Minutes of the Parkland Burnaby Refinery
Community Advisory Panel (CAP) and Annual Public Meeting
Wednesday, November 20, 2019
7:00 – 9:00pm
Confederation Seniors Centre

PRESENT

Al Mytkowicz, Davis Vaitkunas, Michele Joel, Tim Maryon, Catherine Carlson, Joanne Smith, Eileen Luongo, Kathy Mezei

Parkland representatives:
Kel Coulson, Manager, Policy & External Relations; Nick Middleton, Director, Health, Safety & Environment; Kate Groves, Director, Operations; Dave Schick, Director, Policy & External Relations; Shannon Urquhart, Community Affairs Lead; Vicki Bowman, Environmental Team Lead; Jacki Hess, Fixed Equipment Integrity Team Lead

Regulatory Representatives
Metro Vancouver: Darrell Wakelin and Jason Mushtuk

Facilitator:
Catherine Rockandel, Rockandel & Associates

Regrets: Dan Wood, Fraser Health: Dr. Aamir Bharmal, Aswinee Rath

CAP BUSINESS

1. **Opening Remarks** (Attachment One)

- Catherine Rockandel welcomed CAP members and members of the public. She led the introductions of CAP and other Parkland representatives then provided an overview of the agenda
- 18 members of the public attended the meeting

2. **Refinery Updates**

a. General Refinery Operations – Kate Groves

- Burnaby Refinery's safe and reliable operations have continued through Q4
- The refinery experienced a power outage the evening of October 28 which took refinery units offline. The refinery was well prepared for this type of scenario and our 24-hour on-site teams and safety systems functioned as planned and expected. There was no danger to staff or neighbours.
- Once power was restored, our team immediately began the process to safely recommence normal operations.

- The outage lasted approximately two hours. We are currently investigating the root cause of the outage.
- We had one exceedence in the Sulphur Recovery Unit as a result of a power outage experienced at the refinery on October 28
- Also related to the power outage, we notified the Provincial Emergency Program (PEP) of a minor hydrogen leak that was noted from a compresser upon re-start of the Diesel Hydrotreater Unit. The compressor was immediately shut down and repaired.
- The refinery's 2020 turnaround is scheduled to begin in February for approximately six to nine weeks. It will be about the same scale as the 2018 turnaround. Turnarounds are annual refinery maintenance events during which we complete work on specific units that can only be completed while the refinery is fully or partially shut down.
- We will be completing maintenance on one of our crude units, which separate lighter and heavier products using heat; the fluid catalytic cracker, which breaks down hydrocarbon chains into smaller, more usable products; and the sulphur recovery unit, which takes excess Sulphur removed from products and converts it to liquid form for safe transportation offsite.
- We will also take advantage of those units being down to do some focused preventative work on the other units, complete some proactive upgrades to our safety systems, and complete some project work to help facilitate our green refining efforts.
- Approximately 550 additional contractors will be onsite at peak headcount. Augmented traffic management (based on feedback from previous turnarounds) will be in place to ensure safe access and egress during our shift changes. A communication about this will be delivered to nearby residents in the coming weeks.

b. Emergency Management - Nick Middleton

- The refinery has an emergency practice system in place to conduct hypothetical drill practice for fire and spills; to test and manage rules and ensure all emergency management responding agencies are talking the same language.
- On November 6 we held our annual emergency response drill. We practice different scenarios at each drill and this time our teams responded to a hypothetical lightning strike that caused a tank fire and a power outage at the refinery.
- The refinery's regulators and other stakeholders observed and/or participated in the drill. This was a good opportunity to continue building relationships with these external parties so they can understand how we would respond in the unilkley event of an emergency.
- At these drills we practice using the Incident Command System (ICS) which is

an internationally-recognized emergency response protocol. We also simulated deploying equipment, including fire trucks, foam, and air sampling equipment.

Comments or questions about the updates.

