

TO: MUNICIPAL MANAGER

1992 August 05

FROM: ACTING DIRECTOR
PLANNING AND BUILDING

SUBJECT: PROPOSED INSTALLATION OF A DISTILLATE HYDROTREATER AND SULPHUR
PLANT PHASE I AT CHEVRON'S REFINERY
5201 PENZANCE DRIVE, BURNABY, B. C.

PURPOSE: To provide Council with information on Preliminary Plan Approval
Application #10529.

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RECOMMENDATION:

1. THAT this report be received for information purposes.

R E P O R T

1.0 INTRODUCTION:

The Planning & Building Department has received a Preliminary Plan Approval Application (P.P.A. #10529) from Chevron Canada Limited for the installation of a distillate hydrotreater at the Chevron Refinery located at 5201 Penzance Drive, Burnaby, B. C. (see attached Sketch).

This report is submitted consistent with the long-standing direction of Council to report on oil storage or processing facilities in the Municipality.

2.0 GENERAL INFORMATION:

This Phase I proposal entails a Diesel Hydrotreater (1,910 cubic meters per stream day capacity), a new state of the art Sulphur Plant (15 tonnes per day capacity), a fuel gas amine treating unit, offsite support facilities including an additional 69 kv electrical substation and power supply, an additional flare, pipeways and minor modifications to existing equipment and contractor parking facilities. Location of these facilities is shown on the attached sketch.

Timing of the Distillate Hydrotreater installation was tied to implementation of low sulphur diesel fuel legislation. The government of Canada has requested implementation of a voluntary program to provide low sulphur diesel fuel (0.05 wt. % sulphur) at retail and commercial, on-road fueling outlets beginning October, 1993. All diesel fuel utilized in on-road applications will have to meet the low sulphur specification by January 01, 1998.

Phase I of Chevron's proposed Distillate Hydrotreating facility will be designed and installed to meet product qualities of the low sulphur diesel fuel program for on-road use only. Phase II of the Distillate Hydrotreating facility will be required to produce low aromatics diesel fuel and reformulated gasolines. These fuels are required in some United States jurisdictions commencing in 1993. The timing of Phase II is dependent upon the availability of processing equipment and the content of future Canadian legislation.

The Diesel Hydrotreater removes sulphur compounds from the feedstock by mixing the same with hydrogen, preheating the mixture in a furnace and charging to a reactor which contains a catalyst under pressure. The catalyst promotes hydrogenation of sulphur compounds to hydrogen sulphide which is subsequently separated and removed by distillation.

The fuel Gas Amine Treating Unit extracts the hydrogen sulphide, produced at the Diesel Hydrotreater and other refinery processing units, from the gaseous hydrocarbons used for refinery fuel.

The Sulphur Plant converts hydrogen sulphide to liquid sulphur using a catalytic process. While the existing flare was designed to serve the needs of the existing plant, the additional flare is required for the new independent load of the hydrotreating facilities.

Each of the new facilities will utilize proven process and engineering technology. In order to meet the voluntary program noted above, project design has commenced in July with a construction start scheduled for November 1992. This project will be designed and constructed based on use of:

- a) Low noise level high efficiency electric motors;
- b) Hydrocarbon relief valves will be routed to the new flare;
- c) Mechanical seals on rotating equipment;
- d) Modular offsite construction to minimize any construction impacts on our neighbours.

Items b) and c) will further reduce hydrocarbon emissions to the air and water. Items a) and d) are part of the continuing program to reduce the overall refinery noise level at the nearest residences.

The new Sulphur Plant is required to recover the sulphur removed in the process of producing low sulphur diesel fuel and to replace the existing sulphur plant which produces an undesirable liquid effluent and which Chevron advises has become very expensive to operate. The new Sulphur Plant will produce no liquid effluent, will be more reliable and will achieve improved sulphur recovery efficiency (i.e. 98.6% versus 97% currently). Installation of the new Sulphur Plant, utilizing a dry process, will complete a refinery liquid effluent upgrade program which has been negotiated with the Greater Vancouver Regional District. Future construction of an additional Sulphur Plant will provide for continuous sulphur recovery when one Sulphur Plant is shutdown for maintenance.

The Phase I Distillate Hydrotreater facilities will not require modification of existing refinery water effluent permits.

Operation of the Diesel Hydrotreater, Sulphur Plant and Flare will require amendment of the existing refinery air emission permit. Chevron has commenced negotiation of these permit amendments with the Greater Vancouver Regional District.

3.0 MUNICIPAL DEPARTMENT REFERRALS:

The application for Preliminary Plan Approval has been circulated to the pertinent Municipal departments for comment. The Fire Prevention Office and the Engineering Department have indicated no special requirements. The Environmental health Department has advised as follows:

"The proposed project is consistent with Environment Canada's request for implementing a voluntary program to provide low sulphur diesel fuel at retail and commercial fuelling outlets beginning October, 1993.

