

THE BURNABY REFINERY'S

Neighbourhood News

A NEWSLETTER FOR OUR NEIGHBOURS
FALL 2016 - ISSUE 51



Energy Conservation Initiatives

at the Refinery

As winter settles in, we're all likely using a bit more electricity and natural gas to keep our homes warm and well lit. It's the same at the refinery. Our energy needs increase over the winter months as we use slightly more natural gas for process heating and steam production. When it comes to energy conservation initiatives, however, refinery staff look for savings far beyond a change in seasons.

“We’re always looking at ways to leverage new technology and resources within the industry to reduce our energy consumption as well as our greenhouse gas (GHG) emissions,” said Process Engineer Mack Atkinson. “Improving the refinery’s energy efficiency challenges us to implement solutions that allow us to continue to operate safely, reliably, and efficiently. We put new ideas in place as they’re identified.”

Energy opportunities for process units, boilers, furnaces, the flare and auxiliary equipment are reviewed daily and communicated to Operations for optimization. Monthly energy meetings are held to discuss best practices, track opportunities, and action items. The refinery’s energy team also has the support of the Chevron’s Energy Business Improvement Network on progress, guidance and learnings discovered by other sites.

Initiatives Underway

The Burnaby Refinery has been putting energy-saving initiatives into practice for decades. When equipment is replaced or upgraded, staff source options that use high-efficiency materials and components. An example

of this is improved heat exchanger designs that recover more heat from hot process fluids and use energy-efficient motors on pumps. Implementing DMC (dynamic matrix control) in the refinery’s process units has optimized product yields while also reducing energy inputs. Improved discipline around equipment cleaning, including the online cleaning of fin-fan heat exchangers, is also leading to energy savings. Improving the heat transfer on these pieces of equipment reduces the electricity requirements for the units.

“When the refinery adds new equipment, energy usage increases to meet the demand of the product supply,” added Mack. “New technologies and practices within the industry are being developed continuously which help us maintain our energy efficiency.”

Energy Intensity Index

Refining requires a huge amount of energy, with the operating units consuming most of the “juice” used at the Burnaby Refinery. With demand increasing to meet the local market’s needs, it can be challenging to conserve the amount of electricity and natural gas needed to get the job done.

One useful metric used to measure the refinery’s energy efficiency is the EII - or Energy Intensity Index. This measures how much energy we use to operate our equipment and produce refined products.

“Over the past few years, throughput has improved, while our EII has been decreasing,” said Mack. “This means we’re able to produce more high value products for consumers while operating our equipment with improved reliability and efficiency. We’ve decreased the amount of energy required to produce the same volume of products today compared with five years ago.”

The refinery takes the need to conserve energy seriously.

“Energy, specifically electricity and natural gas, is one of the largest expenses and sources of GHG emissions for the refinery,” said Mack. “We want to ensure we continuously improve on our environmental performance while meeting fuel supply demands in the region. Reducing our environmental impact and costs associated with energy use help us maintain a reliable supply of products.”



Manager's Message

Steve Parker, General Manager

Refining is an energy-intensive process and conserving energy as we operate is critical. This is so important to Chevron that an Energy Intensity Index is one of our key performance metrics. The Burnaby Refinery's energy efficiency is compared with all Chevron's other refineries and we are always aiming to keep this number as low as possible. We have some innovative ways of conserving energy, some of which you can read about in this issue's cover story.

Turnarounds - periods where the refinery shuts down to conduct proactive maintenance - are another way we realize operational excellence. As you will see in our Tech Talk article, we are currently transitioning to longer turnaround cycles rather than smaller events annually. Spacing these activities out is good for the community, as it will concentrate the hub of activity that comes with a turnaround to fewer times. We are also committed to mitigating the impact of turnarounds on our neighbours by managing the additional demand for parking as well as the extra transportation of materials to the refinery. Our objective is to carry out all turnarounds safely and on a planned basis so there is no disruption to the supply of transportation fuels to the BC market.