Q1: How many shifts would the 550 contractors involve? What time do they work? How do you intend to handle the extra vehicles?

A1: The refinery operates 24/7 so there will be a peak of 550 workers on each day and night shift. Day shift is from approximately 7:00am to 5:30pm and night shift is from approximately 7:00pm to 5:30am. In addition to flaggers we utilize extra parking off site and shuttle workers to decrease traffic impacts.

Q2: Do you have a back-up power supply for the refinery?

A2: The refinery requires a large amount of power and maintaining backup power for the whole refinery is not feasible. However, we have backup power on critical safety and control systems to ensure they function as expected.

Q3: Did the emergency notification processes come up at the emergency response drill?

A3: Given this was a simulation we did not do public notification. However, if emergency notification were required in the unlikely event of a real emergency, this would be completed through the City of Burnaby's jurisdiction under Unified Command.

Q4: Has the City of Burnaby indicated that they are going to do neighbourhood or City-wide emergency notification?

A4: The City of Burnaby is currently conducting a review of their Community Safety Plan. Parkland continues to be supportive of an emergency notification system, and has worked with the CAP subcommittee over the past decade to advocate for this by the City.

Q5: In the event of a real tank fire, how long would it take to extinguish?

A5: The duration would depend on the type of fire and circumstances surrounding the incident.

Q6: In the emergency response drill, how long did it take you to extinguish the fire?

A6: In this hypothetical scenario, the fire "began" at approximately 7:30am and was "extinguished" by 11am.

Q7: When you do practice drills do you update the website to let neighbours know that you are conducting a practice drill?

A7: No, however we do simulate updating our website with information about the hypothetical incident, as we would in the event of a real emergency.

Q8: In terms of health impacts from emergency situations who distributes the medical health information?

A8: Metro Vancouver's air quality group issues separate air quality statements.

Depending on the nature of the issue, the Health Authority may also issue advisories.

Metro Vancouver representatives monitor impacts related to federal standards and objectives (amounts of concentrations of different substances in the air) and Metro Vancouver regulations, which can stricter than the federal standards.

Q9: What is the size of the drones you used in the practice drill?

A9: They are small, approximately one foot by one foot

Q10: In an emergency situation what noises would neighbours hear from the refinery? Are there lights, alarms, sirens?

A10: Every Friday at noon the refinery tests the alarm system. This is what you would hear in an emergency situation. This alarm is intended only for those within the refinery fence line.

3. **Presentation:** Refinery Power Outages: What happens when the lights go out? - Jacki Hess (Attachment Two)

Comments and questions about the presentation:

Q11: If one of your energy sources is steam what is the energy source for the steam?

A11: Steam is produced using natural gas produced in the refinery processes and imported from Fortis BC.

Q12: What was the cause of outage?

A12: The refinery investigates issues by identifying both the source (what happened) and the cause (why it happened). While we know the source of the outage, we are still investigating the cause.

Q13: So, every time there is a flare does that mean there is a power outage?

A3: No, the flare is an inherent safety system. The pilot light is ignited 24 hours per day. Anytime a process unit needs to release pressure, the products are safely combusted through the flare.

Q14: My understanding is that the refinery is supplied with electricity from two areas. If one goes down then another can provide power. My main concern has always been that the supply that comes in along Barnett Highway is vulnerable to large alder trees falling on the line. Do you work with BC Hydro to ensure this corridor is safe and why don't they address the trees?

A14: We work closely with BC Hydro to help ensure adequate power supply to the refinery.

4. **Presentation:** Policies Behind Green Refining: A presentation on low carbon fuel policy - Dave Schick (Attachment Three)

Comments and questions about the presentation:

Q15: What is a biodiesel? Can you tell us more about your tests with tallow?

