



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Carlson, Mital, Helgeson, Schlossberg and Brown
FROM: Karl Morgenstern, Water Quality & Source Protection Supervisor
DATE: September 16, 2019
SUBJECT: Pentachlorophenol Plume Associated with International Paper Mill Complex
OBJECTIVE: Information Only

Issue

Provide Board with requested annual update concerning potential drinking water threats associated with the pentachlorophenol plume in groundwater adjacent to the McKenzie River. Based on current data and information, staff do not believe the PCP groundwater plume poses a significant threat to EWEB's drinking water quality at this time. Staff will continue to monitor the situation. For more information, review the Background and Discussion sections below.

Background

For the past 24 years, the Oregon Department of Environmental Quality (DEQ) has been working with both Weyerhaeuser Company (Weyerhaeuser) and International Paper Company (IP) to address the pentachlorophenol (PCP) plume originating from the Springfield mill site at 801 North 42nd Street. Wood treatment practices using PCP occurred at the site until 1986. Weyerhaeuser discovered soil contamination at the mill site after removing their sawmill facility in 1991. Weyerhaeuser entered into Consent Order WMCSR-WR-95-09 with the DEQ on September 5th, 1995, agreeing to investigate the contamination and identify potential solutions to protect human health and the environment. To be protective of the Springfield Utility Board (SUB)/Rainbow Water District (RWD) well field, Weyerhaeuser installed a carbon filtration system in 1996 to treat water from the SUB/RWD wells should PCP be detected.

On December 3rd, 2002, DEQ approved a final Remedial Design/Remedial Action Work Plan (RD/RA) for the site and has been tracking the implementation of this plan. The RD/RA work plan requires continued monitoring and reporting on the progress and extent of the groundwater PCP plume as it migrates to the northwest and toward the SUB/RWD supply wells adjacent to the McKenzie River (see attached map).

Ongoing groundwater monitoring of the PCP plume is conducted by PES Environmental, Inc. (PES) on behalf of IP. Prior to 2012, monitoring wells were sampled on a monthly basis. In July, 2012, PES began collecting samples on a semiannual basis from a select number of monitoring wells after DEQ approved proposed monitoring changes submitted by PES on behalf of IP. In addition to providing analytical results from the monitoring wells to both IP and DEQ, PES provides the data on behalf of IP to EWEB upon request. The SUB/RWD wells and the well field treatment system are sampled on a monthly basis when the systems are in production. Analytical

results from the wells and associated treatment system are sent to IP, SUB, RWD, DEQ and EWEB.

In addition, semiannual RD/RA progress reports summarizing work performed during the previous six months at the mill complex, along with anticipated work, are submitted to DEQ. EWEB staff have been given access to the semiannual reports. The most recent report, Number 88, was received by EWEB staff on April 26th, 2019, and is included in the discussion below. The next submission, Report Number 89, is not due until October.

Discussion

Results for monitoring wells located within the intermediate depth zone, with screening intervals ranging from 36 to 72 feet below ground surface, show decreasing concentration trends near the former sawmill site and at a site downgradient of the PCP plume, just north of Keizer Slough. PCP concentrations from samples collected in July, 2018 and January, 2019, ranged from 5.5 micrograms per liter ($\mu\text{g/L}$) to non-detectable below the reported quantitation limit (quantitation limit is $.5 \mu\text{g/L}$). For perspective, the monitoring well located just north of Keizer Slough, and reporting the $5.5 \mu\text{g/L}$ PCP result, had a maximum PCP value of $61 \mu\text{g/L}$ in 2012, although the result was flagged as estimated.

PCP results for deep groundwater monitoring wells, typically 78 to 92 feet deep, show similar decreasing concentration trends over time with the exception of one well, MW-18D, located along the western edge of the downgradient portion of the plume (see attached map). PCP concentrations reported for this well were largely non-detect prior to 2010, but have steadily increased to current levels (July, 2018 – $5.6 \mu\text{g/L}$ and January, 2019 – $7.1 \mu\text{g/L}$). The highest PCP concentration detected over the past two sampling events was $33 \mu\text{g/L}$ (January, 2019), which came from a duplicate sample (primary sample was $32 \mu\text{g/L}$) collected at monitoring well MW-27D. Looking at all available data since 2001, the peak PCP concentration reported for MW-27D was $320 \mu\text{g/L}$ in 2001. MW-27D is located in the immediate downgradient portion of the plume. Several other deep groundwater wells have reported non-detect values over the past few years. Of notable exception are two down-gradient monitoring wells, MW-19D and MW-5D, which are both located between Keizer Slough and the McKenzie River. Although concentrations appear to be decreasing over time, reported values from January, 2019 ranged from $8.1 \mu\text{g/L}$ at MW-5D to $13 \mu\text{g/L}$ at MW-19D.

From 2001 to 2019, over 300 samples have been collected by PES from three SUB/RWD wells (#1, #2, #3) located down-gradient of the plume and adjacent to the McKenzie River. During this time there have been a total of 7 PCP detections. The U.S. Environmental Protection Agency maximum contaminant level (MCL) for PCP is $1 \mu\text{g/L}$ for drinking water. The 7 detections were found in wells #1 and #2 at concentrations ranging from $.082$ to $0.21 \mu\text{g/L}$, which are below the MCL. No detections were reported for well #3 during this time. As expected, most detections were reported during the second half of the monitoring period, in line with model predictions showing a slow progression of the plume to the northwest and towards the well fields. No PCP detections have been reported over the past 3 years. Samples collected from all three SUB/RWD wells are also analyzed periodically for volatile organic compounds (VOCs). Over the past 5 years, two VOCs have been detected at least once at very low concentrations in Well #1. No VOC detections have been reported over the past three years from the SUB/RWD wells.

Drinking Water Source Protection staff have been collecting water samples from stormwater sources in the vicinity of the plume on a regular basis since 2002. Although Hayden Bridge staff have been

collecting raw water samples at the drinking water plant over a far longer period, only data collected since 2000 is included in this review. PCP has been sampled at the intake more than 170 times since 2000. During this time, there have been no detections above the reporting limit (RL). The RL typically falls around .1 µg/L for most PCP samples. Over 110 samples have been analyzed for PCP from sites associated with Springfield's urban stormwater runoff since 2002. A total of 21 PCP detections have been reported from sites related to urban stormwater runoff, although over half are considered estimated values since the detected values fall below the RL. Nearly 80% of the detections are the result of targeted monitoring efforts during storm events. Detected concentrations range from .012 µg /L to .8 µg /L, all below the MCL for PCP. The maximum value observed originated from the 42nd stormwater channel, but was flagged by the analyzing laboratory as an estimated value. A total of 9 detections are associated with locations adjacent to or near the plume. However, the other 12 detections came from stormwater sources not associated with the plume. The occurrence of PCP in stormwater channels not associated with IP's property suggests the presence of PCP is likely ubiquitous at low concentrations in urban landscapes, especially during storm events when many contaminants are flushed into local waterways. No PCP detections above the RL have been observed in either raw water or stormwater sources within the past 24 months, which includes approximately 25 samples in total.

Requested Board Action

No formal action is requested at this time.

