

THE BURNABY REFINERY'S

Neighbourhood News

A NEWSLETTER FOR OUR NEIGHBOURS
WINTER 2017 - ISSUE 52



Permits and Regulations

Striving for
Excellence

The Burnaby Refinery operates under three major permits: the BC Ministry of Environment's storm water discharge permit; Metro Vancouver's (MV) air discharge permit; and the MV regional authority's liquid waste discharge permit. With all three, our goal is to not only meet the requirements, but to proactively steward Environmental Excellence.

Provincial Permit

The provincial government sets the standards for storm water discharge from the refinery. All rain that falls within the facility must meet stringent discharge parameters before it is released into Burrard Inlet.

“All rainfall is collected in impounding basins, where it is tested for constituents such as oil and grease and suspended solids,” said Environmental Team Lead Vicki Bowman. “All tested constituents in the water must be below certain concentrations. If any are found to be above the specification, which rarely happens, it is not released and may be rerouted to our effluent treatment plant for further action.”

Regional Permits

The refinery's most complex permit is the one that governs air discharges.

“Metro Vancouver sets strict limits for all onsite emission sources such as our furnaces, boilers and processing units,” said Vicki. “Part of a refinery's job is to remove constituents in fuels so our vehicles will have cleaner emissions. This makes a significant difference to our region's overall air quality.”

However, these provincial and federal regulations regarding fuel emission standards affect the refinery's manufacturing processes: the refinery

must not only meet these standards, it must also ensure it continues to meet the air quality discharge levels set by Metro Vancouver.

“Our Metro Vancouver air permit includes requirements for conducting continuous emission monitoring and/or source testing for each emission source. There are also detailed reporting requirements which outline what data we are to provide to Metro Vancouver on a set frequency, including the results of our monitoring and our emission levels relative to permit limits,” added Vicki.

The refinery's air discharge permit also includes requirements for an odour management plan that ensures odours do not cross the plant boundary.

The refinery's liquid waste discharge permit is also governed by Metro Vancouver. This covers all water used in the refining process. All processed water must be directed to the refinery's effluent treatment plant. The permit has strict discharge limits and includes provisions for frequent monitoring and testing. After this stringent treatment at the refinery, this water is still directed to the municipal sewer for even further treatment.

Both of these regional permits include a requirement that the refinery maintain all its equipment to remain

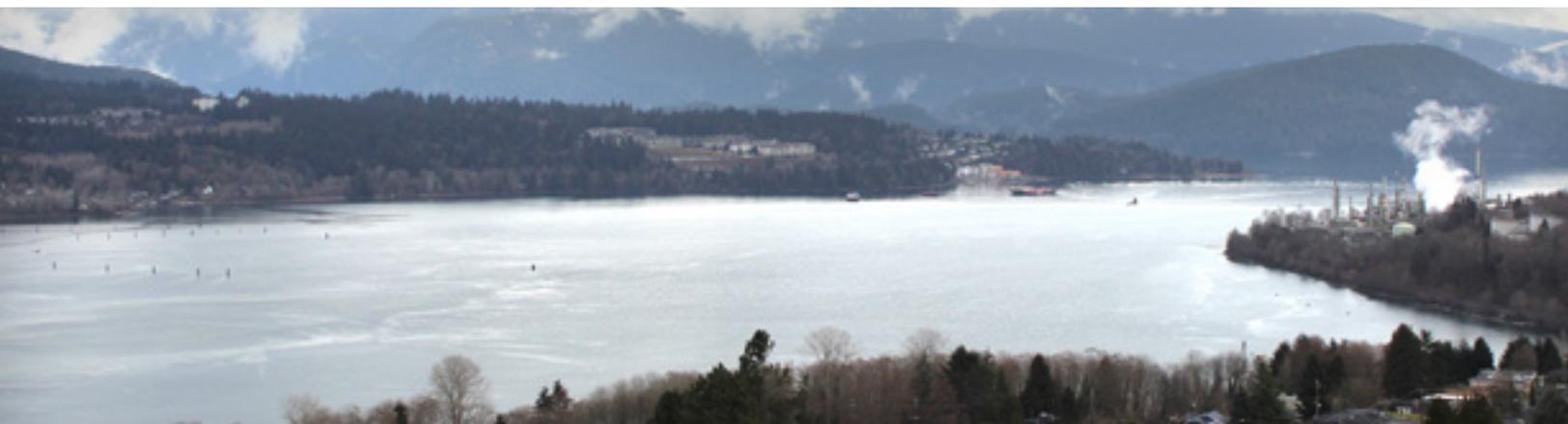
in good operating condition and meet environmental standards.