A15: Biodiesel is a diesel fuel substitute that is made from renewable materials and then combined with petroleum diesel to create a diesel blend. Tallow is rendered animal fat, which we have processed through existing refinery infrastructure with traditional crude oil to create low-carbon gasoline, and diesel. Our tallow is supplied by West Coast Reduction in Vancouver.

Q16: What is the carbon intensity of co-processed fuels versus conventional fuels?

A16: The carbon intensity of renewable fuel is on average 1/6 of the carbon intensity of conventional fuel.

Q17: As the carbon intensity is lowered, does the fuel not lose energy?

A17: In Parkland (Chevron station) products you can't tell the difference between renewable and conventional fuel.

Q18: When calculating carbon intensity, do manufacturers take into account the growing/harvesting cycle of the carbon, and the impact of that carbon in the calculations?

A18: Yes, they do, it is factored in as part of the life cycle analysis approach.

5. Metro Vancouver Update – Jason Mushtuk

Reporting Period: Sept. 2019 through Nov. 2019

Overview of MV Update Content

Metro Vancouver has the regulatory authority specific to the discharge of air contaminants and management of non-domestic waste to sewer within the region. The Parkland Burnaby refinery has both an air discharge permit and liquid waste discharge permit that we administer. Both the permits have extensive monitoring and reporting requirements.

Typically our summary at CAP is a snapshot of some of the activities related to the administration of the permits conducted since the last CAP reporting period.

Topics can include:

- Site Inspections
- Summary of air quality complaints
- Odour surveys
- Response to specific Incidents (i.e. Parkland Advisories)
- Regional air quality management initiatives such as Bylaw development.

a. Refinery Notifications

Date	Level	Discussion
2018 Total		**7 Level One notifications**
2018 Total		**7 Level One notifications**

January 21, 2019		**FCC High Opacity** PRBC notified Metro Vancouver that the FCC is running at higher than normal opacity but still within permit limits. Cause of higher opacity under investigation.
January 31, 2019	One	**Burnaby Refinery – Planned shutdown of Poly and Penex units** planned shutdown of the Poly and Penex operating units located in Area one. During this turn-around, possibility of periods of intermittent, elevated flaring as equipment is being safely brought off-line and subsequently restarted when the work is completed
Feb. 4, 2019		**Sulphur Recover Unit (SRU) Exceedance of Permit Limit for SO_2** Permit limit of 5000 mg/m^3 exceeded for two hours. Parkland responded initiated investigation. Cause believed to be result of freezing H2S/SO2 analyzer monitor. No exceedances of SO_2 ambient objectives observed at monitoring stations during this period.
Mar. 14, 2019	One	**Unplanned Shutdown** Several units in Area 2 of the refinery will be shut down in order to carry out required maintenance. Possibility of elevated flaring.
Aug. 10, 2019		**Sulphur Recover Unit (SRU) Exceedance of Permit Limit for SO_2** Permit limit of 5000 mg/m^3 exceeded for one hour. Parkland responded initiated investigation. Cause believed to be result of signal loss from H2S/SO2 analyzer monitor leading to non-optimal operation of the SRU. No exceedances of SO_2 ambient objectives observed at monitoring stations during this period.
Oct. 29, 2019		**Hourly Flare Flowrate Reporting -** resulting from power loss at refinery.
Oct. 29, 2019	One	**Refinery Power Loss** – Power loss on evening of October 28th. Elevated flaring while units are off-line.
Oct. 29, 2019		**Sulphur Recover Unit (SRU) Exceedance of Permit Limit for SO_2** Permit limit of 5000 mg/m^3 exceeded for one hour. Parkland responded initiated investigation. Cause of exceedance was a plugged O2 analyzer which allowed excess oxygen during SRU startup which led to elevated SO2 emissions. No exceedance of ambient objective or SCE initiated.
Oct. 30, 2019	One	**Intermittent Elevated Flaring –** expected over next 2-3 days as process units are brought back on-line.

