

SH-Exh-X-45
Docket UW 170924
Sarah Hand

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

SARAH HAND AND GRETCHEN HAND,
a married couple

Complainant,

v.

RAINIER VIEW WATER COMPANY, INC.,

Respondent.

DOCKET UW 170924

**SARAH HAND'S EXHIBIT 45 TO
CROSS EXAMINATION**

EXHIBIT 45

TO CROSS EXAMINATION OF BOB BLACKMAN AND RACHEL STARK

July 25, 2018

City of Olympia Drinking Water Fact Sheet re: Manganese

**SARAH HAND'S EXHIBIT 45 TO CROSS
EXAMINATION - DOCKET UW 170924**

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Manganese in Drinking Water

Manganese occurs naturally in both surface and ground waters that come into contact with manganese-bearing soils. Like iron, manganese is considered a secondary contaminant based on aesthetic effects such as taste or staining.

High levels of manganese will cause black stains in laundry and on porcelain fixtures. Food that is cooked in water that has high levels of manganese will become discolored. Manganese also gives water a foul taste and odor. Many iron bacteria also utilize manganese or substitute manganese for iron in their growth. Manganese deposits build up in tanks, filters, and in distribution system pipes creating an area for bacteria to multiply. These bacteria are very difficult to kill with conventional chlorination because the manganese deposits provide a “shelter” for them. The chlorine preferentially reacts with the manganese and is used up before it gets a chance to kill the bacteria.

Manganese will also cause water to be turbid or cloudy. Manganese interfaces with photo developing and the pulp and paper-making process. Even in low levels, manganese can be a nuisance. Therefore, the state of Washington Department of Health limit for manganese is 0.05 mg/l because of aesthetic reasons.

Contacting Us

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