ITEM	11
MANAGER'S REPORT NO.	7
COUNCIL MEETING	1984 01 30

RE: CANADIAN TRANSPORT COMMISSION HEARING ON THE RAILROAD TRANSPORT OF DANGEROUS GOODS/OPERATIONS AT TRANS MOUNTAIN OIL PIPELINE CO. LTD.'S WESTRIDGE TERMINAL

MUNICIPAL MANAGER'S RECOMMENDATION:

1. THAT this report be received for information purposes.

REPORT

A. SUMMARY

A report released by the Vancouver Regional office of The Canadian Transport Commission (CTC) in the summer of 1982 recommended that certain actions be taken to improve the safety of operations at the Westridge Terminal. Trans Mountain Oil Pipeline Company subsequently maintained that it could not finance the work as recommended in the report. The matter is still not concluded, and the CTC has scheduled a Public Hearing to take place in the Burnaby Council Chamber on 1984 February 14, 15 and 16.

B. BACKGROUND INFORMATION

In August and September of 1982, Council was advised by staff that the Vancouver office of the Canadian Transport Commission (CTC) had prepared a report entitled "Railroad Transport of Dangerous Goods in The Greater Vancouver Region". Although this report covered a broad geographical area and included recommendations involving safety at a number of different locations in the Lower Mainland, one section was devoted to The Trans Mountain Oil Pipeline Company's Westridge Terminal in Burnaby. (The pages in the section of the CTC report pertaining to the Terminal are attached for the convenient reference of Council.)

Council at that time adopted the position that Trans Mountain should be allowed to make a presentation directly to the CTC at the hearing which was being held by this body in Hull, Quebec, and for the CTC to make the final decision on proposed improvements which fall within its jurisdictional authority. Council further expressed strong support for three additional improvements which, in the opinion of the Burnaby Fire Department and the Provincial Fire Commissioner's office, are required at Westridge Terminal, namely:

•Improved access to the area

At this time the only access and egress is by way of one winding narrow single lane roadway off a paved lane north of Malibu Drive. The limitations of this roadway make a Fire Department response to an incident on the site more dangerous and time consuming than necessary. Moreover, the existence of only this one roadway does not allow an alternate escape route for plant or Fire Department personnel who may have to quickly evacuate the premises during an emergency situation.

•Security

Repair of the existing fence where required, and also, erection of a fence along the water side of the property to prevent the public from entering onto the property from this direction.

•Monitoring & Extinguishing System

At this time the manually controlled water monitors are not suitably located, and in the event of a fire or rupture, would constitute an extreme life hazard to firefighters trying to operate them. A water deluge (sprinkler type) fixed pipe extinguishing system over the entire length of the rack where tank cars are unloaded is recommended by the Burnaby Fire Department because such an apparatus will allow for the cooling down of remaining tank cars in the event of a fire or rupture.

C. CHRONOLOGICAL SUMMARY OF MAJOR EVENTS THAT HAVE TAKEN PLACE

•On 1982 September 23, Mr. D. Trevor Durrant, a spokesman for Trans Mountain, met with the Burnaby Major Emergency Planning Committee. He explained that while it is possible to extend the vertical structures that support the overhead LPG piperack or to put the piperack underground, it would not be practicable from his company's point of view because of the high cost involved and, with respect to the undergrounding of the piperack, because certain technical problems would be encountered. He alternatively recommended the following methods of protecting the piperack in its existing overhead location:

—That the Company install, at no cost to the Municipality of Burnaby, and within 60 to 90 days following approval of the CTC:

•an appropriate number of steel-reinforced concrete columns that will extend about eight feet above the ground level between the two vertical span supports and adjacent tracks; and

•approximately 1,200 feet of Jordan Guard Rail on each of the main tracks at locations that are deemed appropriate by the CP Railway and the Burnaby Fire Department (Jordan Guard Rail is a rail that runs parallel with train rails and maintains cars in an upright position if a derailment should occur).

•Mr. Durrant's stated position on the overhead piperack was that the above measures, together with the maintenance of a 20 mph speed limit for all trains that pass through the Westridge property, would provide the necessary standard of safety at a reasonable cost.

