



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson
FROM: Mel Damewood, Chief Water Engineering & Operations Officer;
Karl Morgenstern, Water Quality & Source Protection Supervisor
DATE: August 24, 2018
SUBJECT: Pentachlorophenol Plume Associated with International Paper Mill Complex
OBJECTIVE: Information Only

Issue

Provide Board with requested update concerning potential drinking water threats associated with the pentachlorophenol plume in groundwater adjacent to the McKenzie River.

Background

For the past 23 years, the Oregon Department of Environmental Quality (DEQ) has been working with both the 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 on site until approximately 1987. Weyerhaeuser discovered soil contamination in the area after removing a sawmill facility in 1991. Weyerhaeuser signed a consent order with the DEQ in September 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.

In September 2002, DEQ approved a 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 concentrations 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 86, was submitted to DEQ on April 16th, 2018, and is included in the discussion below. The next submission, Report Number 87, 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 ranged from 0.56 to 7.1 micrograms per liter ($\mu\text{g/L}$) during the July, 2017 and January, 2018 sampling events. For perspective, the monitoring well located near the sawmill reporting the 7.1 $\mu\text{g/L}$ value reported a maximum value of 1,100 $\mu\text{g/L}$ in 1996.

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). Concentrations for this well were largely non-detect for PCP prior to 2010, but have steadily increased to current levels (July 2017 – 6.1 $\mu\text{g/L}$ and January 2018 – 4.8 $\mu\text{g/L}$). The highest PCP concentration detected over the past two sampling events was 36 $\mu\text{g/L}$ in July 2017, which came from a monitoring well located in the immediate downgradient portion of the plume. Looking at all available data since 2001, the peak concentration reported for this particular well was 320 $\mu\text{g/L}$ in 2001. Several of the 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 ranged from 7 $\mu\text{g/L}$ at MW-5D to 11 $\mu\text{g/L}$ at MW-19D this past January.

From 2001 to 2018, over 300 samples have been collected by PES from three SUB/RWD wells (#1, #2, #3) 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 and concentrations ranged from .082 to 0.21 $\mu\text{g/L}$, which are 5 to 10 times below the MCL. No detections were reported for well #3. 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 24 months. Samples collected from all three SUB/RWD wells are also analyzed for volatile organic compounds (VOCs). Over the past 5 years, three VOCs have been detected at least once at very low concentrations in Wells #1 and #3. No VOC detections have been reported during the past 12 months.

EWEB Hayden Bridge staff and Drinking Water Source Protection staff have been collecting water samples from stormwater sources in the vicinity of the plume and from raw water at the drinking water plant on a regular basis since 2002. Although Hayden Bridge staff collected raw water samples at the drinking water plant prior to 2000, only data collected since 2000 is included in this review. PCP has been sampled at the intake more than 160 times since 2000. During this time, there have been no detections above the reporting limit (RL). The RL typically falls around .1 $\mu\text{g/L}$ for most PCP samples. Over 100 samples have been analyzed for PCP from sites associated with