Raising the Bar

Both Metro Vancouver and Ministry of Environment officials visit the refinery for routine inspections (both planned and un-planned), to witness third-party testing, or to respond to an event. Metro Vancouver also maintains four ambient air quality monitoring stations outside the refinery, which both the regulator and the refinery use for ambient air monitoring. The regional authority will also respond to inquiries from local residents.

“Neighbours are encouraged to contact us if they have questions or concerns,” said Vicki. “Environmental stewardship is of the utmost importance to the refinery. We are proud of our goal to always operate with excellence and to strive to move beyond just what is required by our permits. Operating within our design and environmental limits is a top priority for us; it is engraved in our culture.”

The Burnaby Refinery welcomes your calls and feedback. If you have any comments or concerns, please do not hesitate to call our Community Contact Line: 604-257-4040. To speak directly with a Metro Vancouver air quality officer, please call 604-436-6777.



Manager's Message

Steve Parker, General Manager

In this issue of Neighbourhood News we're taking a look at the permits and regulations the refinery operates under. It goes without saying that Chevron will always comply with these rules; in fact, our expectation is to exceed these requirements and to perform to the highest standards. That means surpassing what our permits require of us. For example, I expect our workers and equipment to perform to a level where there are no spills or leaks (i.e., loss of containment) from our pipes and vessels. The end result is a refinery with an excellent record.

Much of what goes on at our facility is invisible to the surrounding community. Perhaps the most noticeable sign of our presence is the water vapour cloud that comes from the cooling tower. All refineries are designed the same way; we all have this same distinct tower which is used to cool down water used in the refining process. How obvious the water vapour cloud is depends on ambient temperature conditions. We hear from neighbours from time to time wondering about the cloud; it is completely benign and has no environmental impact. You can learn more about how the cooling tower operates in the Tech Talk article.

The Burnaby Refinery is in one of the most unique locations I can think of. It is a beautiful place and environmentally sensitive. We take operating here very seriously. To that end, we have created a world-class system to ensure the new barrier we install this summer along the Burrard Inlet foreshore will capture any contaminants that might move from the refinery to the shore. We've expended considerable resources for this remedy and are confident that it will do its job.



**Our
expectation
is to exceed
requirements
and to
perform to
the highest
standards**



Safety Matters Enjoying BC's Great Outdoors

It's one of the reasons many of us choose to live here: easy access to nature. Indeed, Burnaby is ideally situated for being able to reach our mountains, woods, and waterways quickly. But, there are some simple things we should all make sure we do before we head out to enjoy the great outdoors. Burnaby Heights resident Mike Coyle, a member of the Chevron Burnaby Refinery Community Advisory Panel and an 18-year volunteer with Coquitlam Search and Rescue, offers some great advice.

"I recommend reviewing the Adventure Smart website (www.adventuresmart.ca) to help with all trip planning," said Mike. "The site is updated often with seasonal info so during the winter, for example, tips on snowshoeing, skiing, and avalanche conditions are front and centre. I also like to emphasize the three Ts: training; trip planning; and take the essentials."

Mike notes that proper training includes having basic knowledge of what to do in an avalanche before venturing into the backcountry and knowing basic first aid before hiking. Trip planning is also vital—even if that trip is just heading out to take the dog for a walk.

"Someone should always know where you're going and when you expect to back," he advised. "It's easy to get turned around and get lost, especially

in the dark. If you have a trip plan and others know about it, it narrows down the search area considerably."

Tips from a Professional

Mike encourages people to review the Coquitlam Search and Rescue website (www.coquitlam-sar.bc.ca) for the 10 essential items you should carry at all times. These include a flashlight and spare batteries, extra food and water, extra clothing, navigational aids, fire starter, a first aid kit, emergency shelter, sun protection, a pocket knife, and a signalling device.

"These are all simple things that can fit easily into your backpack," added Mike. "Many of the people I've helped rescue have taken a little too long to admit they were lost. Without a flashlight, it's hard to see the trail when it gets dark and easy to trip and end up hurting yourself, even to the point where you can't move. A simple trip suddenly becomes very complicated. The temperature drops and, without a little extra food and water or warm clothes, you can be in trouble. Many people doing the Coquitlam Crunch, Grouse Grind and hiking on Burnaby Mountain take nothing with them. When you get in trouble and become stressed, it's easy to make bad decisions."

