The 2017 Revised Onsite Cleanup Plan & Offsite Potable Water Plan

A component of the Settlement Agreement between Flint Hills Resources Alaska, the State of Alaska, and the City of North Pole

February 2017

Purpose

The purpose of the Revised Onsite Cleanup Plan (ROCP) and the Offsite Potable Water Plan is to continue to protect people from contamination associated with the former North Pole Refinery.

- On the property, people are protected by land use controls that prevent exposure to contamination (see page 3).
- Off the property, residents are currently protected from exposure to sulfolane in drinking water by alternate water supplies. With the extension of the piped water to affected properties, residents will be assured of permanent protection from sulfolane in drinking water (see page 3).

The terms of the Revised Onsite Cleanup Plan include:

- Revision of the groundwater remedy (see Remedy discussion to right).
- A management plan in place to protect people from soil contamination remaining on the property after contaminated soil excavations performed under the 2014 Plan.
- Continued groundwater monitoring both on and off the former refinery property (see page 2).

Groundwater Remedy On the Former Refinery Property

Under the Revised Onsite Cleanup Plan (ROCP), operation of the onsite groundwater recovery and treatment system is being phased out. Active pumping will be replaced by intensive groundwater monitoring. Contingencies are in place to resume active treatment if the Plan goals are not met.

The groundwater recovery and treatment system has greatly reduced the amount of sulfolane migrating off the former refinery property since it was upgraded between 2011 and 2014. The system was initially operated in the late 1980s to treat spilled petroleum and upgraded in response to the 2009 discovery of sulfolane off the refinery property. Petroleum has never been shown to migrate off the property. Over the years, the treatment system has removed almost 400,000 gallons of fuel and many pounds of dissolved petroleum constituents and sulfolane.

Shutting down the treatment system is considered appropriate for the following reasons:

- Residents will be protected from exposure to sulfolane in drinking water by the piped water system expansion.
- Although some sulfolane is anticipated to migrate off the terminal property once the system has been shut down, it is not expected to significantly change the extent of the offsite plume.
- Petroleum contamination is not

anticipated to migrate off the terminal property.

• Dissolved contamination on the former refinery is decreasing. Most of the petroleum and sulfolane was spilled a long time ago, and much has been removed.

The updated groundwater goal is to prevent contaminant migration off the refinery property above DEC cleanup levels. For sulfolane, offsite migration is not to exceed a concentration of 400 parts per billion. This is not a cleanup level, but is a level based on monitoring and modeling by Flint Hills Resources Alaska (FHRA). This amount of sulfolane, which is expected to decrease over time, should not significantly impact the offsite plume.

Remedy Contingencies

DEC regulatory oversight will ensure that the goals of the ROCP continue to be met, and Flint Hills is prepared to resume active treatment, if needed.

If monitoring shows that any contaminant is likely to migrate off the refinery property above levels permitted under this Plan, FHRA will confer with DEC to consider additional actions, including resuming operation of the onsite groundwater pump and treat system, or other options that may be appropriate. See page 3 for groundwater remedy contingency details.

On the Former Refinery Property: Monitoring and Reporting Summary

Intensive monitoring will evaluate the impact of turning off the onsite groundwater treatment system. The main goal of the monitoring is to ensure that contamination in groundwater is not migrating off the former refinery above levels allowed in the plan.

The monitoring will also evaluate how fast the contamination is decreasing in the source areas and how much contamination may rebound in the former treatment zone after system shutdown.

Samples will be collected from groundwater monitoring wells located throughout the refinery to accomplish these goals (see map below).



Monitoring, Continued from Page 2

FHRA will provide a Short Term Monitoring Evaluation after one year of intensive monitoring to compare results to pre-shutdown expectations and determine if any contingencies are needed.

FHRA will also prepare detailed reviews of contamination on the former refinery after five and ten years of monitoring. The need for continued monitoring will be re-evaluated after ten years.

Land Use Controls to Protect People on the Terminal Property

An Equitable Servitude is in place for the property which:

- Limits the property use to industrial.
- Prohibits use of groundwater for drinking water purposes.
- Uses fencing to restrict the general public's access to the property.
- Requires protective measures:
 - For excavation of soil in the defined contamination area.
 - To limit potential exposure to vapors inside buildings on the property.
- Places protective requirements on construction of new buildings on the property.

On the Former Refinery Property: Groundwater Remedy Contingency Details

The Revised Onsite Cleanup Plan (ROCP) includes routine monitoring at locations 300-600 feet before the property boundary. If levels of sulfolane are detected in these strategically located wells above 400 ppb, the onsite cleanup plan requires more intensive monitoring to evaluate if additional remediation actions need to be implemented. These actions could include activities such as injecting air into the subsurface or pumping groundwater to reduce the groundwater concentrations before they leave the property.

The ROCP includes similar contingencies for hydrocarbons that remain on the property.

We Want Your Feedback

The Alaska Department of Environmental Conservation is accepting remarks on the **2017 Revised Onsite Cleanup** and the **Offsite Potable Water Plan** until

5 p.m. on March 27, 2017

Please provide your remarks at the Open House on February 25th or Send them to:

Jim Fish

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Off the Former Refinery Property: Monitoring and Reporting Summary

Monitoring will track the migrating sulfolane plume to ensure protection of residents.

To meet this goal, groundwater samples will be collected from monitoring wells and private wells in the portion of the plume that is actively migrating ("the leading edge"). Monitoring will especially target the boundaries of the expanded piped water area to safeguard properties outside the expanded piped water area from impact due to possible undetected sulfolane plume migration.

If monitoring suggests that the plume may soon impact properties outside the expanded piped water area above a safe level, appropriate protective measures will be taken. These measures may include additional private well monitoring and provision of interim alternate water supplies, if appropriate.

Monitoring will also evaluate the impact that shutdown of the onsite groundwater treatment system has on the offsite plume. Samples will be collected from selected locations throughout the plume to accomplish these goals (see map on back page).

Annual reports will be prepared to document the off-property monitoring results. Detailed reviews of contamination off the former refinery will also be prepared after five and ten years of monitoring.



Project Contacts

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www.dec.alaska.gov/spar/csp/sites/north-pole-refinery