

Item	19
Manager's Report No.	20
Council Meeting	00/07/31

TO: CITY MANAGER **DATE:** 2000 07 26

FROM: DIRECTOR ENGINEERING **FILE:** 10-08-11-01

SUBJECT: CHEVRON CANADA REFINERY LIMITED

PURPOSE: TO PROVIDE AN UPDATE ON VARIOUS ISSUES RAISED BY COUNCIL REGARDING CHEVRON CANADA REFINERY LIMITED

RECOMMENDATION:

- 1. **THAT** this report be received for information purposes.

R E P O R T

1.0 INTRODUCTION

At the regular Council Meeting on July 10, 2000, Council received a staff report on Chevron Canada Refinery Limited. Arising from the discussion, Council requested staff to report on:

- information contained in a fact sheet distributed at a recent Chevron Public Meeting on June 29, 2000;
- WCB involvement in the MTBE / Diesel spill at Chevron Canada Refinery on May 17, 2000; and
- responsibilities of various levels of government related to environmental issues.

This report responds to the above issues and in addition provides Council with an update on the following:

- the draft Terms of Reference recently received from the B.C. Ministry of Environment, Lands and Parks for Environmental Review, Public Safety Risk Assessment and Groundwater Investigation at Chevron Canada Refinery Limited; and
- a recent report released by the G.V.R.D. titled "Capitol Hill Special Monitoring Project April 1998 to March 2000."

2.0 FACT SHEET DISTRIBUTED AT PUBLIC MEETING

On June 29, 2000, Svend Robinson, MP, hosted a public meeting at Gilmore Community School regarding the recent incidents at Chevron Refinery, in particular the MTBE / Diesel spill. At the meeting a "Fact Sheet" was circulated to meeting participants. The source of the "Fact Sheet" (see Attachment #1) is not known to City and GVRD staff.

To examine the emission data quoted in the "Fact Sheet", staff met with G.V.R.D. officials and were informed of significant discrepancies between the GVRD data and emission figures noted in the "Fact Sheet". The following table provides a comparison of the "Fact Sheet" and GVRD data.

Parameters	"Fact Sheet" Emission Figures (Tonnes/Day)	G.V.R.D. Permitted Levels (Tonnes/Day)	G.V.R.D Published (1) 1998 Inventory Levels (Tonnes/Day)
Nitrogen Oxide	0.75	1.93	0.86
Particulate Matter	1.66	1.14	0.45
Sulphur Oxides	3.32	4.79	3.46
Volatile Organic Compounds (VOC's)	3.17	0.32	1.40

(1) Inventory are based on test data and/or US EPA emission factors. The 2000 inventory levels will be published in 2001

3.0 WCB INVOLVEMENT

At the July 10, 2000 Council Meeting, Council inquired WCB involvement in the MTBE / Diesel Spill on May 17, 2000. Chevron Canada Limited has confirmed with staff that they had contacted WCB during the above spill. WCB also requested for and received a copy of Chevron's incident report.

4.0 CLARIFICATION ON RESPONSIBILITIES OF VARIOUS LEVELS OF GOVERNMENT ON ENVIRONMENTAL ISSUES

The following summarizes the responsibilities of various levels of government in dealing with environmental issues within the City:

RESPONSIBILITIES (PERMITS / DISCHARGES)						
Agencies	Air Emission	Contaminated Site/Stream Setback	Discharges to Receiving Water			Sanitary Sewer
			Burrard Inlet	Fraser River	Brunette Basin/Streams	
Environment Canada		✓	✓			
DFO		✓	✓	✓	✓	
MOE		✓	✓	✓	✓	
GVRD	✓				✓	✓
City	(1)	✓	(1)	(1)	✓	✓
VPC			✓			
BIEAP			✓			
SFHR	✓	✓	✓ (2)			
FREMP				✓		

(1) Referral only

(2) Barnet Marine Park beach area only

5.0 DRAFT TERMS OF REFERENCE FOR ENVIRONMENTAL REVIEW / PUBLIC SAFETY RISK ASSESSMENT AND GROUNDWATER STUDY

On July 17, 2000, staff received the draft Terms of Reference from the B.C. Ministry of Environment, Lands and Parks, for the proposed study (see Attachment #2). Copies of the draft Terms of Reference were also provided to the GVRD, SFHR, Environment Canada and BRACE for submission of comments to the Ministry by July 28, 2000.

