ISSUE 33

THE BURNABY REFINERY'S

Neighbourhood News

SUMMER 11

A NEWSLETTER FOR OUR NEIGHBOURS

Chevron

Refinery Water Use

Making Every Drop Count

Water isn't something we associate with short supply here in Metro Vancouver but it is a limited natural resource that needs to be conserved. In recent years the Burnaby Refinery and other facilities in the refining industry across North America have been working to reduce water consumption.

Water and the Refining Process

Water is critical to a refinery. It may not seem obvious, but refining crude oil into transportation fuel requires water – a lot of it. In the words of Environmental Operator Calvin McPherson, "It's essential to what we do here; we couldn't work without it."

The crude oil that arrives at the refinery for processing contains naturally occurring salts. "We use water to dissolve and extract the salts during the refining process" added Environmental Lead Ruth Uy.

Water is also used to generate steam that's critical in operating the refinery's boilers and processing units. Once things are heated up, water is used to cool things off, primarily in the refinery's cooling tower. About 30 per cent of the water used in the cooling tower evaporates in the vapour cloud that's often seen wafting above the plant.

Discharging Water

The refinery segregates its process water (water that comes into contact with hydrocarbons during the refining process) from storm water (rain and runoff water that collects on the site) and treats them separately.

"Think of it like your laundry," advised Ruth. "It's like keeping your whites with your whites. You don't want the storm water to mix with the process water. We divert the rain water that runs off Capitol Hill through the refinery into its own special impounding basin where it's tested for various parameters before being released into Burrard Inlet."

"We're always trying to eliminate storm water from getting into our process water," added Calvin. "For example, rain that falls onto our tanks is re-directed to our storm water impounding basin. We collect it, test it, and, if it meets permit specifications, discharge it. It only enters our treatment system if it needs to be treated."

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Manager's Message

JIM GABLE
GENERAL MANAGER

As manager of the Burnaby Refinery, my fundamental driver is ensuring the safety of our employees and contractor partners. Another important concern is minimizing our impact on the environment and everyone who works here knows that how we conduct our business doesn't just end at our fenceline.

One of the ways we're minimizing our environmental footprint is by reducing our water consumption. The refinery uses a lot of fresh water and for several years now has been taking significant steps to conserve this important resource. This issue's cover story takes a closer look at our efforts in this part of our operation.

Chevron is at the forefront worldwide in the evolving area of renewable fuels. In this issue's Tech Talk article, we examine the use of ethanol in gasoline: where it comes from; how we blend it; its effect on vehicle performance; and its environmental benefits.

In the operation of a complex facility like a refinery, we all recognize that risks do exist and that it's our job to manage and mitigate those risks. An unlikely but serious incident like a tank fire is one of many scenarios our emergency response and fire crews thoroughly

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THIS DOCUMENT CONTAINS IMPORTANT INFORMATION.
PLEASE HAVE SOMEONE TRANSLATE IT FOR YOU.

這份文件包含重要資料，請找人為您翻譯。

이 문서에는 중요한 정보가 담겨있습니다.
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Safety First

Chevron Refinery Tech Talk

REFINERY WATER USE

Process water is always treated before it is released into the city's sewer system. Metro Vancouver regulates what can be discharged via the sewer including strict controls over pH level, temperature and several other perameters.

Reducing Water Consumption

Finding innovative and effective ways to reduce water consumption is an ongoing priority at the refinery and several recent changes are helping to dramatically decrease the amount of fresh water used.

There are many examples of changes being made to conserve water. "We're taking the water used in our processing units, removing contaminants, and then reusing it to de-salt the crude," explained Calvin. "We're also working toward reusing water that's been treated and is ready to discharge for washing down work areas and to pressure test vessels and tanks" added Cal.

The refinery is also replacing conventional water-cooled air conditioners in its control centres and installing air-cooled units. Another project is underway to modify one of the refinery's crude unit de-salters making it possible to use recycled water from elsewhere in the refinery for that process.

It's all about consuming less water and finding new and efficient ways to conserve this valuable resource that's often taken for granted.

MANAGER'S MESSAGE CONTINUED

train and prepare for. You can read how in this issue's Safety First article.

It hasn't been our best summer weather-wise, but everyone at the refinery has their fingers crossed for a warm pleasant evening for our fourth annual Chevron Movie in the Park on August 28. My family enjoyed last year's event and we're all looking forward to seeing Kung Fu Panda 2 on the big screen this year. I hope you will be able to join us for what is sure to be another spectacular evening for the family.

