

**Minutes of the Chevron Burnaby Refinery Community Advisory Panel Meeting
Wednesday, May 2, 2012**

7 – 9 pm at the Confederation Seniors Centre

PRESENT

Eileen Luongo (*left meeting at 7:45pm*), Rob McLean, Al Mytkowicz, Rob Firkins, Pat Connelly, Kathy Curran and Art Quan, Kathy Mezei, Bonnie Hayward, Ian Lacoursiere, and Maziar Kazemi

Chevron representatives:

Jill Donnelly, Health Environment & Safety Manager; Ruth Uy Environmental Lead; Jim Gable, Refinery Manager; Ray Lord, Public & Govt. Affairs Manager, Joanne Jamieson, Community Relations Representative.

Metro Vancouver Representatives:

Darrell Wakelin, Regulatory representative for Metro Vancouver

Facilitator:

Catherine Rockandel, Rockandel & Associates

Regrets:

Larry Avanthay, Metro Vancouver

CAP BUSINESS

1. Opening Remarks

- Catherine Rockandel welcomed CAP members and provided an overview of the agenda. Ruth Uy, Environmental Lead was introduced to CAP

2. Chevron Updates

a. General Refinery Operations - Jim Gable

- Jim reported that in March Chevron undertook a two-week preventative maintenance pit stop in the refinery's alkylation unit. The work was completed safely and on schedule.
- Ongoing tank maintenance work continues in Area 1 with crews now focused on Tank 116. The cleaning, inspection and repair work is proceeding as planned and the tank should be back in service in mid July. The next tank on the list for regular maintenance will be Tank 119.
- On February 16, 2012 the refinery experienced a release to containment of gasoline in Area 1 during preparations to load a barge. Twenty-six barrels of gasoline were released from a loose pipe flange to containment in the lined Area 1 impound basin. There were no injuries or odour complaints. The gasoline was quickly recovered and the flange repaired completed. Regular shipping operations were resumed later that day.
- As discussed at our last CAP meeting, crude supply issues persist as the Trans Mountain Pipeline (TMX) continues to be significantly apportioned. In response to this supply constraint, Chevron will begin shipping crude to the refinery via tank trucks later this month. Chevron expects to bring in 2,000 – 3,000 barrels of crude per day (7-10 trucks per

day) to offset or supplement the apportioned current crude supply being accessed via the TMX pipeline. By this fall, truck shipments are expected to increase to up to 6,000 barrels per day (20 trucks)

- Early next year plans are underway to use rail cars to ship 6,000- 8,000 barrels of crude per day by rail using minor modifications to an existing rail car loading facility in Area 3. It's important to note that this is not an expansion at the refinery but a way to supplement the crude supply challenges we are facing due to pipeline apportionment.
- New security cameras and lights are in the process of being installed near the Area 1 Control building. A neighbour reported that the lights were shining into the neighbourhood at night. The lights have been modified to alleviate the problem and Chevron will continue to work with neighbours to mitigate any concerns.

Questions about General Refinery Operations include:

Q1: Will the crude trucks be unloading at the Eton Street truck rack?

A1: No, trucks will be entering directly from Willingdon Avenue and unloading inside the refinery in Area 1 – they will not be using Eton Street or entering the truck rack.

Q2: Will truck and rail bring Chevron up to 55,000 barrels a day?

A2: Apportionment rates fluctuate so where we are at any given moment is hard to say. Specific, current capacity numbers and processing rates are competitively sensitive information that we cannot comment on publically.

Q3: What are the economics of three sources - rail, truck and pipeline?

A3: Pipeline is the least expensive method of delivery. Truck delivery is the most expensive with delivery by rail in the middle.

Q4: Are you being squeezed out of the pipeline?

A4: I will talk more about this during the CAP Q&A as it is part of our response to the broader questions on the pipeline issues currently being debated.

Q5: Will there be extra trucks, and if so how many?