Staff have reviewed the document and concluded that the draft Terms of Reference fall short of the target and objectives identified earlier to the Ministry by the City. In order to ensure that the above study will address the concerns of the City, staff have responded to the Ministry outlining the

outstanding issues that need to be incorporated into the final Terms of Reference (see Attachment #3). As a part of the City's submission, staff have requested that a project steering committee be formed comprising of staff representatives from the Ministry, GVRD, SFHR, City and Chevron to guide and review the progress and findings of the study.

Staff are awaiting for a response from the Ministry of Environment, Lands and Parks.

6.0 CAPITOL HILL REGIONAL AMBIENT AIR QUALITY MONITORING STATION - SPECIAL MONITORING PROGRAM

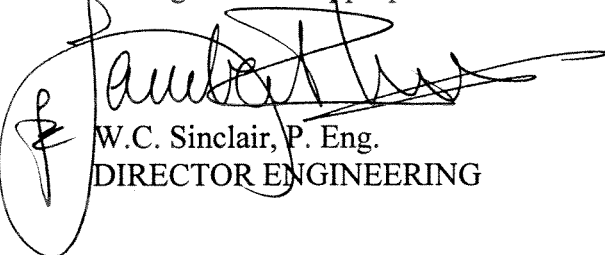
Staff have received a report recently from the GVRD titled "Capitol Hill Special Monitoring Project April 1990 to March 2000". Copy of the report is available at the Engineering and Clerk Departments.

The Capitol Hill ambient air quality monitoring station (T23) is located in Harbourview Park at the northern end of Grosvenor Crescent. The station measures sulphur dioxide, total reduced sulphur, wind speed/direction, temperature and relative humidity on a continuous basis. For the past two years, the GVRD supplemented the station monitoring program with quarterly mobile sampling for ozone, nitrogen dioxide and PM₁₀.

The two year quarterly sampling is complete and the GVRD concluded that permanent PM₁₀, NO₂ and ozone monitoring at T23 is not warranted and a qualitative indication of the three elements can be obtained from the interpretation of the data at Kensington Park station. Staff will be reviewing the results with the GVRD with the view to add permanent monitoring for PM₁₀ and ozone at the Capitol Hill Station and furthermore consider the monitoring for VOC emissions using portable VOC monitors.

7.0 SUMMARY

Staff have been working with the GVRD, SFHR, MOE and Chevron on various environmental issues related to the operation of Chevron Refinery. The discussions on the draft terms of reference for the environmental risk assessment study and the public communication protocol are ongoing and staff will provide an update to Council on these outstanding issues as appropriate.



W.C. Sinclair, P. Eng.
DIRECTOR ENGINEERING

DD:
Attachments

cc: Director Planning and Building
Fire Chief
Emergency Coordinator

FACT SHEET

GVRD permitted emissions of Chevron refinery:

Nitrogen Oxides	1,689 pounds a day
Particulate Matter	3,721 pounds a day
Sulphur Oxides	7,447 pounds a day
VOCs	7,106 pounds a day

S0_x - Sulphur Oxide Formed primarily by the combustion of fossil fuels containing sulphur. Brief exposure to high concentrations of sulphur dioxide and its byproducts can irritate the upper respiratory tract and aggravate existing cardiac and respiratory disease. Long-term exposure may increase the risk of developing chronic respiratory disease.

Over one-third of all Sulphur Oxide emissions in the lower mainland come from the Chevron refinery.

VOCs - Volatile Organic Compounds and Nitrogen Dioxide **N0_x** react in the presence of sunlight on a warm day to form ground-level Ozone, a reactive form of oxygen. Ozone is a strong oxidizer and can irritate the eyes, nose and throat and decrease athletic performance. High concentrations can also increase the susceptibility to respiratory disease and reduce crop yield.

PM 10 - Inhalable Particulate Because of their small size, these particles can be inhaled and deposited in the thoracic region of the lungs. Exposure to PM 10 can chronically and acutely affect human health, particularly the pulmonary function. PM 10 can aggravate existing pulmonary and cardiovascular disease, affect mucociliary clearance and increase mortality. These effects are enhanced if high PM 10 levels are associated with higher level of other pollutants, such as S0₂.

The Chevron refinery site is administered by three separate governmental bodies: municipal, provincial and federal.

Simon Fraser Regional Health Board - Public Health protection programs are administered locally by medical health officers and environment health officers who are responsible for direct service delivery in health authorities throughout the province. Environmental health officers provide surveillance and monitoring of specific activities and premises which may affect the public's health and provide appropriate risk-based interventions to minimize health and safety hazards.

