

ITEM 13

MANAGER'S REPORT NO. 81

COUNCIL MEETING Oct. 29/73

13. Re: Proposed Amendment to Bylaw 5096, Being Burnaby  
Fire Prevention Bylaw 1968

Council on November 15, 1971 authorized staff to review the possibility of amending Burnaby Fire Prevention Bylaw 1968 to provide for the control of fire protection and fire fighting capabilities for oil tank farms and refinery operations as detailed in the attached report. Council on that date also directed the Fire Department to commence negotiations with Chevron Canada Limited for improvements as suggested in the report.

Considerable work including extensive coordination of opinions among staff and representatives of the local refineries preceded finalization of the amended Bylaw which is attached (see pages 38 through 40).

Officials of Shell Oil Company of Canada are of the opinion that their operation in Burnaby will meet the requirements of the proposed amendment to Bylaw 5096. We are told that Chevron Canada Limited, however, may have to expend up to \$160,000 to bring its Burnaby operation into conformance with the amended Bylaw.

It will be noted that the proposed Bylaw is exclusively concerned with refineries; it does not establish standards for the several oil tank (bulk station) farms that are located in Burnaby. The reason for this is because the oil companies who operate the farms have provided adequate fire fighting facilities at each farm site. The Fire Chief advises that should a future bylaw be required to establish standards for fire protection equipment at oil tank farms, Council will be advised accordingly.

RECOMMENDATION:

THAT the proposed Bylaw be brought forward for reading.

ITEM 20  
MANAGER'S REPORT NO. 73  
COUNCIL MEETING Nov. 15/71

ITEM 13  
MANAGER'S REPORT NO. 81  
COUNCIL MEETING Oct. 29/73

20. Re: Chevron Canada Ltd.  
Fire Regulations  
P.P.A. #1435

On July 12, 1971 Council passed the following resolution:

"That the Municipal Manager examine the fire regulations in force in the municipality with a view to improving, if necessary, those that relate to the construction and operation of oil tank farms."

The Provincial Fire Marshal Act and regulations made thereto are the governing authority for the location and operation of oil tank farms in B.C.

The Municipality has no fire bylaw governing this type of facility and the Burnaby Fire Department subsequently is not involved in approval of location etc. of above ground storage tanks except in a consultative or advisory capacity. The Burnaby Fire Prevention Bylaw (No. 5096) does not cover the construction and operation of oil refineries and tank farms but the regulations of the Provincial Fire Marshal Act governing these types of operations is applied by the Fire Prevention Bureau of the Burnaby Department. Any alterations or additions of this type of facility and installation are subject to the Inflammable Liquid regulations made pursuant to Fire Marshal Act and all plans for such alterations and/or additions must be submitted to the Fire Marshal for his approval. Subsequently the Fire Prevention Bureau is advised of this approval and our Inspectors as Local Assistants to the Fire Marshal carry out periodic inspections of the installation.

To deal specifically with the adequacy of the Provincial regulations, the Fire Chief advises that they meet the minimal standards set out in the National Fire Protection Association, Volume 1, Flammable Liquids but lack the detail of these standards. It is the Chief's understanding however that approval by the Provincial Fire Marshal is conditional on the installation meeting, in the main, the detailed requirements of the NFPA which are the accepted standards. It should be noted that, unless a refinery meets the standards of the NFPA of Boston, Mass., it is not possible to obtain insurance for the operation. Mind you a large company could self insure itself.

Part 5 (49)(4) of the Provincial Fire Marshal Act states:

"Nothing in this Act shall prevent any municipality from making bylaws relating to any matter within the scope of this Act, but every bylaw so made has effect and as far only as it is not repugnant to any provision of this Act or regulations."

There is some controversy over the interpretation

ITEM 20

MANAGER'S REPORT NO. 73

COUNCIL MEETING Nov. 15/71

ITEM 13

MANAGER'S REPORT NO. 81

COUNCIL MEETING Oct. 29/73

20. Re: Chevron Canada Ltd. (cont'd)

of the word "repugnant", and some authorities interpret, that any deviation in the strict sense either by upgrading or literal change would be repugnant, which if such were the case would make it impossible for the municipality to make bylaws to upgrade existing regulations.