Oct. 31, 2019		**Hourly Flare Flowrate Reporting –** resulting from process units coming back on-line.

b. Air Quality Complaints

Month/Year	Complaints	Confirmed	Comments
Total 2017	35	27	Analysis – January highest month (25% - 9 complaints)
Total 2018	24	20	Analysis – June highest month (25% - 5 complaints – 4 were oily sewer odours)
January 2019	4	3	1 oily sewer. 1 petroleum odour, 1 visible emission
February 2019	0	0	No complaints
March 2019	4	4	4 oily sewer odour complaints
April 2019	3	3	2 oily sewer, 1 petroleum odour
May 2019	3	2	2 petroleum odour complaints to date.
June 2019	3	2	1 petroleum odour, I oily sewer, 1 sulphurous odour complaint
July 2019	4	4	2 oily sewer, 1 petroleum and 1 sulphurous odour complaint.
August 2019	10	10	3 oily sewer, 5 petroleum and 2 sulphurous odour complaints
September 2019	10	8	2 oily sewer, 5 petroleum and 1 sulphurous odour complaints.
October 2019	11	11	2 oily sewer, 6 petroleum and 3 sulphurous odour complaints
November 2019	7	6	3 petroleum and 3 sulphurous odour complaints
Total to Date	59	53	

c. Odour Surveys

Date	Activity
2017 Total	Eight odour surveys.
2018 Total	five odour surveys.
January 2019	One survey responding to complaints
February 2019	None

March 2019	One survey responding to complaints
April 2019	None
May 2019	One survey done to date – survey done during marine loading
June 2019	No odour surveys
July 2019	Two odour surveys
August 2019	One odour survey
September 2019	Two odour survey
October 2019	Two odour surveys
November 2019	None to date

d. Site Inspections/Meetings

Date	Activity
2017	8 inspections, 3 meetings with Parkland staff.
2018	5 inspections/monitoring audits, 4 meetings with Parkland staff.
January 30, 2019	Audit FCCU Particulate/Metals testing for Q1
Feb. 26, 2019	GHT Furnace NOx testing audit for Q1
Feb 27, 2019	Splitter Furnace NOx testing audit for Q1
March, 2019	None
April 10, 2019	On-site meeting to discuss PRBC Technology Scoping Report
May 3, 2019	MVRU inspection and VOC capture test audit
June 13, 2019	NHT furnace and Desulphurizer reboiler NOx testing Audit for Q2
July 4, 2019	22T (Tanker Truck Loading Rack) inspection
July 24, 2019	Audit FCCU sizing test during co-processing trials
August 25, 2019	Inspection of temporary WWTP
September 5, 2019	On-site meeting to discuss revised Technology Scoping Report
September 11, 2019	Audit NOx Testing on ES07R Steam Boiler
October 3, 2019	Conference call meeting to discuss Technology Assessment Plan and Modelling Plan.
November 6, 2019	Attended Parkland Refining Annual drill and presented on resources Metro Vancouver could provide in this scenario.
November 6, 2019	Audit FCCU Particulate/Metals testing
November 7, 2019	Audit FCCU RATA testing

e. Liquid Waste Permit

Date	Activity
2017	Metro Vancouver audit sampling of wastewater. No exceedance for any of the monitored wastewater parameters. 4 non compliance issues reported from quarterly monitoring reports.
2018	One exceedance of fish toxicity test in Feb. 2018. No other exceedances reported. No exceedances of Metro Vancouver audit sampling of wastewater.
1st Quarter 2019	One exceedance of TSS permit limit on March 9, 2019
2nd Quarter 2019	No exceedances of permit limits
3rd Quarter 2019	No exceedances of permit limits
October 2019	Metro Vancouver audit sampling of wastewater. No exceedance of any of the monitored wastewater parameters.