Preventing Tank Fires

An emergency scenario that the refinery prepares for is a fire in one of the blending or storage tanks. Effectively fighting a tank fire is significantly different from many other kinds of fire and requires extensive training and planning, including having the right equipment in place, conducting hypothetical or "table-top" exercises and actual hands-on field drills. Refinery fire safety crews practiced dealing with just such an event this past June.

Types of Tanks and Regular Maintenance

There are two types of tanks at the refinery; floating roof or fixed roof. The roof of a fixed roof tank is permanently attached to the tank's walls. The roof on a floating roof tank floats directly on or just above the tank's liquid level. The edges of the roof move along the inside walls of the tank and have secondary seals that prevent evaporation and vapours. Regular inspections to ensure tank systems are functioning properly are an important step in fire prevention.

Causes of Tank Fires

Chevron's Safety Specialist/Trainer Brad Kuznik identifies two potential causes of tank fires: lightning strikes and failures of floating tank roofs. "Fortunately, we don't get much lightning locally and our tanks have lightning protection or grounding systems in place. They also have sensors that constantly monitor the tank. Tank fires are extremely unlikely here because of our location, operating practices and procedures" added Brad.

Fighting Fire with Foam

If a fire were to occur, foam can be a very effective tool. "Foam is a good vapour suppressant and extinguishes the fire by depriving it of oxygen," said Brad. The tanks are equipped with foam application systems and piping is in place that can deliver foam directly to the area. A supply of fire fighting foam is always maintained on-site. The refinery has a fire truck with the capability of spraying foam onto tanks as well as a large-volume mobile monitor that can pump over 3,000 gallons per minute. A primary goal in fighting a tank fire is to cool the surrounding tanks to prevent the fire from spreading.

Fire Training

Safety training is an ongoing activity at the Burnaby Refinery. Brad estimates that some ninety operators and twelve maintenance personnel receive annual first responder training. Of those trained personnel, twenty five are fire captains who receive additional, specialized fire training.

Ethanol: Using Renewable Resources in our Fuels

In 2010, federal and provincial regulations were introduced governing the blending of ethanol into gasoline. Ethanol is a renewable fuel source grown in Canada and the U.S. as well as in other countries around the world. The intent of the Canadian regulations is to reduce the carbon intensity of transportation fuels by 10 per cent by 2020. The end result is an overall reduction in greenhouse gas emissions when the fuel is burned in your car's engine.

Chevron is a leader in moving to renewable fuels and the refinery began blending ethanol with gasoline in January 2010. Ethanol is shipped by rail from the U.S. Midwest and is then trucked to the refinery where it's transferred into a designated storage tank. The tank is equipped with a floating roof and secondary vapour seals as well as a double floor featuring the latest in leak detection technology.

Connected to the ethanol tank via piping, the truck loading terminal is where the actual blending of ethanol into gasoline takes place. The carefully metered mixing occurs just before the blended product is loaded into trucks for delivery to local service stations around the lower mainland.

"Meters send signals as to how much ethanol is needed to achieve the correct percentage of ethanol and gasoline," said Blending and Shipping's Operations Assistant Jim Rohla.

Effect on Performance

Ethanol has high oxygen content and octane properties. From vehicle performance and fuel consumption perspectives, ethanol blended gasoline at levels between seven to ten per cent is indistinguishable from non-renewable content fuel. It is becoming common practice in North America to blend ethanol with gasoline at these concentrations and all cars built since the 1970s are fully compatible with this fuel mix.

Environmental Benefits

On a full product life-cycle basis, a litre of fuel that has 10 per cent ethanol produced from grain produces three to four per cent fewer greenhouse gas emissions compared with a litre of straight gasoline.

Across the Fence

INSTALLATION OF A NEW INSULATED ROOF ON TANK #69 IS NOW COMPLETE

Fenceline Tank Receives New Roof Insulation

Neighbours may have noticed workers on top of a tank (#69) along the fence line in Area 1 recently. This particular tank contains product that needs to be kept warm; by adding insulation to its roof, the tank will not lose as much thermal heat. The work began in late spring and is in the final stages of completion.

Refinery Terminal Dredging

The refinery will be carrying out dredging to increase depth along its inner and outer berths starting in mid-August. Increased depth will allow ships and barges safer access in and out of the terminal, and provide improved clearance for modern double-hulled vessels. Dredging is anticipated to take between three to six weeks. To minimize any potential dredging related noise, crews will be limiting activity to between 8am and 5pm on weekdays.

As part of an effort to create some added environmental benefits, crews will also be placing four artificial rock reefs in the inner bay. Six artificial reefs that were installed nearby in 1996 are now providing a rich biological oasis of hard substrate along a mainly sandy seabed. It's expected that the four new reefs being installed this summer will be just as attractive to local marine life.