A5: Yes there will be 7 - 10 trucks per day in May increasing potentially to a maximum of 20 trucks by this fall. This is less than one truck per hour.

Q6: Where does the oil in rail cars come from?

A6: Alberta

Q7: Is the work being done on the railway tracks anything to do with this?

A7: No the work happening recently on the tracks below Area 2 was to do further delineation and data gathering between the beach and the plant perimeter for the Area 2 seep. It was not related to the rail car off-loading facility in Area 3 near the wharf.

Q8: What is the timeline?

A8: Plans are now calling for the railcar crude off-loading to be operational in early 2013.

Q9: What is the refinery's current on-site crude supply storage?

A9: It's about 3 days' supply.

b. Area 2 Seep – Jill Donnelly - (see attachment #1)

- Jill Donnelly provided an overview of recent modifications to the absorbent clay mats at the beach. Contaminated material was removed followed by effectively “doubling up” the new absorbent mat material and installing new absorbent clay. The interim remediation system is inspected regularly by water and by land and continues to operate effectively.
- The work on the railway track continues with some extra test well drilling being done to further define and delineate the seep between the beach and the plant perimeter.
- The perimeter extraction wells within the refinery are effectively preventing further offsite migration. Based on testing data, the individual flow paths of groundwater are being conducted to the extraction wells. Captured water is being returned to the refinery for treatment.
- Last week the Ecological and Human Health risk assessments and problem formulation reports were posted on the CAP website. Risks associated with the seep appear low however the Ministry has asked for further studies with potential effects on shellfish. Chevron is in the process of initiating those studies and is identifying potential sources of applicable data including local First Nations.
- Jill showed a photo of Area 2 and addressed two wells being used to further delineate the area and to identify the proximity of unaffected subsurface conditions.
- Jill suggested that all the other perimeter monitoring would be conducted twice per year with the next testing in May 2012.

Questions about the seep include:

Q1: Is construction at the foot of Penzance Drive related to seep?

A1: No, it appears to be city work.

*** As follow up after the meeting, Ray Lord confirmed that the work crews & equipment recently seen positioned at the foot of Penzance were from CP Rail performing unrelated maintenance work.*

Q2: Who will do risk assessment?

A2: Chevron will hire a qualified contractor.

Q3: Is there a new well east of the flare?

A3: Yes. Again, it is part of an effort to further delineate and identify ambient or background conditions where no seep related contamination exists.

Q4: How interim is the clay barrier?

A4: By “interim” we mean months or years. We have work to do to see what a final remediation solution may look like. There are seasonal fluctuations in groundwater flow and we need to collect more data.

c. Site Remediation Summary Update – Jill Donnelly – (see attachment #2)

Jill provided an update on latest overall refinery site remediation summary with a handout of the site layout.

3. Emissions and Odor – Overview Presentation

A. Chevron – Jill Donnelly (see attachment #3)

CAP members had identified odors and emissions as priority topic for discussion in 2012. Jill focused her presentation on emissions that are measured and regulated by Metro Vancouver, as the January CAP meeting had focused on the refinery's odour management plan. Jill shared a schematic diagram of the refinery and reviewed the plant's primary emission sources.

