



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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August 14, 2018

Ms. Dana Cannon
West of 4th Project Coordinator
Aspect Consulting
401 2nd Ave S, Suite 201
Seattle, WA 98104

**Re: West of 4th Site
Agreed Order #DE 10402
Site Unit 1, In Situ Metals Immobilization Pilot Study Field Investigation Work
Plan**

Dear Ms. Cannon:

On August 6, 2018, the Washington State Department of Ecology (Ecology) received an Emailed copy of the revised Site Unit 1 *In Situ Metals Immobilization Pilot Study Field Investigation Work Plan*. The Field Investigation Work Plan (FIWP) was submitted by the West of 4th PLPs in accordance with Agreed Order (AO) 10402, amended on November 21, 2017.

Thank you for submitting the document by its due date, and addressing Ecology's July 3, 2018, comments. The revised FIWP is hereby approved, and the PLPs should proceed to implement the field-scale pilot-testing stage of the project in accordance with the approved document and its schedule (Figure 11).¹

Prior to project mobilization, please confirm the following via Email or phone:

- (1) injection pressures will be regularly observed and recorded, even if reagent is introduced via gravity flow and no measurable injection pressure is initially observed;
- (2) PSW-06 field-duplicate performance-monitoring samples will be analyzed for both plating and redox metals, as proposed in Table D-2 (and not only plating metals, as stated on page D-5);

¹ On page 19, in Section 6.4 of the FIWP, it is stated that injections are anticipated "on or around the week of August 27...". Ecology agrees that the injections can begin this early, but as Section 6.4 notes and Figure 11 indicates, subcontracting, underground injection approvals, and other pre-injection steps may require longer than two weeks to complete. The PLPs should therefore provide Ecology weekly updates (via Email) regarding likely, and then firm, start dates.



- (3) performance-monitoring samples will be analyzed for alkalinity via Standard Method 2320B (as indicated in Table D-1), not EPA Method 310.1 (shown in Table 11);
- (4) performance-monitoring samples will be analyzed for chloride via EPA Method 300.0 (as shown in Table D-1), not EPA Method 300.1 (indicated in Table 11); and,
- (5) the PLPs' willingness, for QA/QC purposes, to measure groundwater pH in the field with a second instrument/probe. This second set of readings would be collected at a sub-set of monitoring wells during the performance monitoring period.

Ecology agrees with the PLPs that a primary objective of the study is to determine groundwater pH response to the introduction of an alkaline reagent. It will therefore be important: a) that field instrument's pH calibration be performed shortly before each set of measurements, and b) the degree of potential error/uncertainty in the project's pH measurements be better quantified (by comparison to a second set of field measurements from the same well, via a different instrument/probe).

If you have any questions concerning today's letter, please contact me at (425) 649-4449 or ejon461@ecy.wa.gov.

Sincerely,



Ed Jones
Environmental Engineer
Hazardous Waste and Toxics Reduction Program

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