LARGE LINGCOD PHOTOGRAPHED BELOW REFINERY WHARF IN 2008

Fall Turnaround

Planning and preparation for the refinery's major fall 2011 maintenance turnaround are in full swing. Scheduled to begin in mid-October, the work will include required safety inspections and refurbishment of major furnaces. "As always, we're doing our best to plan things carefully in order prevent work-related noise at night during this 24/7 event" said Impact Team Lead Nick Middleton.

Watch for more information about the fall 2011 turnaround in the next issue of Neighbourhood News.

CAP Recruitment Continues

We're looking for volunteers for the Chevron/North Burnaby Community Advisory Panel. CAP plays an important role in keeping an open dialogue between the refinery and its neighbours by identifying and resolving issues of mutual concern.

You can find out more about CAP and the role of CAP volunteers at www.chevroncap.com. This is a great opportunity to discuss safety and environmental issues, as well as refinery operations, emergency response, odour mitigation, and noise reduction.

If you are interested in learning more about the committee or potentially participating as a member of CAP, please contact:

Kim Barbero, CAP facilitator,
Carah Worldwide Consulting, 778-989-7045
kbarbero@carahworldwide.com
or
Ray Lord, Public & Govt. Affairs Manager,
Chevron Burnaby Refinery, 604-257-4095
Ray.Lord@Chevron.com

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, 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 on-call Metro Vancouver air quality officer call **604-436-6777.**

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

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

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.

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Community Corner

Coming Soon! Chevron's Fourth Annual Movie in the Park

Due to ongoing track construction activity, there's a new location in Confederation Park for this year's Chevron Movie in the Park. Join us Sunday, August 28 beginning at 5pm at "Grass Field 3" for our favourite family event of the summer. This year, Po and his friends light up the screen with the family hit "Kung Fu Panda 2." You can access the field area from Beta Avenue as it's just a hop, skip and a jump away from where our movie nights have been held in recent years.

Arrive early to get a great seat. We'll have lots of entertainment between 5 and 8pm with bouncy castles; face painting clowns, balloon artists, and caricaturists who will create on-the-spot portraits. The Heights Merchants Association and Volunteer Burnaby will also be on hand with more fun activities for the kids. As the dusk settles over the park, the movie will be the focus of attention.

Burnaby Community Connections volunteers will once again be offering M&M hot dogs and hamburgers along with soft drinks and popcorn with all proceeds supporting the Burnaby Camping and Christmas Bureaus. Bring a blanket, arrive early and enjoy the great Eccles cakes provided by Valley Bakery.

"This is an important fundraiser for us and we're grateful to Chevron for the support they give us throughout the year," said Burnaby Community Connections Executive Director Stephen D'Souza. "These outdoor films really seem to have caught on lately, but it was Chevron who pioneered the concept here in Burnaby. This one is a real local highlight and my family and I look forward to it every summer."

Burnaby Blues and Roots Festival

This year's Burnaby Blues and Roots Festival is one of the best mixes of new and established performers seen in the festival's 12 years. It's also the first time there has been a female Canadian headliner: the incomparable K.D. Lang.

According to Cory Philley, Facility and Event Services Coordinator for Shadbolt Centre for the Arts, "It's been our best-selling festival to date and we expect to double our previous attendance figures." Cory encourages Burnaby residents to put the festival at the top of their to-do lists this summer. The event takes place August 13 in Deer Lake Park. "No other outdoor concert site parallels this one; it's a great place to hang out for the whole day."

Chevron has been a festival sponsor since the beginning. "We really couldn't have done it without their invaluable support," added Cory. "They've provided the foundation on which we've been able to build over the years."

Tickets are on sale now; find out more at www.burnabybluesfestival.com.

Rhythm of Life Walk and Run for Everyone

Burnaby Hospital Foundation's annual walk and run takes place this year on September 11 at Burnaby Lake Park. This important event raises funds for Burnaby Hospital's most urgent equipment needs. Join in the fun with a vibrant 10 km run, 5 km walk or run, or 1 km family stroll. Linger a while afterwards and enjoy the outdoor stage with live performers and fun activities for the entire family.

To find out more and/or to register: www.bhfoundation.ca/events/rol or call 604-431-2881.

Giro di Burnaby Criterium Cycle Race

Hastings Street and area were transformed into a spectacular race course as dozens of cyclists took part in the thrilling 2011 Giro di Burnaby on July 14. There was plenty of action and excitement with an amazing "sprint to the finish" in the men's race. After a two-year hiatus it was great to see so much community spirit as crowds cheered on their favourite racers. Chevron was proud once again to be one of the event's sponsors. Congratulations to all the competitors and those involved in staging this great event; we'll see you at the finish line next year!