

Addendum to Agenda for Chevron CAP meeting June 24, 2010**Area 2 Seepage: Questions received from Judi Marshall & David McLellan****1. When was the leak/spill first detected?**

- On Wednesday April 21, 2010, an indeterminate amount of liquid hydrocarbon material was detected beyond the refinery property, in a gravel trench along a CP Rail right-of-way, adjacent to the refinery's Area 2 processing section.
- The material was not the result of a sudden rupture or failure of equipment. It appears to be the result of an historic accumulation and subsequent subsurface migration or "seep" of the hydrocarbon material through the ground over a period of time.
- The site we are focusing on is directly below the refinery perimeter monitoring location #8 that we have reported on previously (as #7) at CAP. The refinery has had a perimeter groundwater-monitoring program in place in this area of the facility since 2004. This specific location has been a monitoring area for some time and we intensified our network of monitoring wells in this area in 2009.

2. How was the leak/spill detected?

- Chevron personnel detected the seep during a routine perimeter inspection.
- As part of the refinery's long-term perimeter monitoring program, monitoring wells have been in place uphill from this location since 2004. In 2009, data indicated rising concentrations of dissolved hydrocarbon in two monitoring wells. We then installed several new wells in November 2009 one of which was found to contain non-aqueous phase liquid (NAPL) hydrocarbons. The closest down-gradient wells did not contain visible NAPL but did contain high dissolved concentrations.
- During an inspection of these wells on April 20, 2010, visible staining adjacent to the railroad tracks beyond the refinery perimeter was observed. After obtaining the necessary permission to access CP rail's tracks for further observation, and inspecting the nearby rocky beach area the next day on April 21, the presence of hydrocarbon was confirmed and was immediately reported to the required regulatory agencies.

3. When and how was the leak/spill detected adjacent to the rail line and the beach area?

- Chevron and CP Rail's representative found small pockets of material on the beach, on the foreshore side of the railway tracks, on April 21.
- On April 21, the impacted beach area was found to be approximately 25 meters in width.

4. What are the reasons for the 29-day delay in Chevron advising CAP of the problem? Is the delay appropriate?

- On April 21, when the problem was discovered, notifications were issued to the Provincial Emergency Program (PEP), Environment Canada, Provincial Ministry of the Environment, the Vancouver Port Authority, the Vancouver Harbour Master, the Canadian Coast Guard and CP Rail.
- Once the scope of the situation was understood and a practical response was coordinated with regulatory agencies, Chevron informed CAP of the situation on May 18.
- In the past, we would have waited until the next scheduled CAP meeting to provide CAP with a briefing, however, having recently gone through the CAP reform process, we felt it would be appropriate to notify CAP in advance of the meeting, and before making any other public disclosure.
- Following the notification to CAP on May 18 there has been media coverage of the issue on local and regional media, and, to ensure neighbours were aware of the situation, we included an article in the recent issue of *Neighbourhood News*.

5. How many samples were taken in the ditch? Copy of analyses?

- Sixteen soil samples were taken in the ditch to help delineate the hydrocarbon seep. Six of the samples contained elevated concentrations of regulated materials such as volatile petroleum hydrocarbons (VPH).
- The results of these samples have been provided to both CP Rail, who own the property, and the BC Ministry of Environment for analytical review.
- Chevron would first get permission from CP Rail and the Ministry of Environment before being able to share data.

6. How many samples were taken on the beach? Copy of analyses?

- A sampling program for the beach is currently being prepared for submittal to the regulator and other agencies.
- The steps in the process include collecting the data, analyzing it, and submitting it to the regulators. This review will assist in identifying appropriate next steps.
- Sampling is scheduled for July pending timely acceptance of the plan.
- In the meantime, we continue to monitor the foreshore, apply soaker pads daily and booms remain in place to contain and recover any material.
- Chevron would first get permission from Port Metro Vancouver and the Ministry of Environment before being able to share data.

