

April 22, 2016

Oregon Department of Environmental Quality
Northwest Region Portland Office
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Attn: Mr. Paul Seidel

Transmitted via email to: seidel.paul@deq.state.or.us

**Re: Responses to ODEQ April 12, 2016 Comments on
March 30, 2016 Supplemental Groundwater Well Installation Work Plan
PCC Large Parts Campus
Portland, Oregon
Project No. 0883002.040.044**

Dear Mr. Seidel:

This letter provides PCC Structurals, Inc.'s (PCC) responses to the April 12, 2016 Oregon Department of Environmental Quality (ODEQ) comment letter regarding the Supplemental Groundwater Well Installation Work Plan (hereafter "work plan"). ODEQ's comments are reproduced below in italics; PCC's responses follow each comment in regular font.

The draft work plan was submitted to ODEQ as a required deliverable under Voluntary Cleanup Program Agreement ODEQ No. LQVC-NWR-08-05 between the ODEQ and PCC for the Large Parts Campus. ODEQ and PCC discussed ODEQ's comments during an April 21, 2016 teleconference; this letter documents the modifications to the work plan scope agreed to during the teleconference.

Specific Comment 1

- *Section 3.2. The proposal for MW-13 is to install and screen the well approximately 15 to 25' below the maximum sampling depths of nearby borings B-17 and B-18, which were in the range of 46 to 50' bgs. This would result in a new well completed to 65 to 75' bgs, with a screened interval in the same general range. DEQ recommends that, as with MW-14 and MW-15, well depth and screened interval be determined after completion of B-19 work.*

Response: Boring B-19 will be the first borehole advanced, to characterize the geology and allow collection of depth-discrete groundwater samples as described in the work plan. After drilling and properly abandoning boring B-19, the drilling rig will be demobilized from the site to allow time for analysis of the groundwater samples, and to collaborate with ODEQ in determining the target screened interval for wells MW-12 through MW-15 based on the boring B-19 data. Following determination of screened intervals, the drilling rig will be remobilized for installation of wells MW-12 through MW-15.

Specific Comment 2

- *Section 3.2. The positioning of wells MW-13, -14, and -15 provides generalized dowgradient coverage, but does not represent a significant “step out” from contamination detected at the Associated Chemists site. It is unclear if the wells, as proposed, will be adequate to define the downgradient extent of the solvent plume. DEQ originally envisioned the installation of a deeper well southwest of the MW-6D/MW-7D area, where the highest levels of solvents have been observed off-site. Gradient information presented in the Work Plan, however, indicates a westerly direction of groundwater flow, as illustrated in Figures 7 and 8, in the vicinity of the Associated Chemists site. This gradient is presumably the basis for the positioning of well MW-14. DEQ notes that the gradient for deeper groundwater at Associated Chemists (westerly) is markedly different than observed closer to the PCC (southwesterly). The basis for this change in the gradient, if real, is unclear. [Do elevated data from AC monitoring of the wells shed any light on this issue?]. If the westerly gradient is not confirmed, DEQ may request an additional well or wells southwest of the MW-6D location. Please consider.*

Response: The location of well MW-15 will be modified from that proposed in the work plan (near the “Space Pak” building) to the adjacent property to the south of the AC site (4203/4206 SE Johnson Creek Boulevard); specifically, if feasible and allowed by the site owner, near the northwest corner of the existing structure on that property. Installation of the well on this property is contingent on receiving access permission. This location will support refined definition of the groundwater flow direction in the vicinity of the AC site and will provide groundwater quality data for the southwestern periphery of the plume. Well MW-14 will be installed at the location proposed in the work plan.

Specific Comment 3

- *Section 3.2.3. Please identify the length of well screen that is proposed to be used for new monitoring wells.*

Response: The proposed well screen length for all wells is 10 feet; this will be documented on the well construction logs.

Specific Comment 4

- *Section 3.2.3. DEQ has some concern about the construction of MW-12 within the B-19 boring, on top of what is expected to be a lengthy borehole that has been backfilled with grout. Our concerns are two-fold: that the monitoring well is firmly seated on top of the grouted-in section (requiring adequate time for grout hydration and minimal “weighting” of the grout), and that the presence of grout adjacent to the well screen could alter groundwater chemistry (including pH) and potentially impact groundwater sampling results. We recommend that the well be constructed in a separate, adjacent boring.*

Response: Per ODEQ's recommendation, and consistent with the phasing of the drilling program outlined in the response to Specific Comment 1, well MW-12 will be constructed in a borehole adjacent to boring B-19.

Specific Comment 5

Section 3.3. Please discuss the manner in which groundwater samples will be collected from the (deeper) proposed wells. Text indicates that groundwater samples will be collected with a peristaltic pump, positioned near the midpoint of the monitoring screening. The typical lift capacity of this type of pump is 25-30 feet. Also, EPA and others generally recommend that these pumps not be used for VOC sampling, particularly where lower concentrations of contaminants are expected to be present. For off-site (compliance-point) sampling, DEQ recommends the use of a bladder pump (or similar-type) pump utilizing standard low-flow purging and sampling techniques (minimal drawdown and groundwater extraction rates of less than 1 liter/minute). Please discuss.

Response: PCC agrees to utilize bladder pumps for groundwater sampling at the newly installed groundwater monitoring wells and at existing monitoring wells in the downgradient periphery of the plume (i.e., at wells where constituent concentrations are in the low microgram per liter concentration range).

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PCC will proceed with implementation of the work plan, as amended in the responses to comments herein, upon receipt of ODEQ's concurrence. We appreciate ODEQ's expeditious review of the work plan, and we look forward to working together to complete this phase of the project.

LANDAU ASSOCIATES, INC.



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Senior Project Geologist



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cc: Dan Hafley, ODEQ

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