- FCC – Fluid Catalytic Cracker. This is one of the largest and most important units. The FCC emits SO_x (sulphur dioxide), NO_x (nitrogen oxide) and some particulate which is monitored by the opacity of the stack emission.
- SRU – Sulphur Recovery Unit. This unit removes sulphur from refined crude products and collects it as molten sulphur. It is an emission source of SO_x (sulphur dioxide).
- Flare – Perhaps the most visible, but in fact is one of the smallest sources of emissions. The flare is a primary key safety device. If there is any buildup of gasses during preparation for a unit shutdown or during a plant upset, they are diverted and safely combusted at the flare.
- The refinery has between 13 furnaces and boilers. They play an important role in the refining of crude oil by heating production streams to distill the various components. Operating a furnace or boiler generates SO_x, NO_x and greenhouse gas.
- VOC's (Volatile Organic Compounds) are emissions that are seen at refineries. They are emitted by tanks, valves, flanges and other equipment. Once a year, over a two month period, Chevron conducts an LDAR (leak detection and repair) program that involves testing every potential VOC or fugitive (so named because they are hard to find) emission source in refinery using specialized "sniffing sensors." There are thousands of valves, flanges and pumps that are inventoried, tagged and entered into a tracking database. Any that exceed a leak threshold of 1000 ppm (parts per million) VOC's (the lowest threshold in the country) must be repaired within 7 days.
- Marine and tank truck loading is another potential source for emissions. Chevron has a VRU (vapour recovery unit) at both the truck rack and at the marine loading wharf.
- More ships and barges are now equipped with vapour recovery compatible connections which has contributed to steady improvements in overall refinery VOC emissions in recent years.
- Chevron has seen a steady decline in overall emissions as a result of significant process & equipment modifications brought about in compliance with MV air permit amendments.
- Compared to other Canadian refineries, current emission levels from the Burnaby Refinery meet a comparatively high standard
- Mobile sources/vehicles in the Lower Mainland are the largest source of emissions and all fuel manufacturers have contributed to mobile source reduction by reducing sulphur in gasolines.
- In terms of greenhouse gas (GHG), the refinery comprises less than 1 percent of British Columbia's greenhouse gas inventory. GHG's are primarily a product of combustion.

Questions about emissions:

Q1: At what level of Total Particulate Matter (TPM) does Metro Vancouver get concerned?

A1: Chevron's permit specifies limits for particulate matter and opacity (for the FCC). In addition, there are ambient air quality objectives and standards for particulate matter that ambient air quality monitoring data is compared against.

Q2: How many leaks detected through the LDAR program were repaired?

A2: Less than 0.2% of potential sources were identified during the last LDAR survey.

Q3: is there anything in the water vapour from the cooling tower?

A3: No

Q4: Are emissions released into the air passed through a scrubber/ filter?

A4: No

Q5: Is there a document where you can see the emissions per source?

A5: The National Pollutant Release Inventory (NPRI) managed by Environment Canada lists this information. Specific data pertaining to the Burnaby refinery is listed by substance and form of release (i.e. storage and handling, fugitives, point sources)

b. Metro Vancouver - Darrell Wakelin, Regulatory representative for Metro Vancouver
Darrell presented an overview presentation. (see attachment # 4)

- Darrell provided a brief overview of Chevron's permit GVA0117. Last amended in 2008.
- Metro Vancouver use historic data, air dispersion modeling, best available control technology, best management practices, municipality, health agency, and public comments, health risk assessments, ambient air quality objectives, emission inventory data, and air quality management plan goals to evaluate permit applications and establish permit limits/restrictions.
- Chevron hires consultants to perform stack tests and conduct continuous emission monitoring audits as required in the permit. The SRU and FCC are the two largest point sources of air emissions and have extensive monitoring requirements.
- Metro Vancouver staff routinely audit compliance testing, review Chevron monitoring reports, conduct site inspections, respond to public inquiries and complaints, conduct community odour surveys, review data from the ambient air monitoring stations.
- Chevron provides information reports including CEMS (Continuous Emission Monitoring System) performance evaluation, CEMS independent audit, SRU efficiency, refinery production, major process unit shutdown schedule, flare events, tank upgrade report, flare flow verification report, utility reliability report, and complaint follow-up reports.
- Local ambient air quality monitoring stations are located at Kensington Park, Second Narrows, Capitol Hill, and Burnaby North.
- Darrell suggested CAP members review the Caring for the Air report if they have not already done so, as it written in plain language and provides an excellent overview of air quality management within Metro Vancouver. The report can be viewed at <http://www.metrovancouver.org/services/air/Pages/default.aspx>

Q1: Why does the T23/Capitol Hill monitoring station only have two indicators while others have more?