7. What company took the samples?

- URS Canada is our lead consultant for sampling.
- URS Corporation is a leading provider of engineering, construction and technical services for public agencies and private sector companies around the world
- More information on the company is available on their web site <http://www.urs.ca/>

8. Who did the analysis of the samples?

- Samples are being analyzed at ALS and Maxxam laboratories, which are both fully accredited within their industry.

9. Is there a visual overview of how much of the area is affected?



Area 2 Location



10. What are the levels that are being picked up in the wells above the area in question and what is the material being collected?

- Amounts and characteristics of the material being recovered/observed in the wells is still undergoing evaluation and reporting to MOE.
- One well at the EIB is showing hydrocarbon similar in nature to that being observed in the railway trench and on the beach.

11. How sure is Chevron that this has not gone beyond the area identified?

- We have been working with the Ministry of Environment to monitor the area on a daily basis and are fairly certain this has not gone beyond the area initially identified.
- We will be in a better position to be more definitive in our assessment after we have completed investigations including those currently planned for the beach.
- We have also been in communication with a representative of the David Suzuki Foundation who made some independent observations, which were shared with MOE and which have been investigated.

12. What procedures does Chevron have in place respecting monitoring of land and water areas outside the boundary of the refinery?

- Chevron routinely inspects the Confederation Park pipeline right-of-way between Areas 1 and 2.
- A routine fence line inspection is also conducted.
- The Perimeter Monitoring Program includes semi-annual monitoring of over 120 wells along the refinery's downhill boundary.
- Chevron personnel are stationed at the Area 1 wharf during all product transfers.

13. Has Chevron identified the source of the leak/spill material yet? If not, does Chevron have any ideas?

- The material we are seeing is liquid hydrocarbon and appears to be primarily a mix of gasoline and diesel along with small amounts of jet fuel and crude oil.
- Testing to determine the potential source is ongoing. This includes inspections of underground pipes and various lines within the refinery site.
- While we have not yet identified a single source, we have eliminated several potential sources.
 - For example, in May we conducted a pressure test on the splitter crude unit feed line, which carries product through Area 2. Typically, pressure tests are conducted over three hours. We ran the test for 15 hours and there was no loss of pressure. This allowed us to rule out the splitter crude unit feed line as a potential source.
- Another focus of investigation is the refinery storm-water/process effluent sewer line that runs underground in the general vicinity uphill of the seep. A video survey did not identify any significant holes, collapses or other obvious breaches. Excavations were conducted adjacent to the two closest manholes to look for signs of leakage. The results are still pending, although nothing obvious has been detected at this point. The pipe section joints are also being investigated further. Samples from the sewer itself are being compared to material being recovered from the seep.

14. What short and long-term plans does Chevron have to stop the leak/spill?

- Chevron has engaged subject matter experts both internally and externally to assist us in identifying subsurface hydrology and flow paths in this area and to assist in our interception efforts. They are also contributing to the analysis of samples taken from the

site to identify possible sources, supporting the design of an upgraded interception trench, identifying potential options at the beach and, advising on the installation of interception drill holes so we can pump away any material at the property boundary (hydraulic barrier).

- The short term plans to deal with the seep are:
 - a. Install and test a potential hydraulic barrier on the refinery property,
 - b. Continue with vacuuming at the railroad trench,
 - c. Continue using soaker pads and boom at the beach
 - d. Understand the extent and hydrogeology of the seep,
- The long-term plans depend on the results of investigations and testing of a potential hydraulic barrier.

15. What assessment has been done respecting potential or actual short and long-term environmental damage due to the leak/spill?

- The first step is to delineate contamination at the beach. The plan for an initial investigation is nearing completion and will be reviewed by regulators.
- It is expected that the investigation(s) will occur in stages and take several months to complete.
- Chevron will continue to work closely with environmental experts and be overseen by regulators to assess and address environmental effects.

For additional information

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