Our refinery is unique. It's not typical to have a facility like ours in two areas separated by a park. It's a great feature and one that helps us blend in with the local community. However, there are times when we need to access the pipeline that runs on our right of way through Confederation Park (see Across the Fence for the latest update on this project). We monitor the integrity of the pipeline closely and work on it proactively. We appreciate those of you who are regular park users bearing with us as maintenance work continues on the pipeline. We've worked hard to minimize this impact and look forward to its conclusion next year.

Refinery operations have become safer than ever over recent years and we're proud of our low incident rate. This does mean, however, that our younger people are not getting the experience helpful to prepare for emergencies by living through real incidents. That makes emergency drills more important than ever. The training we will be conducting later this month (see Across the Fence) is vital for building skills to manage an emergency should one ever happen here.

Also later this month, we'll be participating in the annual CAP neighbourhood meeting. This is an opportunity for you to find out more about the refinery's operations as well as to tell your CAP representatives the areas you are most interested in. Your input helps shape the CAP meeting agendas for 2017, I hope you will take advantage of this chance to let us know your thoughts.



Conserving
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Safety Matters Emergency Preparedness

Just like the Burnaby Refinery, your place of work undoubtedly has many systems in place in the event of an emergency, be that a minor situation such as a power outage or a major crisis such as a significant earthquake. But these emergencies are just as likely to occur while we're at home. How prepared are you and your family?

Preparing for Emergencies

Our community could face any number of emergency situations. Depending on the event, first responders may not be able to reach and assist you for several days. We all need to be prepared to cope on our own during that time. During an emergency is not the time to prepare for it! One of the first things you can do is have an emergency kit at home as well as in your car. Each kit should contain food, water, and supplies for a minimum of 72 hours.

Here's what your emergency kit should contain:

- First aid kit and medications
- Cell phone with chargers, inverter or solar charges
- Battery-powered or hand-crank radio
- Battery-powered or hand-crank flashlight
- Whistle
- Local maps, cash (in small bills)
- Three-day (minimum) supply of non-perishable food and a manual can opener
- Water (four litres per person per day) for at least three days
- Seasonal clothing and footwear
- Garbage bags, moist towelettes and plastic ties for sanitation

Prepare your Home

Depending on the situation, services such as phone, gas, electrical, and water may not be available. Roads could be impassable. It could take weeks before infrastructure, utilities and services are restored.

To help us prepare, the provincial government has developed a number of tools including a household preparedness guide. It advises we:

- 1 Know the risks
- 2 Make a phone list
- 3 Pick a meeting place

- 4 Plan for your kids
- 5 Know where to get information
- 6 Know how to turn off utilities
- 7 Store emergency water
- 8 Stock emergency supplies
- 9 Consider special needs
- 10 Secure your space
- 11 Create a grab-and-go bag

Know your Neighbours

Your neighbours are the first people you will connect with during an emergency. Knowing them beforehand will help you pull together. Working together you can assign and share responsibilities. You can map your street to identify a safe meeting point for everyone in your community, to know which households may require extra assistance, where the utility mains are, and where to turn these off.

More Information

Provincial government guides to help us prepare for emergency situations are available online at www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/preparedbc.



Tech Talk Turnaround Planning Cycle

The Burnaby Refinery is transitioning from turnarounds that shut down refinery operations for short periods of time on an annual basis to a schedule where these events will instead happen for longer periods of time - but only every two to three years. Leading the site through the turnaround planning and execution process is IMPACT Team Lead Gord Bruce.

"This is a transition period for us," said Gord. "We're in the midst of planning a large turnaround for early 2018 that is expected to last approximately six weeks. This will be the biggest shutdown in the Burnaby Refinery's history. In an effort to manage the overall size and complexity of the 2018 event, we are scheduling a few minor turnarounds before and after it. In the near term, next fall, we will complete a planned pit stop on our Poly and Penex units for compliance-based inspections. This will be a smaller event and we do not anticipate any increase in traffic or other impacts on our neighbours."