With respect to improvements involving access to the site, fencing and the extinguishing system (which hereafter in this report will be referred to as local issues), Mr. Durrant personally felt that these were reasonable requirements, but pointed out that implementation requires his management's approval.

•On 1982 October 27, Mr. Durrant personally presented his Company's position on the overhead piperack to the CTC in Hull.

•On 1982 December 16, staff wrote to Mr. Durrant to request clarification on the timing with which his company intends to commence on the local issues. Mr. Durrant advised that Trans Mountain wishes to defer implementation until after the CTC has rendered a decision on the Company's proposal to protect the overhead piperack with a Jordan rail and impact resistant columns.

(It should be noted that the Company's position is primarily based on the proposition that the Westridge Terminal may not be able to continue operating competitively if the cost of improvements cannot be recovered in the marketplace. In other words, the position is that a commitment cannot be made on the local issues until the CTC hearing has concluded at which time the Company will know (a) what the total cost for all requirements will be, and (b) if it can absorb this total cost and still keep the Terminal operating profitably.

- In April, 1983, a CTC bridge and structures engineer was in Vancouver on business, and while here, met with officials of the Company to discuss the legitimacy of the Company's cost estimates for alterations to the structure that supports the piperack. At approximately the same time, a CTC economist was assigned the task of evaluating the proposal from an economic point of view. This individual was also in Vancouver but confined his visit to discussions with CTC staff in the Vancouver Regional office (the engineer and economist are presumed to have subsequently reported their findings to the Commission in Hull).

  The bridge and structures engineer had, on several other occasions in 1983, conferred by telephone with the Company's consulting engineers on various features of the proposed design.

- On 1984 January 05, the Municipality received notice from the CTC that it will hold a Public Hearing on this matter in the Burnaby Council Chamber on 1984 February 14 at 10:00 a.m.; if more time is needed, or if anyone cannot appear to give a presentation on that particular date, the Hearing will be continued on February 15 and 16, as may be required..

D. CURRENT SITUATON

Action on the two recommendations in the CTC report and the three local issues is obviously not progessing as rapidly as we would like. This is primarily due to the fact that the CTC has embarked on a thorough review of the entire matter, and is apparently prepared to extend its deliberations for as long as it needs to ensure that all relevant information is obtained and examined. The Company, on the other hand, has stated that before it can make a commitment, it must know what the total cost will be for all the work that has been recommended, and that if all the work can be done without impairing the viability of the Westridge Terminal operation, it will proceed to do the work as promptly as possible. A CTC Hearing will be held in Burnaby in February, and hopefully shortly thereafter the CTC will render a decision on this matter. Following that, the Municipality can proceed to take whatever action is appropriate regarding the access road, security fencing and monitoring/
extinguisher system.

With respect to the CTC's Public Hearing at Burnaby in February, staff is preparing a brief that will be presented on that occasion. Council will receive a copy of the brief for consideration and comment as soon as it is completed, but if there are any comments or suggestions that Council wishes to make at this time, it would be appreciated if they are either expressed at the meeting when this report is received, or alternatively, referred directly to the Municipal Manager. The CTC will advertise the Public Hearing in the Province, Vancouver Sun and Burnaby Now so that interested Burnaby residents are also aware of the opportunity to appear before the Commission and present information.

Staff will submit a further report to Council after the CTC has concluded its deliberations and rendered a decision on this matter.

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ATTACHMENT - Excerpt from the CTC Report entitled "Railroad Transport of Dangerous Goods in the Greater Vancouver Region"

SERVICES TO MAJOR INDUSTRIES (continued)

"Trans Mountain Pipe Line Company Ltd. own and operate a marine terminal situated on Burrard Inlet at Westridge in Burnaby, B.C. This facility was originally designed for loading tankers with crude oil for offshore delivery, and was subsequently redesigned to receive liquified petroleum gas by railway tank car for temporary storage and loading aboard refrigerated tankers.

Liquified petroleum gas storage is provided in two double walled, insulated tanks, each of 175,000 barrels capacity located south of the CP main line Cascade Subdivision. A 12 inch pipeline carries liquid propane from the storage tanks, over the CP tracks at approximately Mile 121 Cascade Subdivision, to a tanker loading berth located on the north side of the track.