However, we are of the opinion that the fire protection and firefighting capabilities of an oil tank farm and refinery operations could be governed by local bylaw as there is no specific regulation in the "Act" governing these aspects and therefor would not be repugnant to the "Act".

On September 21, 1971, Chevron Canada Ltd. advised that in February, 1971 a senior fire protection engineer from their San Francisco offices inspected the Burnaby plant with particular emphasis on plant equipment, fire equipment, operating practices and fire training. The results of his inspections are presented in the attached letter. We were advised that the Company has completed some of the items and that some of the items are in the process of being completed.

Attached are what the Burnaby Fire Department would consider, following inspection of the Standard Oil facilities, adequate protection and firefighting capabilities for these operations. Again, however, to-date there are no bylaws or regulations making it mandatory that the company meet these requirements, the exception being those relating to piers and wharves which are covered under Section 2.3.5. 1.15 (10) of the Burnaby Fire Prevention Bylaw No. 5096 (and these cannot be made retroactive but they could govern any expansion or reconstruction or alterations).

Incidentally, an Inspector from the Fire Marshal's Vancouver Office made a preliminary inspection of the Chevron facilities on November 4, 1971 accompanied by Burnaby Chief Fire Prevention Officer H. Chapman. The inspection showed that all of the tanks in the tank farm meet the N.F.P.A. Standards as far as spacing etc. is concerned. The inspection team was advised that Mr. Donald M. Johnson, Senior Fire Protection Engineer of Standard Oil Company of California is coming to Burnaby for a meeting to discuss the Fire Safety Program of Chevron Canada Ltd. on November 17, 1971.

The Chief points out that the "Flammable Liquid" section of the present Fire Prevention Bylaw was deleted in the expectation of the Provincial Fire Marshal revising and promulgating more up to date and comprehensive regulations and it is his understanding that that office is still in the process of re-writing these regulations. We have no idea of when the regulations will be re-written or if they will cover the situation as we see it.

ITEM 20  
MANAGER'S REPORT NO. 73  
COUNCIL MEETING Nov. 15/71

ITEM 13  
MANAGER'S REPORT NO. 81  
COUNCIL MEETING Oct. 29/73

20. Re: Chevron Canada Ltd. (cont'd)

The Fire Chief recommends that Bylaw No. 5096 be considered for amendment so as to provide for authority to control fire protection and fire fighting capabilities for oil tank farms and refinery operations.

RECOMMENDATION:

THAT the Municipal Manager review with the Solicitor the possibility of an amendment to Bylaw No. 5096 to provide for authority to control fire protection and firefighting capabilities for oil tank farms and refinery operations; and  
THAT in the meantime the Fire Department commence to negotiate with the Company for the improvements suggested; and  
THAT the contents of this report be forwarded to Chevron and to all parties that expressed an interest in this general subject when it was being debated.



Standard Oil Company of British Columbia  
(Head Office: 833 Marine Building, Vancouver 1, B.C.)

T.S. Bremner  
Vice-President & Refinery Manager

September 21, 1971  
File: 583.40

ITEM 20  
MANAGER'S REPORT NO. 73  
COUNCIL MEETING Nov. 15/71

ITEM 13  
MANAGER'S REPORT NO. 81  
COUNCIL MEETING Oct. 29/73

Mr. H. H. Chapman  
Chief Fire Prevention Officer  
Burnaby Fire Prevention Bureau  
4867 Sperling Avenue  
Burnaby 2, B. C.

Dear Mr. Chapman:

A senior fire protection engineer from our San Francisco offices inspected our plant with particular emphasis on plant equipment, fire equipment, operating practices and fire training in February of 1971. The results of his inspections and consultations with us are presented below. We have completed some of the items, and some are in the process of being completed.

1. Install 2 x 2 1/2" - 500 (g.p.m. John Stang fire monitors opposite propane tanks. Red from 6" line.
2. Correct draining pattern and install berm around tanks and L.P.G. vessel.
3. Installed berm between crude unit and boiler plant.
4. Improve roadways in tank field.
5. Add fire extinguishers in tank field.
6. Replace first aid hose boxes with reels and make additions where necessary.
7. Add additional hose to mobile monitor carts.
8. Revise fire signal system.
9. Remove brush and bush in the 4300 block McGill Street.
10. Continue replacement program of dry chemical extinguishers with purple K.
11. Revise fire training ground and continue training of personnel.
12. Added dry water line in Number 2 area tank field.