Preparing for 2018

Gord leads a multi-disciplinary team of inspectors, engineers, mechanical planners, electrical instrumentation planners, and operations staff in preparing for the refinery's turnarounds. The team began work on the 2018 shutdown a year and a half ago and its members will transition to working on the event full-time in the new year as the event approaches.

The entire refinery will be down for approximately six weeks for the turnaround, which will start in February 2018. The flare stack will be replaced, the cooling tower will be refurbished, catalyst changes in seven different reactors will take place, and eight major units will be taken offline for equipment inspection, replacement or repair.

"Turnarounds are a proactive approach to equipment maintenance," said Gord. "On a planned regular interval, we take refinery equipment offline to inspect and repair or replace it rather than reacting to equipment failure. These repairs are completed to ensure we continue to run in a safe and reliable fashion. This turnaround is projected to be about 30 per cent larger than the one we conducted in spring 2015. As then, we expect the 2018 turnaround to be a safe, predictable, reliable and ultimately successful event."

Community Impact

The effect we have on our neighbours is taken into consideration from the outset of planning. There will be many additional contractors on site leading up to and during the 2018 turnaround.

"Starting mid-2017, we will begin to increase contractor loading as pre-turnaround work begins," said Gord. "Additional traffic through the area is a given and we're working to reduce the impact of this by creating a detailed logistics plan to effectively manage contractor movement. This

comprehensive plan includes provisions for parking, infrastructure and security."

Having the refinery not operate for a prolonged period of time affects the supply of fuel to customers in the Lower Mainland. To ensure the public has a consistent source of fuel, the refinery will build up its volume of stored fuel and will also work with partnering organizations to offset supply during the down time. Chevron does not anticipate any supply shortfalls.

"Ultimately, completing large cluster events during one turnaround every few years will minimize our impact on the community as well as improve refinery profitability," said Gord. "It's going to take a lot of work before we can transition completely to the two-to-three-year cycle, but we're now well on our way. We know we can be successful at this and we're working hard to reduce the effect on our neighbours. As always, we appreciate the support of our neighbours as shift to this new operating model."



Across the Fence

Emergency Response Drill

By their nature, emergencies are unpredictable events. While we cannot know when an incident will occur, we can prepare for a myriad of scenarios including earthquakes, fires, oil spills, and toxic releases. Should an event like one of these occur at or near the refinery, the response would come from many organizations and it is crucial that all the players involved be able to work together and collaborate.

With this in mind, representatives from Chevron Canada, Environment and Climate Change Canada, Transport Canada, Canadian Coast Guard, BC's Ministry of Environment, BC Oil and Gas Commission, Metro Vancouver, the City of Burnaby, the District of North Vancouver, Tsleil-Waututh Nation, Squamish Nation, Western Canada Marine Response Corporation (WCMRC), and Port of Vancouver gathered September 29 for an emergency response workshop. "It was a very good meeting for helping us understand what each group brings to the table," said the refinery's fire chief, Mike Ward.

The September workshop learnings dovetail nicely into Chevron's annual Emergency Response drill. On that day, the refinery will manage the drill through Incident Command Post with the team's actions evaluated by Transport Canada and the Canadian Coast Guard.

"It's important that we undergo drills like this so we are prepared should an

event ever occur," said Mike. "It provides opportunity to practice skills that will be required in an emergency, develop working relationships with agencies and work through complex decisions that can arise during emergency circumstances. Transport Canada requires us to do these exercises once every three years, but we're proud of the fact that we involve our entire Incident Command team in drills every year to keep us on our toes. The November 23 drill will be a great opportunity to collaborate with others safely and effectively."

Confederation Park Pipeline Maintenance Update

Maintenance work is continuing on the pipeline that runs along the refinery's right of way in Confederation Park. Senior Project Manager David Wu reports that significant progress was made over the summer and the civil construction is approximately 80 per cent complete.