A1: T23 and the selected monitoring instruments were based on the air contaminants emitted from point sources (FCC & SRU) within the refinery. Metro Vancouver is looking to expand the parameters monitored at T23 to include particulate matter.

Q2: Are any of the emissions indicated at the ambient monitoring stations more dangerous than others?

A2: The hazard associated with any of the monitored parameters is dependent on the chemical composition and concentration. It should be noted that a local air quality study, referred to as the UBC Study, was conducted in 2002 to assess the human health impact of air emissions from the Chevron refinery. The study identified SO₂ as a potential issue for people with asthma. This finding resulted in changes at the refinery (FCC) to reduce SO_x emissions.

The study also identified that average VOC concentration were higher in the area near the Chevron tank farm than elsewhere in the GVRD. As presented by Jill, there have also been steps taken to reduce VOC emission from Chevron. Further VOC studies have also been undertaken to assess VOC emissions from Chevron.

Q3: What baseline data do you use?

A3: Metro Vancouver has taken baseline samples outside of this local community during previous monitoring studies. These locations are meant to represent urban areas not influenced by refinery emissions.

Q4: Did Chevron have any recent exceedances?

A4: Last year Chevron reported a stack test exceedance of the NO_x limit for their DHT furnace (Emission Source 21R). During the first quarter of 2011 Chevron reported two one-hour exceedances of their SO_x limit for the SRU (Emission Source 22R)..

Jim Gable commented that Chevron takes exceedances very seriously. We operate within close proximity to a residential neighbourhood so it is very important to us.

Q5: What are Metro Vancouver penalties for violations?

A5: We have punitive and non-punitive. We have to evaluate case by case. Not aware of any punitive enforcement against Chevron. Metro Vancouver also posts stack test and CEMs monitoring data for permitted facilities on our website

(<http://www.metrovancouver.org/services/permits/Pages/search.aspx>).

Q6: Is there a place in Metro Vancouver that has “pure air” to use as a baseline?

A6: An ambient air monitoring station is being established near Ucluelet, BC.

4. CAP Q & A

Catherine Rockandel provided an overview of topic areas that CAP members had brought forward for discussion in pre-CAP meeting telephone conversations. These included:

1. Area 1 fence line vegetation and landscaping issue

- Ray Lord provided an overview of the Area 1 landscaping plan. To understand neighbours sightlines and view corridor concerns we did a walk through with our vegetation management group including the City of Burnaby, Bartlett Tree Services and Chevron's contract landscaper. The team looked at the City owned boulevard property between Willingdon and Rosser, which is not in good condition. This area provides a natural screen to Chevron's truck loading terminal yard. The City has communicated that it doesn't have the resources or time to manage this area beyond major safety concerns and have authorized Chevron the go ahead with any improvements to the area as long as they are kept apprised. Chevron's plan going forward is to do some ivy removal to protect the health of the existing trees and to plant appropriate shrubs to create a greater screening density up to a height of perhaps 10 feet. Trees in this area will not be topped, but dead trees and / or dangerous tree branches will be removed as required.
- Ray pointed out the buffer zone park area near the foot of Rosser on an aerial map. See attachment #3. The landscaping in this Park area, which is located on Chevron property, was established with public consultation and planning during the late 1990's.
- Chevron does have security concerns along the Area 1 fence line involving visibility of the security fence along with potential vandalism and thefts from plant property. Chevron is exploring screening options to improve perimeter security in an aesthetically sensitive manner and will welcome input and comment from CAP.
- The area of large, mature fir and deciduous trees near the Madison Street Gate was discussed. Some of these are on Chevron property while some are on City property. One badly damage tree in particular has been an ongoing maintenance issue because of multiple crowns caused by previous topping and major limb loss due to winter snow damage. The City of Burnaby arborist has indicated that they are very resistant to taking out or aggressively topping trees. Chevron is exploring options to prune some of the damaged branches and to rehabilitate that one badly damaged tree as part of an overall perimeter vegetation management program.
- It's important that CAP understand – For security reasons, refinery security patrols needs to see the fence from the inside of the plant while also being sensitive to the aesthetic appearance of the fence from outside the facility. Efforts will continue to try to address concerns from neighbours as they arise recognizing that responding to requests from some, may create annoyances to others.