The project will use low noise level high efficiency electric motors and the modular construction will be done offsite. As a result, there will be reduced noise impacts on surrounding neighbours.

It has been noted that the Phase I Distillate Hydrotreater facilities will not require modification of existing refinery waste water effluent. In addition, the proposed new Sulphur Plant utilizes a dry process and as such, will eliminate an estimated 32 U.S. gallon per minute of liquid effluent currently routed to the G.V.R.D. sewer. This would complete Chevron's refinery liquid effluent upgrade program which was negotiated with the G.V.R.D.

The operation of the Diesel Hydrotreater, Sulphur Plant and the Flare, however, will require amendment of the existing refinery air emission permit. It is staff's understanding that Chevron has initiated negotiation of these permit amendments with the G.V.R.D. This Department will review and comment on the subject application once it has been forwarded to us by the G.V.R.D.

As such, we do not have any concerns with the proposed project."

4.0 CONCLUSION:

The installation of this proposed Phase I Distillate Hydrotreater and Sulphur Plant is included in the Burnaby Refinery Modernization and Expansion Project approved by Municipal Council in 1974.

The sole purpose of the voluntary program is to provide a low sulphur diesel fuel at retail and commercial on-road fuelling outlets as of October 1993.

Chevron's application has been reviewed by and has received favourable comments from the Fire, Engineering and Environmental Health Departments. The Planning and Building Department intends to issue Preliminary Plan Approval, subject to conditions indicated by the Environmental Health Department, unless otherwise directed by Council.

This report is submitted for the information of Council.



D. G. Stenson,
Acting Director
Planning and Building

PDT/ds

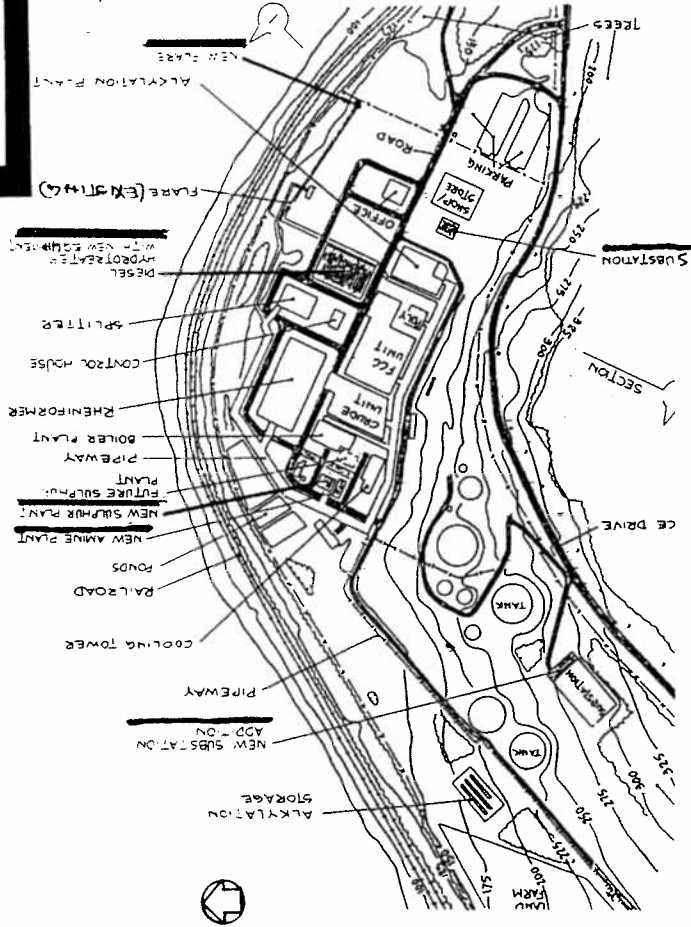
Attach.

ITEM 23
 MANAGER'S REPORT NO. 52
 COUNCIL MEETING 92/08/10

175

SCALE 0 50 100 200 FEET

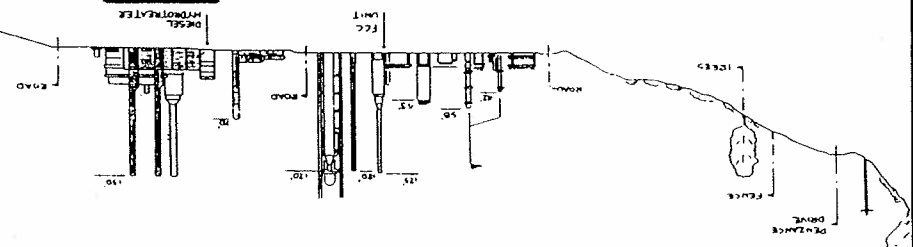
PARTIAL PLOT PLAN



NEW FLARE
 APPROX. HEIGHT

SCALE 0 50 100 FEET

SECTION I



Date: 9.20.11

Scale:

Drawn By:

SKETCH
 DISTILLATE
 PHASE I
 P.P.A # 10525
 HYDROTREATING