Construction of the LPG facility was started in October, 1965, and shipment to Japan commenced in October, 1966, as part of a 10 year contract. Transfer of propane from the storage facilities to tanker usually takes place once each month. At a rate of 10,000 barrels per hour, it takes about 26 hours to pump the tanker cargo of 240,000 barrels.

The railway tank car unloading facilities comprise two spur tracks, located off railway property, each

3.3 SERVICES TO MAJOR INDUSTRIES (continued)

having a sever-car-spot unloading rack, with pumping equipment designed to handle 7 cars per eight hour shift (25,000 gallons per car). Under normal circumstances seven cars are spotted each morning and seven cars late each afternoon. Distance from unloading track to nearest main track is 53 feet 6 inches, centre line to centre line.

There are two CPL main tracks which traverse the area in question, passing under the 12 inch propane transfer pipeline, and a number of smaller pipelines. These pipelines are supported by steel truss work which rests on steel columns. The clear span between columns over the two main tracks is 62 feet. The support columns on the south side are located 24 feet from centre line of the eastbound main track. Similarly those on the north side are located 24 feet from centre line of the westbound main track. Each support column consists of 2 - 12 WF 53 with cross bracing, bolted to shallow concrete footings. These supports are designed to accommodate the existing overhead loads plus 40 lb. snow loads and wind loading of 80 mph.

The entire Trans Mountain site on both sides of the CPL Cascade Subdivision is protected by a chain link fence. Access to the waterside site is provided by a private level crossing located at approximately Mile 121.15. The crossing itself has gravel approaches to 20 foot planks, crosses both main tracks, and is protected by flashing lights.

3.3 SERVICES TO MAJOR INDUSTRIES (continued)

Construction of the previously noted pipeline and storage facilities was authorized by Board Order No. 121188 dated June 22, 1966, and amended by Board Order No. 121665 dated August 11, 1966.

POTENTIAL HAZARDS

As indicated by both our own R.T.C. Dangerous Commodities people, and local Fire Marshall's representatives, the following situations could create serious hazards.

(a) Derailed equipment on the main track could strike the columns supporting the overhead pipelines, causing rupture of the lines.

(b) A motor vehicle-train collision at the level crossing could result in the support columns being struck, with results as in (a) above.

(c) A train derailment could involve collision with tank cars on the unloading tracks, as well as various in-plant pipelines including the 12 inch main loading line (these lines are located above ground, parallel with and between the two unloading tracks).

(d) An inadvertent act could cause a fire and subsequent difficulties in the tank car unloading area. This because all traffic to the dock, both vehicular and pedestrian must be routed through the tank car unloading area.

3.3 SERVICES TO MAJOR INDUSTRIES (continued)

DISCUSSION

Several meetings with the Industry and local fire protection Officers together with Railway representatives have been undertaken. As a result of these discussions, Trans Mountain Oil Pipeline Company has made a number of proposals, based on recommendations received from an independent Consultant.

Some of the work which the Industry is proposing relates to the control of vehicular and pedestrian traffic, access for tanker crews and emergency services to the dock site. These matters are being handled by the Provincial and Municipal Fire protection agencies as it relates to the unloading site which is located off operated right-of-way.

With regard to the construction of additional protection for the support structures, as suggested by the Operating Department of the R.T.C., the Industry has suggested that such devices would be impractical. I would concur in this viewpoint, and feel that any deflective or impact-absorbing structure would introduce many problems without necessarily providing much real protection. Aside from the fact that such construction would necessitate major plant revisions, including track re-alignment, it could conceivably create a situation where derailed equipment could be deflected into the tank car unloading area. In any

3.3 SERVICE TO MAJOR INDUSTRIES (continued)

event no protection would be provided for the unloading facilities, or the pipelines which are located a few feet above ground level between the two unloading tracks.

It would seem to me that in view of the potential hazards involved should a significant derailment occur in this area, both the public and the Railway would be best served if the possibility for such a derailment occurring were minimized. To this end Industry will exercise strict control of vehicular access to the level crossing by installing a permanent gate, thereby reducing the possibility of crossing accidents. As well they are proposing to install guard rails as shown on attached print of Drawing No. 20117, Sheet E2, at an estimated cost of approximately $10,000".

Subsequent to development of the above-noted report, a speed restriction of 20 miles per hour was applied to all rail movements passing the Westridge Terminal.

