr. Silvano Padovan at 436-6713.

Yours truly,



Robert S. Smith  
Assistant Air Quality Director

RSS/sp

cc: Mr. Don Stenson - Burnaby Planning & Building Department  
Mr. Ken Johnston - Burnaby Health Department



Greater Vancouver Regional District  
4330 Kingsway, Burnaby, British Columbia, Canada V5H 4G8

Air Quality & Source Control Department - Tel (604) 4

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February 23, 1993

File: 632.2.117

Chevron Canada Limited  
355 North Willingdon Ave.,  
Burnaby, B.C.,  
V5C 1X4

ATTACHMENT #2

Attention: D.W. Reed, Vice-President & Refinery Manager

Re: Variance Request for Permit GVA0117

Dear Mr Reed

In your February 17, 1993 letter to Mr. R.S. Smith you restated your request for a variance to the terms of GVRD Air Quality Management Permit GVA0117 to allow operation of the refinery without the use of a Sulphur Recovery Unit (SRU) for refinery fuel gas desulphurization for the period March 8, 1993 to September 1, 1993.

Your letter does not address the concerns raised in our February 11, 1993 letter to Mr. R.E. Gray with respect to the potential local impacts of an additional 6 Tonnes of SO<sub>2</sub> emissions per day. We continue to have concern for the potential environmental impact associated with operating the refinery without a SRU for an extended period of time without doing modelling studies and formulating monitoring programs and curtailment plans.

Without submission of the required information, a variance cannot be granted. We look forward to meeting with your staff to discuss these requirements and your options.

If you have any questions please contact Mr. Silvano Padovan at 436-6713.

Yours truly,

Barbara Dabrowski, P. Eng  
Assistant Air Quality Director

BAD/sp

cc: Mr. Don Stenson - Burnaby Planning & Building Department  
Mr. Ken Johnston - Burnaby Health Department