GVRD - Performs regular audits of air and sewer quality. Monitors equipment and stations. The Air Quality Department Non-Compliance Report is a document produced by GVRD and used to name top polluting offenders in the lower mainland. The GVRD is a regulatory body that issues the permits to pollute. The GVRD is comprised of an appointed board of directors.

TO REPORT ANY AIR POLLUTION PLEASE CALL THE GVRD AT 436-6777

DRAFT – For discussion purposes

BURNABY REFINERY – POLLUTION PREVENTION AND MANAGEMENT OF AIR EMISSIONS

There will be an environmental review of the Chevron refinery focusing on air emissions and spill management. The study will examine works and measures, those in place and those planned, for achieving permit compliance and prevention of accidental releases.

AIR EMISSIONS

- Identify permits, compliance status, agencies responsible for administration
- Identify emission inventory data for Common Air Contaminants and HAP's
- Compare with other Canadian refineries.
- Review emission trends from the refinery for common air contaminants (e.g. SO₂, NO_x) and hazardous air pollutants (NPRI data). Compare with Canadian refineries and GVRD trends.

Review equipment and procedures to manage discharges from stacks

- Furnaces and boilers
- FCC stack
- SRU incinerator stack
- Flare stack

VOC's

- Losses from storage tanks, holding ponds, equipment leaks, current and planned programs aimed at reducing losses
- Marine and truck loading

SPILL MANAGEMENT

Spill Prevention

- Evaluate marine loading/unloading facilities and procedures
- Evaluate containment of potential releases
- Evaluate work planned for future improvements

Spill Response

- Equipment
- Response resources

Storage Tanks

- Review program to enhance spill prevention and odour reduction
- Review long term tank plan vs Waste Management Act regulations and CCME guidelines.

DRAFT – For discussion purposes

COMMUNITY IMPACT

There will be a review of the potential impact of the refinery on the community from a public safety point of view. The study will identify those areas of the refinery operation where there is potential for community impact as a result of accidental releases and will include a review of public safety risk assessment studies done on the refinery.

Emergency response and public notification processes will be examined.

The study will review the roles of Burnaby Fire Dept, RCMP, City of Burnaby, BC MELP, GVRD, Simon Fraser Health Unit and others as they relate to emergency response and public notification.

For those areas identified, the study will look at;

- Potential types of accidental releases and community impacts
- Prevention measures
 - Design of equipment
 - Safeguards in place
- Emergency Response and Contingency Plans
 - by Chevron
 - by others
- Public Notification
 - Roles of stakeholders
 - Notification process
 - Public notification and response models (e.g. evacuation vs shelter in place)

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DRAFT – For discussion purposes

Subsurface Groundwater Study

There will be a study of subsurface groundwater focusing on the perimeter of the Refinery. The investigation will determine whether contaminants originating from the Chevron site are migrating, or may in the future migrate, via groundwater, into Burrard Inlet.

Chevron will retain a consultant on the list of the MELP rostered professional list of consultants.

The consultant will put groundwater wells at the North downgradient perimeter of the Chevron property (facing Burrard Inlet).

The consultant will test for:

- Light Extractable Petroleum Hydrocarbons
- Heavy Extractable Petroleum Hydrocarbons
- MTBE
- BETX/VPH
- Metals

and provide the data on the test results.



ATTACHMENT #3

www.city.burnaby.bc.ca

4949 Canada Way, Burnaby, B.C. V5G 1M2
Engineering Department

Telephone: (604) 294-7460
Fax: (604) 294-7425

File: 10 08 11 (01)

2000 07 18

B.C. Ministry of Environment, Lands and Parks
2nd. Floor, 10470 152nd. Street
Surrey, B.C.
V3R 0Y3

Fax# 584-9751

Attention: Mr. Ray Robb, Section Head, Industrial / Air

Dear Mr. Robb:

**Re: Chevron Canada Refinery, 5201 Penzance Drive, Burnaby, B.C.
Draft Terms of Reference for Environmental Review / Public Safety
Risk Assessment and Groundwater Investigation.**

Thank you for forwarding the draft Terms of Reference for Environmental Review / Public Safety Risk Assessment and Groundwater Investigation at Chevron Canada Refinery to the City for review and comments prior to their finalization.