Some correspondence highlights relative to the facility in question are summarized as follows:

December 23, 1974 By letter, Trans Mountain indicated that as a result of a detailed study the following conclusions had been reached.

"1. Proceed early in 1975 with the installation of guard rails at an estimated cost of $10,300."

"2. Not prepare to construct an impact-absorbing structure between the CP

3.3 SERVICE TO MAJOR INDUSTRIES (continued)

Rail main tracks and the unloading facility."

It was further stated that the plant was built after receiving approvals from all concerned. That there had been no accidents or near misses while trains operated at 40 miles per hour for 8½ years, etc., "Should the contract (for export of LPG) be extended or renewed for another 10 year period (they)... will be pleased to re-assess the need for this structure".

June 3, 1975 — Letter from Chief Engineer Trans Mountain to Secretary, RTC, Ottawa "...We have had further discussion with C.P. Rail regarding the installation of Jordan Guard Rails and early indications are that the objections raised by the railway will be successfully resolved."

August 1, 1975 — Letter from CP Law Department to Secretary, RTC, Ottawa "...The Railway has no objection to the installation of guard rails.... situation will be reassessed in a years time...(re)...removal of 20 mph slow order. It would be desired at that time to have the overhead pipeline placed underground." (emphasis added)

3.3 SERVICES TO MAJOR INDUSTRIES (continued)

January 22, 1976	Letter from Chief Engineer Trans Mountain to Secretary, RTC "we have now reached an agreement...that we install guard rails on the main line."
June 7, 1976	Letter from Chief Engineer Trans Mountain to Secretary, RTC "the reason for the delay in the guard rail installation is because of an unsettled item covering liability in the event of derailment..."
November 4, 1976	Letter from CP Rail to Secretary, RTC "In view of...restrictive slow order since mid-1974,...suggested Committee recommend... they place their pipelines underground and protect their facilities with an earther dyke." (emphasis added)
November 5, 1980	Conversation between RTC Regional Staff and CPR/Trans Mountain staff as follows: Trans Mountain Chief Engineer indicated time was approaching when Trans Mountain would be renewing contracts for export. Jordan rail was not installed because of objections by CP Rail. Railway stated that there would be no request for an increase in train speed with respect to the 20 mph slow order in existence.
November 7, 1980	RTC Regional office recommended to Headquarters that the installation of Jordan Rail be made compulsory.

3.3 SERVICES TO MAJOR INDUSTRIES (continued)

Against the above-noted background, observations as follows are offered:

(a) Potential for disaster is substantial. Sixteen hours per day tank cars of propane are being unloaded in close proximity to a well-travelled main track. The centre line to centre line distance from near unloading track to adjacent main track is 53 feet 6 inches.

(b) Very large quantities are involved. At any given time there may be fourteen tank cars with a combined capacity of 350,000 gallons of LPG being unloaded. The two storage tanks on site can accommodate in excess of 12 million gallons. The transport vessel has a capacity of some 8 million gallons.

(c) Exposure is significant. Sixteen hours per day propane is being pumped through 3 inch lines over the CP main tracks. When the LPG tanker is loading a 12 inch line is utilized to accommodate a flow rate in excess of 350,000 gallons PER HOUR over the CP main tracks (this is the equivalent of 14 tank cars per hour).

(d) Although the plant is located on a relatively isolated section of Burrard Inlet, it also abuts a residential area in Burnaby. It is estimated that there may be a population of some 1,000 to 2,000 people within a 2000 foot radius of the facility.

3.3 SERVICES TO MAJOR INDUSTRIES (continued)

It is suggested that the status of current export contracts with respect to the Westridge Terminal should, at this stage, be discounted as a factor with respect to remedial action which might be contemplated. Furthermore, the following recommendations are put forth with respect to the Westridge facilities of Trans Mountain Oil Pipeline Company in Burnaby, B.C.

Recommendation 9 Trans Mountain Oil Pipeline Company be requested to indicate why the supporting structures for the overhead LPG pipelines at Westridge cannot be eliminated within 50 feets of the centre line of the two existing main tracks (if, after such modification, the lines remain overhead, existing vertical clearances to be maintained). It is suggested that if such changes cannot be completed by December 31, 1983, the Committee consider ordering the discontinuance of rail service to the plant.