We will continue to upgrade our fire protection equipment as part of our Refinery Modernization and future expansion programs.

Yours very truly,

T. S. BREMNER

JAB:ah

- 1) One 1050 IGPM combination fire pumper complete with foam fire fighting capabilities, to be manned by fully trained plant personnel on a twenty four hour basis;
- 2) Monitors:
  - a) Portable monitors to be provided and located at land end of pier;
  - b) Fixed monitors to be installed at tank car loading racks, sufficient to cover entire area;
  - c) Fixed monitors to be installed at all propane and butane tank locations, sufficient to cover entire individual areas (means provision of 4 additional)
  - e) Tank truck loading dock area to be protected by 2 fixed monitors

Note: It is recommended that No. 1 Area be divided into specific "Fire Zones" and portable monitors be located in each zone, numbers to be determined by area to be covered.

- 3) Above grade hydrant line to be extended 150 ft. (west) and to have a hydrant at terminating end;
- 4) Propane tank installations require dyking at all three locations;
- 5) West access road at Yale Street entrance to be upgraded, and all internal access road to be maintained to ensure clear access at all times (to be plowed during winter months);
- 6) Trailer mounted emergency lighting buggy required;
- 7) Trailer mounted fire pump, complete with hard suction hose and screen required;
- 8) Aluminized fire safety suits to be located at; tank truck loading area and tank car loading area (to serve dock and warehouse) and two suits to be located on 1050 IGPM fire pumper;
- 9) Dock: Instal deck openings and equipment outlined below:
  - a) openings in pier deck to be provided at intervals not exceeding 25 ft. on centres to enable the fire department to place in operation with the least possible delay, devices suitable for extinguishing under-deck fires;
  - b) openings to be over clear spaces to avoid interference by sub-structures;
  - c) deck openings not to be larger than 10 inches in their greatest dimensions and are of sufficient size to accomodate the appliances for which they are intended;
  - d) deck openings to be provided with covers that can be easily removed;
  - e) covers for deck openings to be constructed of materials or so insulated that they will resist the passage of heat and fire in a manner equivalent to that of pier deck;
  - f) location of deck openings to be conspicuously indicated;
  - g) where openings in the pier deck are installed all parts of the deck including aprons, upon which fire fighters may be expected to work are to be solid, continuous, resistant to smoke penetration and have no uncovered openings;
  - h) deck openings to be kept clear of all obstructions including cargo material handling equipment etc.;

Note: Section 2.3.5.15.(10) Burnaby Fire Prevention By-Law No. 5096 reads: f

" Where openings in the pier deck are installed there shall be maintained on the pier or wharf, preferably at the land end but in any case a readily accessible locations, a sufficient

PAGE 2

ITEM 13  
MANAGER'S REPORT NO. 81  
COUNCIL MEETING Oct. 29/73

~~ITEM 20  
MANAGER'S REPORT NO. 73  
COUNCIL MEETING Nov. 15/71~~

number of revolving nozzles, collar pipes, and other devices of appropriate type with the necessary supply of hose to permit establishing 2 additional water curtains across the pier or wharf, and at least 2 additional nozzles for extinguishing purposes."

- 10) Where 4" mains have been installed, consideration to be given to upgrading these mains to 6";
- 11) Double faced signs to be located in driveway to indicate location of hose stations and standpipes in warehouse area.

Note:

All existing tank installations meet the requirements of the Provincial Fire Marshal Act.

THE CORPORATION OF THE DISTRICT OF BURNABY

BY-LAW NO. 6323

A BY-LAW to amend By-Law No. 5096, being the  
"Burnaby Fire Prevention By-Law 1968"

The Council of the Corporation of the District of  
Burnaby ENACTS as follows:

1. This By-Law may be cited as "BURNABY FIRE PREVENTION  
BY-LAW 1968, AMENDMENT BY-LAW NO. 1, 1973".

2. Section 1.5 of the Fire Code as enacted by By-Law  
No. 5096 is amended by adding the following:

"Refinery" means a plant in which flammable or com-  
bustible liquids are produced on a commercial scale from  
crude petroleum, natural gasoline, or other hydrocarbon  
sources.