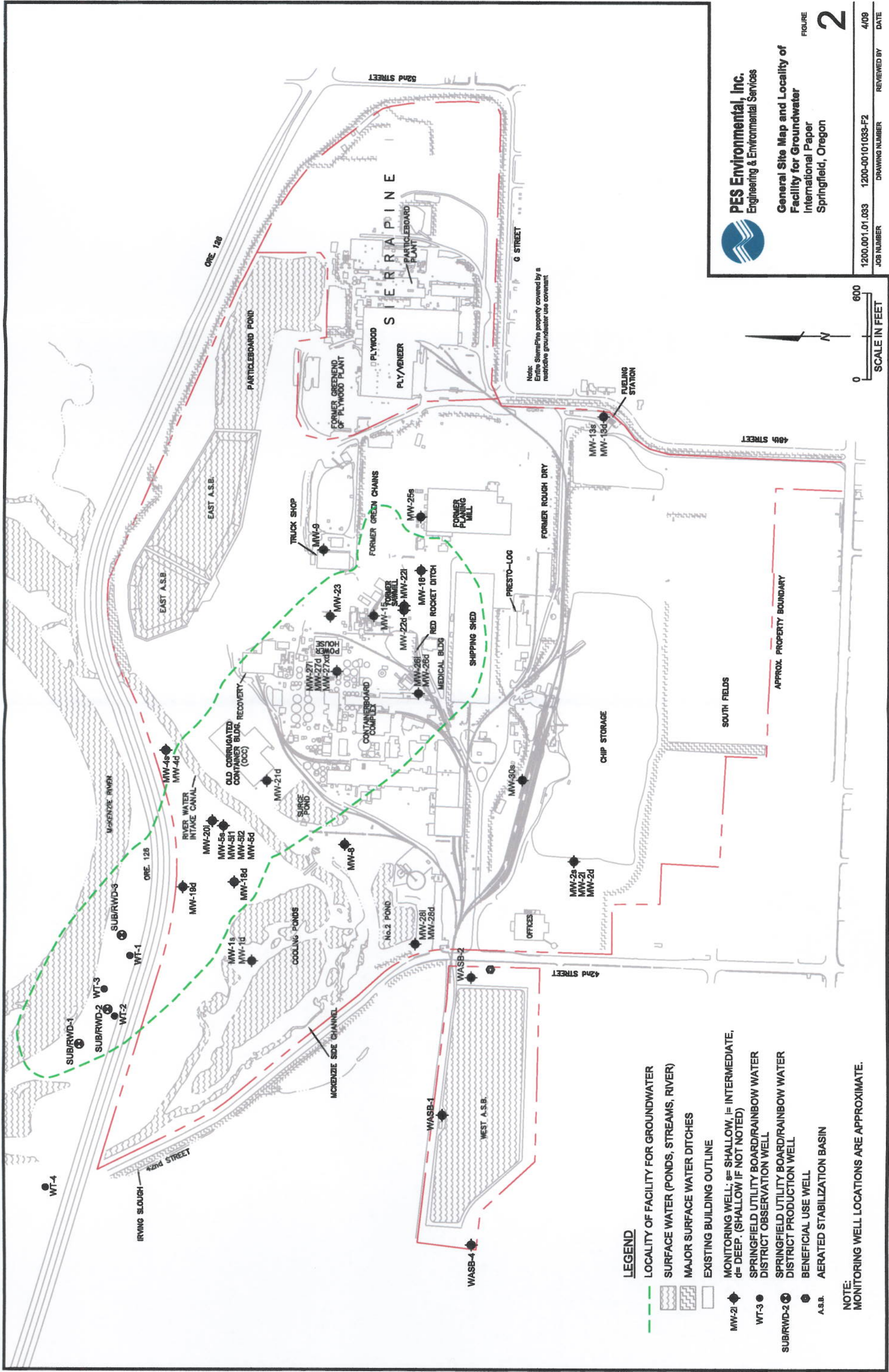
Springfield urban stormwater runoff since 2002. A total of 19 PCP detections have been reported from sites related to urban stormwater runoff, although over half are considered estimated values since the detected values fall below the RL. Nearly 90% of the detections are the result of targeted monitoring efforts during storm events. Concentrations range from .078 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 8 detections are associated with locations adjacent to or near the plume. However, the other 11 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 have been observed in either raw water or stormwater sources within the past 24 months, which includes approximately 30 samples in total.

Recommendation

This memo is for informational purposes only. Staff will continue to monitoring the situation and based on current data and information do not believe the PCP contaminated groundwater plume poses a significant threat to EWEB's drinking water quality.

Requested Board Action

No formal action is requested at this time.



- LEGEND**
- LOCALITY OF FACILITY FOR GROUNDWATER
 - SURFACE WATER (PONDS, STREAMS, RIVER)
 - MAJOR SURFACE WATER DITCHES
 - EXISTING BUILDING OUTLINE
 - MW-2i (shallow) / MW-2d (deep) MONITORING WELL: i= SHALLOW, d= INTERMEDIATE, d= DEEP. (SHALLOW IF NOT NOTED)
 - WT-3 SPRINGFIELD UTILITY BOARD/RAINBOW WATER DISTRICT OBSERVATION WELL
 - SUB/RWD-2 SPRINGFIELD UTILITY BOARD/RAINBOW WATER DISTRICT PRODUCTION WELL
 - BENEFICIAL USE WELL
 - A.S.B. AERATED STABILIZATION BASIN
- NOTE:**
MONITORING WELL LOCATIONS ARE APPROXIMATE.



General Site Map and Locality of Facility for Groundwater
International Paper
Springfield, Oregon

FIGURE
2



1200.001.01.033 1200-00101033-F2
JOB NUMBER DRAWING NUMBER
4/09
REVIEWED BY DATE