While many cell phones now come with GPS, Mike recommends using a map and compass as your navigational aids. "You'll want to save your phone's battery for actually making a call for

help," he said. "If you've been using it all day as a guide, it won't be able to help you when you really need it."

Know Before you Go

Mike cautions that anyone going into the backcountry should check first on avalanche conditions.

"Be prepared for your sport, be that skiing, hunting, or fishing," he said. "People often aren't prepared for things like the clocks changing to daylight savings or for snow at higher elevations."

Mike assists with an average 35 rescues a year, ranging from classic backcountry searches to helping locate people with dementia in urban environments who have wandered away from care. He also notes that many people are embarrassed about needing assistance and will delay calling for help because of that.

"Never hesitate to call; that's what we're here for and that's what we're trained for," Mike said.

Support from Chevron Canada

Chevron Canada was pleased to provide Coquitlam Search and Rescue with a \$10,000 grant recently to replace its mobile command centre.

"We received the grant in fall 2015 and built the centre in 2016; it's operational now," said Mike. "Search and rescue teams are completely run by volunteers. All the teams in BC are charities and rely heavily on grants and donations."

Tech Talk What does the Cooling Tower Do?

The cooling tower is one of the most visible parts of the refinery, particularly on cold, clear days when its cloud of water vapour stands out against the blue sky. But what does it do and how does it work? Let's take a closer look.

The Tower's Purpose

The cooling tower is used to remove the heat that is required to make the refinery's products, after that heat has done its work. (Heat is used to separate crude oil into fuels; once that process is complete, the heat must be removed from the products in order to store them.)

"The cooling tower uses water to cool down products so they won't be too hot when they're shipped to storage tanks," said Chief Power Engineer Jason Cantas. "Cold water passes through heat exchangers and picks up heat from the refining process. The warm water then

goes to the top of the cooling tower where it 'rains' down through a plastic grating. Giant fans at the top of the tower cause some of the water to evaporate and this creates the water vapour that neighbours often see."

How it Works

The cooling tower, which was commissioned in 2008, has five cells. Each cell has fans with variable speeds to allow for better control over water temperature while using less electricity. The tower's steam-driven turbine pumps are energy efficient and also allow the tower to continue operating even during a power outage. The tower was also built with excess cooling capacity so portions of it can be taken out of service without disrupting plants processes.

"We've never needed to do this, but it is a great feature to have," said Jason, adding that there is enough redundancy in the

system that workers can pull equipment such as pumps and fans out of service for maintenance without having to shut down the whole system.

Planned Maintenance

The cooling tower will be inspected as part of the refinery's major 2018 shutdown.

"The tower was built with low-maintenance, decay-resistant materials," said Jason. "The quality of these materials is one of the reasons the tower has never been out of service. As part of the 2018 inspection, we'll be checking the tower's basin for concrete integrity and repairs if needed."

What about that Cloud?

The cloud emanating from the tower is completely harmless. It is simply water vapour caused by evaporation, much like you see anytime you boil water in a kettle.

THE ENVIRONMENT

WHAT ARE THE STEAM CLOUDS?

The Clouds Over the Refinery Are Really Just Steam Clouds

Cooling towers recycle hot water so it can be reused at the refinery. As it cools, some of the hot water evaporates and is visible as steam clouds. The steam clouds are affected by weather and temperature.

HOT AND DRY: Steam is less visible and resembles a warm cup of coffee.

WARM WITH SOME HUMIDITY: Steam forms white, fluffy clouds which are easily noticeable.

COLD, WET AND NO SUN: Steam clouds are dark and heavy similar to rain clouds.

Across the Fence



Confederation Park Pipeline Maintenance Update

The maintenance work on the pipeline that runs through Confederation Park along the refinery's right of way is nearing completion. According to Senior Project Manager David Wu, the civil construction of the trenches is finished and about 80 per cent of the work on the piping is also done.

"We're planning to commission the pipeline in late March/early April," he said. "We'll be doing trail restoration right after that, at which time the temporary fencing will also be removed."

In the meantime, if you have any questions about this project, please call our Community Contact Line: 604-257-4040.

Foreshore Remediation Update

Refinery staff has been working to address the seepage of oil near the refinery's Area 2 processing section and along part of the adjacent Burrard Inlet foreshore since it was discovered in 2010. The seepage is the result of a historic accumulation of petroleum hydrocarbons in the ground over a

period of time; it was not caused by a sudden rupture or failure of equipment.

