From: BAYUK Dana
To: Mike Gefell
Cc: Ben Hung; Ben Johnson; Bruce K Marvin (bmarvin@geosyntec.com); Cindy Bartlett (CBartlett@Geosyntec.com); Scott Coffey; Carl Stivers; HAFLEY Dan; DeMaria, Eva; LARSEN Henning; Halah Voges; John Edwards; PETERSON Jenn L; Jen Mott; James Peale; John Renda; Kelly Titkemeier (ktitkemeier@maulfoster.com); Mary Benzinger (mbenzinger@maulfoster.com); POULSEN Mike; "Mike Murray"; Matt Wilson; Myron Burr (myron.burr@siltronic.com); Patty Dost; Lance Peterson (PetersonLE@cdmsmith.com); Bob Wyatt; Rachel Melissa (RMelissa@pearllegalgroup.com); Rob Ede; Sheldrake, Sean; Sarah Riddle; Todd Thornburg; Vipul Srivastava (VSrivastava@Geosyntec.com)
Subject: RE: NW Natural: Siltronic June 19, 2017 Comments on 2016 DNAPL Monitoring Summary Report
Date: Friday, September 29, 2017 1:10:30 PM

Good afternoon Mike.

I wanted to let you know that DEQ will consider your e-mail below during our review of the 2016 DNAPL Monitoring Report.

Hope you have a good weekend.

Dana

Mr. Dana Bayuk
Cleanup Program Project Manager/Hydrogeologist
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100

E-mail: bayuk.dana@deq.state.or.us
Phone: 503-229-5543
FAX: 503-229-6945

Please visit our website at http://www.deq.state.or.us/lq/cu/index.htm

please consider the environment before printing this email

From: Jen Mott [mailto:jmott@anchorqea.com]
Sent: Monday, September 18, 2017 3:27 PM
To: BAYUK Dana
Cc: Jen Mott; Mike Gefell; Halah Voges; John Edwards; Ben Hung; Sean Sheldrake; Eva DeMaria (DeMaria.Eva@epa.gov); Lance Peterson (PetersonLE@cdmsmith.com); Scott Coffey (coffeyse@cdmsmith.com); Bruce K Marvin (bmarvin@geosyntec.com); Cindy Bartlett (CBartlett@Geosyntec.com); HAFLEY Dan; LARSEN Henning; PETERSON Jenn L; POULSEN Mike; Vipul Srivastava (VSrivastava@Geosyntec.com); James Peale; Kelly Titkemeier (ktitkemeier@maulfoster.com); Mary Benzinger (mbenzinger@maulfoster.com); 'Mike Murray'; Myron Burr (myron.burr@siltronic.com); Bob Wyatt; Patty Dost; Rachel Melissa (RMelissa@pearllegalgroup.com); Sarah Riddle; Carl Stivers; Matt Wilson; Todd Thornburg; John Renda; Ben Johnson; Rob Ede
Subject: NW Natural: Siltronic June 19, 2017 Comments on 2016 DNAPL Monitoring Summary Report

Dana,

The following email is provided on behalf of Mike Gefell.

Dana: NW Natural wanted to make you aware of a significant technical error in Siltronic's comments on the 2016 DNAPL Monitoring Summary Report for Gasco (attached). Specifically, Siltronic states on Page 3, Section 2.2, 2nd paragraph that DNAPL accumulation rates of up to 50 gallons per year

(GPY) have been measured in nearshore wells, and that this correlates to approximately 0.84 feet per day of accumulation in a 2-inch monitoring well. Siltronic concludes that this "indicates DNAPL is moving through the subsurface at relatively high rates." Siltronic's analysis is incorrect, and its conclusion is technically unsupportable. The 50 GPY accumulation rate they cited was measured at well PW-2L, which is a 6-inch diameter HC&C extraction well, not a 2-inch monitoring well. The 50 GPY total accumulation in a 6-inch well represents an average 0.09 feet of accumulation per day, not 0.84 ft/day – a full order of magnitude error in calculation. Moreover, Siltronic singled out the well with highest DNAPL accumulation rate of all 19 shoreline-area wells that have historically contained DNAPL. Siltronic's conclusion about DNAPL movement through the subsurface at the site - based on data from one anomalous well location – is not technically defensible. The DNAPL at extraction well PW-2L has the lowest measured viscosity (and therefore the highest potential to flow) of all 13 DNAPL samples that have been collected at shoreline wells and physically characterized. Also, because well PW-2L is an HC&C extraction well, DNAPL entry rates into this well are greatly enhanced by extreme hydraulic gradients adjacent to the well induced by intermittent groundwater pumping. This well has produced groundwater extraction rates up to 100 gpm, and continuous average rates between 10 and 15 gpm for days or weeks. Because of the large size of the well, the anomalously low viscosity of the DNAPL at this particular location, and the hydraulic influence of active groundwater extraction at this well, the DNAPL entry rate at well PW-2L cannot be extrapolated to reach any broad conclusions regarding DNAPL movement rates in the subsurface across the site.

The data presented in the 2016 DNAPL Monitoring Summary Report demonstrate that DNAPL accumulation rates at the other shoreline wells are very low, and that conditions in the immediate vicinity of well PW-2L are an anomaly. In fact, contrary to Siltronic's erroneous comment above, the available data show that even immediately adjacent to the HC&C system DNAPL migration is minimal, and is either steady or decreasing in general. During the monitoring period covered in the report (2015-2016), the average DNAPL accumulation rate at the other 18 shoreline wells that have historically contained DNAPL is 4.9 GPY, an order of magnitude lower than the rate at PW-2L. Thirteen of those 18 wells have DNAPL accumulation rates of 4.5 GPY or less, and 8 of the 18 have DNAPL accumulation rates of 0.9 GPY or less. Fourteen of the 19 shoreline-area wells that have historically contained DNAPL have stable or declining DNAPL accumulation rates.

Please let us know if you have any questions or if you would like any additional information.

Please contact Mike Gefell with any questions.

Thank you,
Jen Mott ☺
Anchor QEA, LLC
jmott@anchorqea.com
New address as of April 10: 6720 SW Macadam Ave, Suite 125, Portland, OR 97219
503-972-5014

Please consider the environment before printing this email.

The information is intended to be for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying, distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by electronic mail at jmott@anchorqea.com