Parkland Refining submitted their application to amend their permit in December 2018. MV issued Parklands amended Liquid Waste Permit on June 11, 2019. The key changes to their permit are:

- Increasing their instantaneous cyanide limit from 0.1 mg/L to 0.3 mg/L with the monthly average remaining at 0.1 mg/L. Typical authorized limits for cyanide in Sewer Use Bylaw 299, 2007 (as amended) is 1.0 mg/L

- Allow wastewater discharge with a TSS concentration up to 100 mg/L from the beginning of October to the end of March annually. The average monthly TSS concentration is to remain at 40 mg/L. Typical authorized limits for TSS in Sewer Use Bylaw 299, 2007 (as amended) is 600 mg/L.
- Parkland Refining submitted an application to authorize the use of a temporary waste water treatment plant while they carry out necessary maintenance to their existing treatment works on May 6, 2019. Authorization of the temporary treatment system was granted from June 15 – September 15, 2019, with the provision of a verification period between June 30 – July 7, 2019 to prove the effectiveness of the temporary system. Parkland Refining met this requirement to the satisfaction of Metro Vancouver staff.

f. SOx Curtailment Events

Date	Activity
2017	Five SCE triggered based on SO2 readings above 190 ppb permit set point.

2018	2018-01-01 1 Hr SO2 Objective of 70 ppb was exceeded with hourly average of 70.8 ppb. This did not trigger a SCE. No other SCE recorded.
2019	No SCE to date

MV continues to work through the new permit requirements with Parkland Refining. These include the following:

Data Collection

- Requirement to install on-site meteorological station – Completed
- Requirement to conduct off-site ambient monitoring of SO_2, PM and possibly NO_x, depending on the results of dispersion modelling.
- Ambient AQ Monitoring Plan - Submitted June 29, 2018, revised and re-submitted September 12, 2018. Plan accepted.
- Ambient Monitoring Station to be installed & operational by December 31, 2018. Installation extension until December 31, 2019.

Dispersion Modelling

- First round of modelling includes one-hour & annual SO_2, 24-hour and annual
- PM and one-hour and annual NO_2 – This modelling was completed May 31, 2018.
- Second round of modelling will include one year of data from the on-site meteorological station – due January 31, 2020.
- Modelling will be used for the emission control technology assessment.
- Modelling scenarios will include permitted levels, upset events and non-standard operating conditions, such as when boilers are fired using fuel oil.

Emission Control Technology Assessment

- Technology Scoping Plan: outlines methodologies for assessing potential control technologies - submitted July 31, 2018.
- Technology Scoping Report: preliminary evaluation of possible options for Refined Technology Assessment - due December 31, 2018. After April 10th meeting between Metro Vancouver staff and Parkland Refining staff, the report was revised and re-submitted May 7th. September 5, 2019, Metro Vancouver staff met with Parkland Refining staff to discuss Parkland's re-submission. Another meeting on October 3, 2019 to finalize Parkland's revisions. Metro Vancouver received their final revision on October 17, 2019.
- Interim Solutions Plan: plan describing measures that Parkland will take to reduce emissions until a permanent technology solution is implemented - due December 1, 2018. Reviewed and accepted. On September 30, 2019, Metro Vancouver received Parkland Refining's application to ament their permit to reflect their interim limits.

- Refined Technology Assessment Plan: engineering assessment of top-ranked technologies and dispersion modelling - submitted May 15, 2019. The revised Refined Technology Assessment Plan was submitted on October 17, 2019. Submission has been reviewed and we are currently waiting for final revised version for review.
- Refined Technology Assessment Report: identify preferred emission control technology & implementation schedule - due January 31, 2020.

Permit Term

- Permit expires on January 31, 2021.
- Parkland will need to apply for a new permit
  - studies conclude on January 31, 2020
  - permit term provides 1 year for the permit application process.
- Permit application will be subject to Public Notification Regulation requirements.

Comments and questions about the update:

Q19: Were any fines issued because of the refinery exceedances?

A19: No

Q20: How many monitoring stations in immediate area?