3. Section 2.3 of the Fire Code as enacted by By-Law  
No. 5096 is amended by adding the following as Section 2.3.13.

"2.3.13 REFINERIES

2.3.13.1 A refinery capable of processing 20,000  
barrels or more per day of crude petroleum or equivalent  
shall provide on the refinery premises for fire protection  
and fire fighting purposes the following:

- (a) Mobile fire apparatus with a pumping capacity of  
500 Imperial Gallons Per Minute Class "A" and  
equipped with a 150 Imperial Gallon Foam Concen-  
trate Tank, 500 feet of 1½ inch hose, 1,000 feet  
of 2½ inch hose, all with B.C. Standard thread,  
foam producing equipment capable of producing 500  
Imperial Gallons Per Minute of foam, and a monitor  
either fixed or portable, capable of discharging  
500 Imperial Gallons Per Minute of water.
- (b) Fixed water monitors complete with combination  
straight stream fog nozzles located at tank car  
racks, tank truck racks, loading platforms and  
process units. The number, capacity and exact  
location of the said monitors shall be approved  
by the Fire Chief. A National Fire Protection  
Association sprinkler system may be provided  
instead of the said monitors.
- (c) Portable electrical generating units with a mini-  
mum of 3,000 Watts, 115 Volts, alternating cur-  
rent, and sufficient number, in the opinion of the  
Fire Chief, of plug-in lighting units, and ex-  
tension cables 150 feet in length, to effectively  
illuminate the area.

ITEM 13  
MANAGER'S REPORT NO. 81  
COUNCIL MEETING Oct. 29/73



- (d) A sufficient number, in the opinion of the Fire Chief, of telescoping hydraulic foam towers, or crane mounted foam monitors, with 2½ inch hose connections, built in foam maker, and capable of delivering air foam to the top of the highest storage tank on a refinery.
- (e) A sufficient number, in the opinion of the Fire Chief, of mechanical foam playpipes, either spray-
- (f) A sufficient number, in the opinion of the Fire Chief, of fixed pipe mechanical foam makers and foam chambers as set out in the National Fire Protection Association National Fire Codes affixed to all cone roofed bulk storage tanks having a diameter in excess of 30 feet.
- (g) A sufficient number, in the opinion of the Fire Chief, of Corporation type hydrants on a minimum 6 inch looped water main which shall be located not more than 300 feet apart in process areas and not more than 500 feet apart in tank field areas and having two discharge outlets of 2½ inch diameter and with B.C. Standard thread.
- (h) Well maintained access roads throughout the refinery premises.
- (i) Where hydrants are 300 feet apart a 1½ inch or 2½ inch hose with a minimum length of 100 feet, and where hydrants are 500 feet apart a 1½ inch or 2½ inch hose with a minimum length of 150 feet, complete with combination fog and straight stream nozzle, housed in hose station boxes in locations designated by the Fire Chief throughout the refinery premises.
- (j) A sufficient number, in the opinion of the Fire Chief, of First Aid Fire Extinguishers. The minimal size of Fire Extinguishers for the listed grades of hazard shall be as provided in Schedule "A". The said Fire Extinguishers shall be located so that the maximum travel distance shall not exceed those specified in Schedule "A".

2.3.13.2 The sufficiency, capacity and location of fire protection and fire fighting equipment, if not specifically provided for in the by-law shall be determined by the Fire Chief.

Read a first time this            day of            , 1973  
 Read a second time this        day of            , 1973  
 Read a third time this         day of            , 1973  
 Reconsidered and adopted this    day of            , 1973.

MAYOR

DEPUTY CLERK

ITEM 13  
MANAGER'S REPORT NO. 81  
COUNCIL MEETING Oct. 29/73

SCHEDULE "A"

Minimal sizes of fire extinguishers for the listed grades of hazard shall be as hereinafter provided. Extinguishers shall be located so that the maximum travel distances shall not exceed those hereinafter specified.

Type of Hazard	(For Extinguishers Labeled Prior to June 1, 1969) Basic Minimum Extinguisher Rating	Maximum Travel Distance to Extinguishers
Light	4B	50 ft.
Ordinary	8B	50 ft.
Extra	12B	50 ft.

	(For Extinguishers Labeled After June 1, 1969) Basic Minimum Extinguisher Rating	
Light	5B	30 ft.
	10B	50 ft.
Ordinary	10B	30 ft.
	20B	50 ft.
Extra	20B	30 ft.
	40B	50 ft.