Recommendation 10 That CP Rail be ordered to impose a further reduction in train speed at the above noted location. Speed to be restricted to 10 miles-per-hour until such time as the modifications noted in recommendation (9) above are completed, at which time an application for review will be entertained.

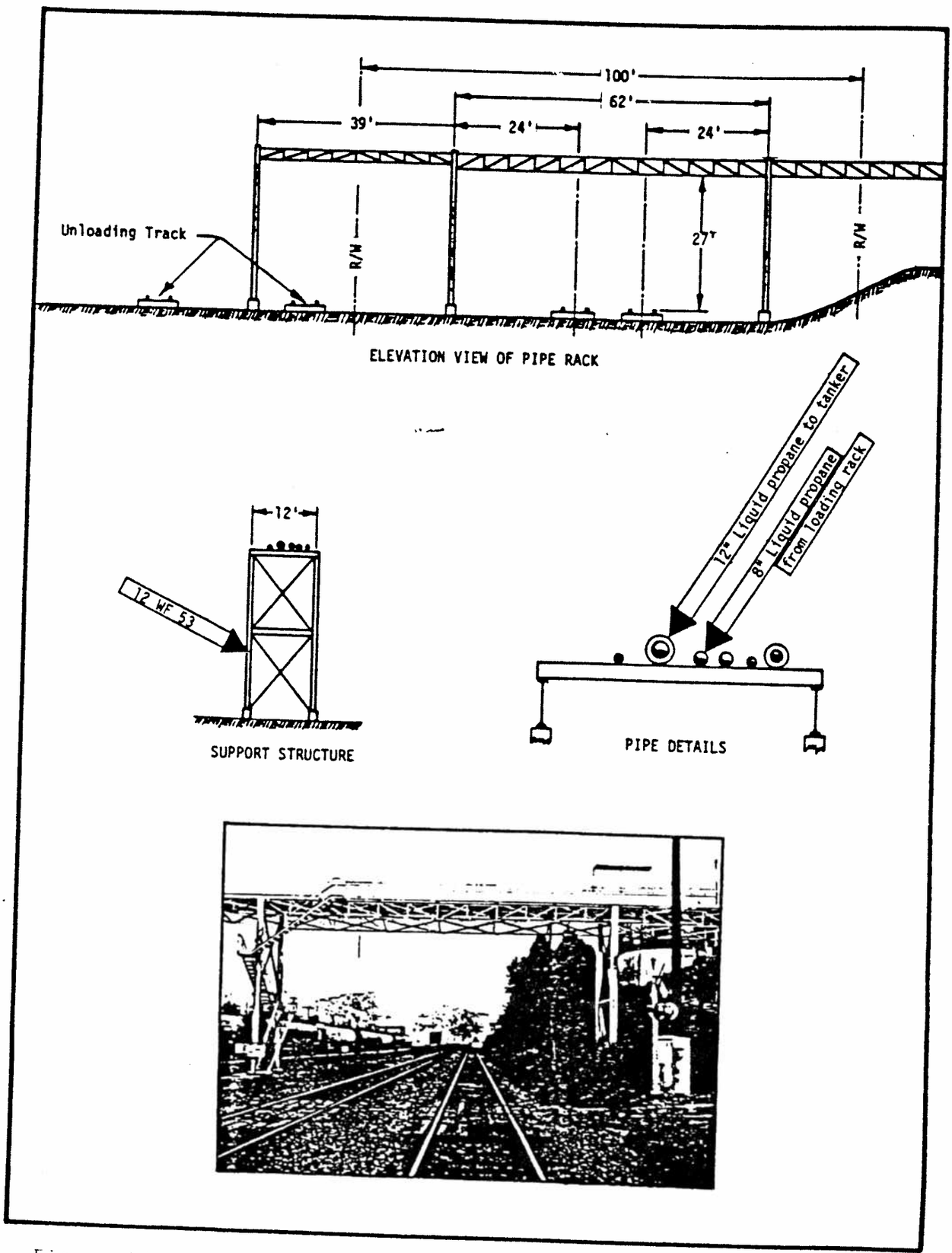

Figure 14 Details of Westridge Terminal pipe rack