General Comments:

1. The draft Terms of Reference fall short of being comprehensive as the environmental review of the refinery focuses on air emissions and spill management only. According to the B.C. Ministry of Environment press release dated June 27, 2000, Chevron was to submit draft Terms of Reference to the Ministry and the GVRD for "an environmental review of the refinery and its operations to ensure that Chevron is meeting its obligations under its permits".
2. The draft Terms of Reference do not provide timelines for completing the studies.
3. A list of qualified, independent professionals acceptable to the Ministry to undertake the above studies is not included. An exception to this is for the subsurface groundwater study where the draft Terms of Reference stipulate that "Chevron will retain a consultant on the list of the MELP rostered professionals list of consultants". If a list of qualified professionals is not readily available, the minimum qualification and past experience of the consultant team should be included in the terms of reference.
4. Clarification is required on the consultant selection process.

5. It is recommended that an administrative steering committee comprising of staff from the Ministry of Environment, GVRD, Simon Fraser Health Region, City of Burnaby and Chevron be formed to guide and review the progress and findings of the study. Further, there should be milestones identified in the Terms of Reference which could allow effective input as the studies progress.
6. It is recommended that the selected consultant team be required to provide the study findings to the public at the end of each milestone.

Specific Comments:

1. Environmental Review

The following issues and concerns expressed in our letters dated June 29, 2000 and July 13, 2000 to the Ministry have not been included in the draft Terms of Reference:

- Review of age and condition of all infrastructure including but not limited to storage tanks, processing units, asphalt loading facility, piping, valves, hydrants, dykes, settling/containment ponds;
- Review operation, maintenance and upgrade of all infrastructure;
- Review product management and throughput capacity;
- Solid waste management including contaminated soils / sludge, and on-site bio-landfill;
- Liquid waste management and associated treatment which includes: surface run-off and uncontaminated cooling water to Burrard Inlet; and process water discharge to sanitary sewer;
- On-site and off-site traffic management including: road dyke system; and protection of propane tanks, storage tanks, pipelines, valves, controls from traffic;
- Training and records management;
- Review and recommend on ongoing monitoring and audit of Chevron Refinery over the long term;
- Review proposed tank replacement in relation to each other and the condition of the piping from the tank farm to the refinery;

- Review the condition of natural gas pipeline(s) into the refinery;
- Assess continuous monitoring requirement for carbon monoxide, sulphur dioxide, nitrogen dioxide, ozone, and inhalable particulate (PM10) at the Capitol Hill and Eaton (and Madison) regional ambient air quality monitoring stations;
- Review the inventory and location of safety equipment list; and
- Evaluate installation of automatic foam system to blanket spilled product and upgrade spill containment pond(s) with sensors and foam monitors.

In addition, although not specifically included in the City letters to the Ministry, air emissions from Chevron Refinery should be compared to the California Standards as well. VOC emission impacts on the neighbouring residents should be evaluated.

2. Community Impact

- It should be clearly identified in this part of the study that the consultant team would undertake a public safety risk assessment. This assessment must also address the risk in an event of an earthquake.
- The study should review the role of **Chevron Refinery as a primary player** in conjunction with City of Burnaby (specifically Burnaby Fire Department, RCMP, Engineering Department), B.C. MELP, GVRD, Simon Fraser Health Region and other as they relate to emergency response and public notification.

3. Subsurface Groundwater Study


- The focus is noted to be on assessing the groundwater at the perimeter of the Refinery. There is no requirement of evaluating the groundwater quality under the impoundment areas and or the spill containment ponds to determine the integrity of these structures.
- There is lack of detail regarding number of ground water wells being required to be installed, sampling frequency and sampling duration.

The City is deeply concerned that many issues raised in earlier letters to the Ministry have not been included in the draft Terms of Reference. We hope that the Ministry will provide due consideration to the issues raised by the City and include them in the Terms of Reference prior to its finalization and acceptance. In addition, we expect the Ministry to provide reasons for excluding any of the above issues in the final Terms of Reference.

For any clarification, please contact the undersigned at 294-7771.

Yours truly,

W.C. Sinclair, P. Eng.
DIRECTOR ENGINEERING


by: D. Dattani, ~~CPHI~~(C)
MANAGER,
ENVIRONMENTAL ENGINEERING

DD:

cc: City Manager
Fire Chief
Emergency Coordinator
Chevron Canada Refinery (Attn.: Mr. Peter Duda, Vice President and General Manager)
GVRD (Attn.: Mr. Barry Mills, Manager Air Quality)
Simon Fraser Health Region (Mr. Rick Kwan)