A20: There are five, including one on Capitol Hill. In addition, there is one in North Vancouver. Parkland is currently working to establish another in North Vancouver on private lands.

For more additional information on our monitoring network: http://www.metrovancouver.org/services/air-quality/AirQualityPublications/LowerFraserValleyAirQualityMonitoringNetwork2012StationInformation.pdf

Q21: Does that only sense air close to ground? Do you use drones?

A21: All the monitoring stations have masts with a snorkel. There is a monitoring station on Capitol Hill so that monitors air at a higher elevation. No, we don't use drones at this time.

6. **2019 CAP Review & 2020 Agenda Review:** Catherine Rockandel

- The CAP role is to engage and connect with neighbourhood. Ten members participated in four regular meetings over the past year.
- CAP is a collaborative, transparent process with minutes are posted on website.
- The 2019 meetings focused on the following topics:
  - February: Annual Emergency Response Drill Update and Facility Modernization Presentation
  - May: Parkland Burnaby Social Investment Program

  - September: Emergency Response Program
  - November: Refinery Power Outages: What happens when the lights go out? Policies Behind Green Refining: A presentation on low carbon fuel policy
- CAP and the public suggested that a continued focus on the usual updates and discussion topics including:
  - Environment (fugitive smells, noise, rail and marine operations impacts)
  - Emergency notification
  - Plant and process safety, new construction and capital projects
  - Traffic management plan update
  - Specific neighbourhood interests suggested at the meeting included traffic and parking impacts on neighbours; emergency notification; health impacts of living adjacent a refinery; and neighbourhood beautification and the replacement of old Chevron signage etc.
  - Emissions/health effects from biofuels (i.e. tallow etc)
  - Metro Vancouver report on study of emissions etc

- CAP communications available at:
  - CAP Web Site: www.parklandcap.ca
  - Parkland contact: prbcrefineryinfo@parkland.ca

7. Facilitated Q&A

CAP and members of the public were invited to ask additional questions about the updates and presentations.

Q22: Can you clarify the shutdown procedures during a power outage? I am concerned that procedures and necessary back up power were not sufficient. I feel that public safety is at risk. Why does the refinery not have adequate back up power?

A22: Public safety is and was not at risk from the recent power outage. The refinery has back up battery power for control systems and critical operational systems, and we have safety systems like our flare that are always running.

Q23: I am curious about the new feedstocks you mentioned. Under current configuration how much bitumen comes to the refinery through the existing Trans Mountain Pipeline from Alberta? How much more will come with the expanded pipeline? How is this affected by the renewable feedstocks you bring in?

A23: The refinery does not process bitumen, it processes light sweet crude oil. We are currently able to process 55,000 barrels per day (some of which is renewable feedstocks like tallow), and we do not have capacity to intake more crude oil. Our tallow currently comes to site via barge and is stored in tanks.

Q24: The number of turnarounds seem to be increasing since Parkland took over. This has increased traffic, noise and other impacts for neighbours. Under Chevron they were approximately every five years. What has changed?

A24: Chevron's policy was to conduct fewer, larger turnarounds in part because it could manage supply through its other refineries. Parkland's approach is to complete smaller turnarounds more often to minimize the impact on the business (as Parkland only has one refinery) and on the community. This approach also fits better with Parkland's plans to modernize the facility to accommodate further production of renewable fuels.

We are conducting a traffic study to examine our current and projects traffic patterns and identify further mitigation measures.

Q25: Is it necessary for Parkland to provide parking to its staff and contractors? Why can't staff take transit?

A25: Many of our staff and contractors bring in their own specialized equipment necessary for them to do their jobs so we need to provide parking for them. Unfortunately transit near the refinery is limited and for those working nights it is unsafe to walk on roads like Penzance without sidewalks. We use offsite parking as available and practicable and are relocating staff to the new office to help reduce traffic.

ADJOURNMENT: Meeting adjourned at 9:00 pm