"We accomplished a lot over the summer, including Japanese knotweed mitigation, removing old sections of pipe, stabilizing the ditch, and installing concrete trenches," he said.

Over the next few months, crews will focus on pipe installation inside the concrete trenches. Access to the park remains the same with temporary fencing in place to ensure public safety. We anticipate the project will be complete next spring.

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

We want to hear from you! Join us for the Annual CAP Neighbourhood Meeting

Anyone who lives in the community and would like to know more about the refinery's operations as well as the function of the Chevron Burnaby Refinery Community Advisory Panel (CAP) is welcome to join us for the panel's seventh annual neighbourhood meeting:

Wed / November 30 from 7 to 9 pm
Confederation Seniors Centre
4585 Albert Street

CAP members will take the opportunity to provide an overview of their activities in 2016. They are also looking to neighbours to suggest topics to discuss in 2017 and will take questions from those attending. Also, in response to community interest, the agenda will include a presentation by Chevron staff about environmental initiatives at the refinery including Tier 3 gasoline and some of the new technology initiatives we are working on.

CAP members are your neighbours. The panel has been active since 1996 and includes local residents who represent community interests. They meet regularly with refinery management and local regulatory officials. Please join us to learn more about the refinery as well as the important work CAP members do on your behalf.

Community Corner



Fuel Your School

Every time you filled up your tank at a Chevron station with 30 litres or more of gasoline in October, we donated \$1 to My Class Needs, a registered Canadian charity that helps connect deserving K-12 public school projects with interested donors. This year, with 11 school districts (representing all municipalities in Greater Vancouver) participating, we easily reached our goal of raising \$565,000 for classroom projects.

“This year’s Fuel Your School campaign was beyond successful,” said Chevron Canada spokesperson Adrien Byrne. “Within the first two hours of the program launching, we had 150 teachers applying for projects to fund. Thank you to all Burnaby parents who participated

and encouraged their children’s teachers to apply. Your support allows us to fund extra science, technology, engineering and math (STEM) projects in local schools. We believe projects like these encourage our children to pursue careers in these important areas; some may even end up working for us! Education, health, and economic development are Chevron’s corporate social investment priorities. Since 2013, we’ve contributed over \$270 million to education partnerships and programs worldwide.”

Fuel Your School has been running in the Lower Mainland now for three years. Here’s a breakdown of our support of Burnaby public schools through the program for 2014 and 2015:

20 schools supported in 2014
and 23 schools in 2015
198 classroom projects funded
8,900 students reached

To learn more about this great initiative, visit MyClassNeeds.ca.



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.

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Santa & friends at Light up the Heights, Burnaby Fire Hall



Stephen D'Souzathe at the Burnaby Christmas Bureau

Light Up the Heights 2016

Christmas - or at least one of the events that kicks off the festive season - comes early this year, with Light Up the Heights scheduled for Saturday, December 3. Hastings Street sidewalks will be bustling with lots of holiday cheer that day including carolers and Santa and his helpers plus merchants offering seasonal specials.

The tree lighting ceremony is set for 4:30pm at Burnaby Fire Hall No. 5 (4211 Hastings Street). This year there's a new celebration too: the first student Art Walk with masterpieces created by Confederation Park Elementary students displayed in the shops of participating merchants.

For more details, check out www.burnabyheights.com/events/light-up-the-heights/

Burnaby Christmas Bureau

As shoppers rush home with their presents, we hope everyone takes the time to remember that not all Burnaby children will find gifts under the tree. You can help by donating to the Burnaby Christmas Bureau. The organization assists low-income Burnaby families with children 16 and younger by providing them with new toys.

The Christmas Bureau has simplified the donation procedure this year and you are now able to support the organization online or by calling 604-299-5778 to make a gift using a credit card. Groups and companies as well as individuals can also make December 25 merrier for others by sponsoring a low-income senior or a family for the day.

To find out more, contact Burnaby Community Services at 604-299-5778 or www.burnabycommunityconnections.com/christmas.shtml