Interim remedial action taken in 2011 has been doing an excellent job of preventing oil from entering Burrard Inlet - no oil has been seen at the inspection sites since September 2011. The interim remedial action entailed installation of an oil-absorbing barrier system comprised primarily of absorptive organoclay mixed with sand. While this barrier system has been a great interim solution, the refinery has been working with subject matter experts on a permanent remedy.

The final design for the new remedial system includes using a mix of organoclay, sand, and activated carbon. This means if any hydrocarbons in groundwater did manage to get through the clay they would be treated by the carbon. The subsurface parts of the remedial system also include an oleophilic bio-barrier mesh mat that will capture any oil that might rise to the surface, preventing the potential for oil sheens.

"We've received acceptance from the Ministry of Environment as well as

Fisheries and Oceans Canada and we're going through the approvals process right now with the Port of Vancouver. We are also addressing any First Nations concerns," said Environmental Specialist Chris Boys, who added that the application of the technology to the seep is a state-of-the-art solution.

What will look like a pile of rocks on the foreshore will actually be a carefully engineered surface cover system designed to protect the underlying remedial system from wave action in Burrard Inlet, including logs smashing against the structure. A marine engineer assisted with the design of the surface cover.

Installation of the new remedial system is expected to begin this July, when more frequent daytime low tides will allow for greater access to the foreshore.

The Community Advisory Panel website has extensive reports on the actions Chevron has taken to address the seepage since 2010. You can read about that here: www.chevroncap.com/files/current-issues.php.



Community Corner

Community Contact Line

(604) 257-4040

Chevron's Burnaby Refinery welcomes your calls and feedback. If you have any comments or concerns, please do not hesitate to call our Community Contact Line: 604-257-4040.

This line is staffed on weekdays between 8 am and 4:30 pm. Your call will be directed to the most appropriate person who can respond quickly. In the event of an emergency, or significant maintenance work underway that may contribute to unusual operating conditions, information and regular updates for the public are made available.

If you are calling after hours or on a weekend, please follow the paging instructions. Your call will be forwarded to our on-duty shift supervisors. If you would like to report an odour or if you notice anything that you think is unusual, please let us know. Your calls are very important to us and we will respond as quickly as possible.

To contact the Metro Vancouver air quality officer **604-436-6777**

For the refinery website, visit **www.chevron.ca/operations/refining**

For information about the Chevron/ North Burnaby Community Advisory Panel, visit **www.chevroncap.com**



Neighbourhood News is a quarterly newsletter produced by Chevron's Burnaby Refinery for residents of the Heights, Capitol Hill and surrounding areas of North Burnaby.

We invite your comments, questions or suggestions for future articles.

Please contact us at Neighbourhood News, Chevron Canada Limited, Burnaby Refinery, 355 North Willingdon Avenue, Burnaby, BC, V5C 1X4.

Joanne Jamieson, COMMUNITY AFFAIRS REPRESENTATIVE, **604-257-5030**
Kel Coulson, POLICY, GOVERNMENT & PUBLIC AFFAIRS REPRESENTATIVE, **604-296-3856**

Fax: **604-257-4093**
E-mail: **cclrefineryinfo@chevron.com**
www.chevron.ca



Dental Hygiene Students at Vancouver Community College preparing to provide dental care to low income elementary schools

Smiles all Around for the Chevron Tooth Trolley

The "tooth fairies" (aka dental hygiene students) at Vancouver Community College (VCC) are looking forward to the week of May 23. That's when the Chevron Tooth Trolley will start delivering some 200 elementary school children to their doors. The program, now in its eleventh year, provides children from seven schools in low-income Burnaby and Vancouver neighbourhoods with access to dental checkups. As most of the participating families do not have dental insurance, this is a great opportunity for the children and their accompanying parents to learn about oral healthcare. The dental hygienists teach each child the proper way to brush their teeth and about foods to avoid in preventing tooth decay. Each child receives a bag of dental products and a healthy snack.

"We're proud to have partnered with VCC since this program began in 2007," said Chevron Canada spokesperson Adrien Byrne. "More than 1,200 children have already benefited and 50,000 teeth have been checked and over 3,000 toothbrushes handed out. The college has provided over \$180,000 worth of dental service, while their students have gained important hands-on skills."

The Chevron Tooth Trolley is a great match for Chevron's community investment program which focuses on programs that provide health, education and training, and community capacity-building.