Q1: Along Penzance at foot of Gamma there is an approximate 100 square meter area that looks freshly filled, what is going on there?

A1: The site has been used to temporarily store clean fill from excavations around our site and has been cleared for some time. Later this year, it will undergo preparation as the site of our new fire hall.

Q2: The hedges to the west of Madison Avenue; could they be the same height as the fence he would think most people would rather look at that.

A2: That is among options we are exploring. The installation of chain link fence plastic slats in a gray or green colour has also been considered but at this time is not the preferred choice.

Q3: Trees in far west areas that have branches that extend over tanks, is there a concern?

A3: While the limbs are strong they can break under heavy rain or snow. These are the types of issues that we intend to address with the Perimeter Vegetation Management Plan.

b. Emergency Notification Status Update

Ray Lord provided an update on the refinery's emergency notification proposal to the City of Burnaby. On April 24th. Jim and Ray met with Chad Turpin, (Deputy City Manager) and Charmaine Pflugrath, (City of Burnaby Emergency Services Coordinator) to present the proposal. The proposal is now in the City's hands. Ray will be following up with Chad Turpin and with CAP with any further developments.

Q1: What about the data privacy issues?

A1: Here in British Columbia and Canada we have very restrictive data privacy policies and regulations. In response to that requirement, the system vendor we have been working with to develop our proposal (Rapid Notify) has included the establishment of a Canadian-based server capability.

c. Pipeline Proposals and Refinery Crude Supplies

Jim Gable provided comments on the ongoing issue of Western Canadian pipeline expansion. Kinder Morgan owns and operates the Trans Mountain (TMX) pipeline, with a capacity of 300,000 barrels per day from Alberta. Original discussions outlined a proposed expansion from 300,000 to 600,000 barrels per day with an estimated cost of approximately 5 billion dollars. Chevron's position has always been that we want to maintain a reliable, economic source of crude. Based on larger potential demand, Kinder Morgan has now proposed an increase in capacity to 850,000 barrels per day. Kinder Morgan feels they have a business case to move forward. They need approval for tariff structure from the National Energy Board and have stated that they will undertake a comprehensive and broad based consultation process.

Q1: How does plant deal with power outages?

A1: We don't have our own power supply or co-generation capability. The refinery is serviced by two independent electrical power feeders and in the event of a power interruption; we have procedures to bring the refinery down to a safe and stable condition. We want to emphasize that we are in regular dialogue with BC Hydro about improving the robustness of our power supply as power outages are a major concern to our business.

Q2: Is all the planned increase in crude capacity in the pipeline going to Asia?

A2: It is a mixed product pipeline carrying raw bitumen, crude, bitumen and finished petroleum products. I don't think the Government of Canada would allow all the crude in the pipeline to be shipped to exclusively to Asia.

Ray commented that there are no plans for this refinery to increase its capacity.

Q3: What about oil spill response?

A3: Chevron is a founding board member of Western Canada Marine Response Corporation (formerly Burrard Clean). They are based at the former Shellburn refinery site here in Burnaby and are cooperatively funded by local petroleum industries. Chevron also has its own spill containment equipment on site including booming equipment and a boom deployment boat based at the wharf in Area 1. Our operators are also trained on boom deployment and spill response.

NEXT MEETING: Thursday, September 13, 2012

ADJOURNMENT

- Catherine encouraged members to contact her in advance should any questions or concerns arise between meetings. She will be calling CAP members in mid August to begin planning for the September meeting.
- Meeting adjourned at 9.00pm.