

**From:** [Winslow, Frank \(ECY\)](#)  
**To:** ["Yusuf Pehlivan"](#)  
**Cc:** [Ryan Deri](#); [Brady Thomson](#); [Peter Kingston](#)  
**Subject:** RE: Remedial Injection Basis of Design Report - Washington Cold Storage (Expedited VCP ID No. XS0012)  
**Date:** Tuesday, March 5, 2024 9:59:36 AM

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Hi Yusuf,

Thank you again for submitting this Basis of Design (BOD) report for the proposed injection work at the Site. Ecology has no objection to your proceeding with the work, which was conditionally rule authorized by Ecology's Underground Injection Control (UIC) program on December 20, 2023. The injection plan appears to make sense, and addresses the varying properties of the three types of contaminants found in Areas 1, 2, and 3. Ecology Toxic Cleanup Program (TCP) provides our concurrence on proceeding with the injection work.

#### Monitoring Plan

The success of the injection work will be determined through performance and compliance monitoring.

In our No Further Action (NFA) Likely letter dated July 19, 2023, one of the requested deliverables was:

*Submittal to and concurrence by Ecology of a Compliance Monitoring Plan and completion of monitoring demonstrating cleanup levels have been achieved at selected points of compliance.*

Although the BOD report included preliminary groundwater monitoring locations, some of the monitoring locations were not yet finalized pending finalization of new building plans. Overall, the existing monitoring well locations discussed within the work plan and proposed analysis of samples appear to make sense.

The monitoring plan also proposed quarterly monitoring for the first year, followed by a 15 month monitoring frequency for 5 years. Ecology concurs with this monitoring frequency; however, we note that the number of monitoring rounds needed for issue of a No Further Action (NFA) determination will be determined based on our review of the sampling data. Ecology also notes that the need for continued monitoring after 5 years would be determined by Ecology's periodic reviewer during the 5-year periodic review.

Please submit the remaining locations for the compliance monitoring plan as soon as possible. This should be provided in a brief Compliance Monitoring Plan that includes the locations and depths (i.e. screened intervals) of monitoring points, proposed analytes, and proposed schedule for sampling.

#### Injection Design Data

The injection design was in part based on slug testing and flux tracing testing. In order for Ecology's record to be complete, please provide the slug testing data analysis (including curve fitting charts) and the flux tracing data analysis.

#### Calcium Chloride Injection

The injection design includes injection of calcium chloride at 22 locations in Area 3 to "accelerate

the settling rate of the substrates to stay within the intended barrier wall footprint." We understand that the injectate includes colloidal carbon that is intended to migrate laterally and downstream of the injection points. Calcium chloride is a highly soluble salt. Please elaborate on the mechanism by which the calcium chloride will "accelerate the settling rate" of the colloidal carbon-based injectate.

#### Electron Acceptor Blend

The specific electron acceptor blend was not specified for Area 1 but will apparently likely include nitrates. Sulfates may also be used. Ecology notes that any injectate including nitrates and/or sulfates will need continued monitoring of these constituents in performance/compliance monitoring wells. Ultimate compliance at the Site includes an expectation of not degrading the groundwater quality with respect to the primary MCL for nitrates (10 mg/L), and the secondary MCL for sulfates (250 mg/L).

#### Cleanup Action Completion Report

The Cleanup Action Completion Report should include details from the injection program including maps showing all injection and monitoring locations and depths, and a tabulation of injection materials, mix ratios, rates, and volumes by injection point. Data analyses should be presented in that report including monitoring data collected during the injection work demonstrating migration of injectate, such as via field geochemical parameters and head data. It is important to have actual data demonstrating a radius of influence that has been achieved during injection. Use of pressure transducers/data loggers at selected locations may be helpful for such analysis.

Please provide maps and tables presenting results of quarterly groundwater monitoring when they are available. A performance/compliance monitoring report should be submitted with a request for NFA, when a sufficient case has been made. We recommend obtaining concurrence from Ecology after submitting tabulated data prior to preparing that report.

We note that issue of a NFA determination is also contingent on Ecology concurrence on a vapor barrier design/plan, and recording an Ecology-signed environmental covenant.

Please let me know if you have any questions regarding this email.

On another note, Ecology has not received any reply to our request for access letter for the downgradient property to the north. Hence, it appears that a Property-Specific NFA will be targeted. The concentrations of contaminants found in groundwater at the Site appear to suggest a low likelihood of migration of contaminants beyond that property. I will be discussing this with my peer reviewer to ensure that I have their concurrence on this subject.

Regards, Frank

**Frank P. Winslow, LHG**

WA Expedited VCP Site Manager  
Department of Ecology – Toxics Cleanup Program  
1250 W. Alder Street, Union Gap, WA 98903  
(509) 424-0543 (cell)

[Frank.Winslow@ecy.wa.gov](mailto:Frank.Winslow@ecy.wa.gov)

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**From:** Yusuf Pehlivan <ypehlivan@farallonconsulting.com>  
**Sent:** Wednesday, February 28, 2024 9:31 AM  
**To:** Winslow, Frank (ECY) <fwin461@ECY.WA.GOV>  
**Cc:** Ryan Deri <rderi@fortress.com>; Brady Thomson <bthomson@fortress.com>; Peter Kingston <pkingston@farallonconsulting.com>  
**Subject:** Remedial Injection Basis of Design Report - Washington Cold Storage (Expedited VCP ID No. XS0012)

External Email

Frank,

Please use the link below to download Farallon's Basis of Design Report for planned remedial injection activities at the Washington Cold Storage property at 240 15<sup>th</sup> Street Southeast in Puyallup, Washington. We are currently targeting an early April start date for remedial injections. Note that we are still trying to get a hold of Ecology's UIC program regarding a reference to PLIA in the UIC authorization letter, which is included as Attachment A of the report. We will provide a corrected version of the UIC authorization letter if it becomes available.

Please feel free to reach out if you have any questions or comments.

<https://farallonconsultingllc.box.com/s/rfi457rb7uh2sv07hbdwrwag11amz5mh>

Thank you



**Yusuf Pehlivan, L.G.**

Senior Geologist

Farallon Consulting

975 5<sup>th</sup> Avenue Northwest

Issaquah, WA 98027

Phone 949-351-6163

Web [www.farallonconsulting.com](http://www.farallonconsulting.com)

Email [ypehlivan@farallonconsulting.com](mailto:ypehlivan@farallonconsulting.com)

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