



PUBLIC HEALTH DIVISION  
Drinking Water Services

Kate Brown, Governor

Oregon  
**Health**  
Authority

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April 22, 2022

Rob Henry, PE  
[rhenry@hbh-consulting.com](mailto:rhenry@hbh-consulting.com)  
HBH Consulting Engineers  
2316 Portland Road  
Suite H  
Newberg, OR 97132

Re: **Air Stripping Tower Project (PR#179-2015)**  
**Manzanita Water Department (PWS ID#00505)**  
**Wheeler Water System (PWS ID#00952)**  
**Final Approval**

Dear Mr. Henry:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of the completed *Project Final Approval Request Form* dated 3/12/21, as-built plans, and background information received 3/12/21. **The project is granted Final Approval, concluding the plan review process.**

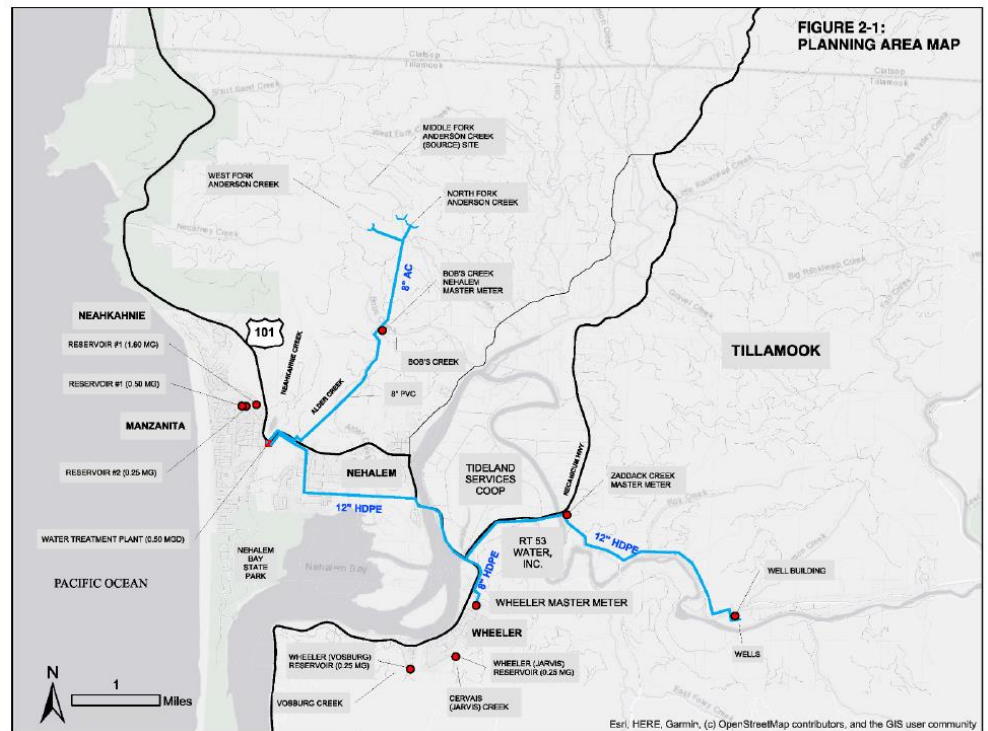
***Project Description:***

On December 3, 2015, our office received a set of plans and specifications, pilot study results and a plan review fee of \$150 for the air stripping tower project for Manzanita Water Department and Wheeler Water System. A signed land use compatibility statement was received December 28, 2015. The project was granted Conditional Approval on February 19, 2016.

The project included installation of an air stripping tower used to reduce pH for corrosion control purposes (in addition to caustic soda), booster pumps and replacement pumps for the existing wells. The improvements are operated and managed by Manzanita staff, under a joint agreement with Wheeler. The facilities were placed into service in September of 2018. **Both Wheeler and Manzanita receive water from the wells treated with the air stripper, caustic soda, and MIOX disinfection, therefore entry point and distribution system pH monitoring is required for both system as described in further detail on page 5 of this letter.**

### ***Project Background:***

Manzanita and Wheeler share responsibility on the Foss Road Wells. The wells, property, and water rights are owned by Wheeler, while Manzanita takes care of the operations and management. The map at right shows where the Foss Rd Wells are (southeast end of the 12" HDPE distribution system) in relation to the two service areas.

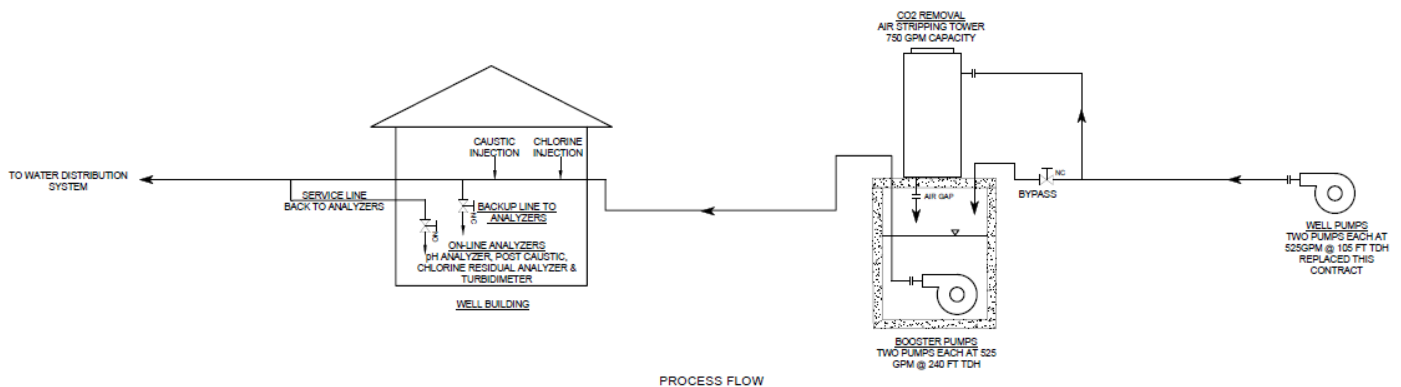


### **2010 Caustic Soda Retrofit @ Wheeler Plant (PR# 126-2010 - Manzanita):**

Due to the high amount of soda ash it took to elevate the low pH source water, a switch was made to caustic soda.

### **2015-2018 Air Stripping Tower Project @ Wheeler Plant (PR# 179-2015):**

Further testing showed the benefits of aeration on reducing the pH by removing dissolved carbon dioxide (CO<sub>2</sub>), therefore plans were developed to install an air stripping tower. On start-up in 2018, pH went from 5.9 to 8.0. Demonstration rounds of lead and copper tap sampling were not completed as directed in the February 19, 2016 Conditional Approval letter.



Related plan reviews and water facilities (sources, treatment, and entry points) and joint well treatment description from section 3.4.2 of the Manzanita 2021 master plan are shown below:

**PWS ID: 00505 ---- PLAN REVIEW LISTED UNDER MANZANITA WATER DEPARTMENT**

Plan ID	Project Name	Date All Received	Request for Additional Info	Site Plan Evaluation/ Approval	Conditional Approval	Preliminary Approval	Date Abandoned	Final Approval	Reviewer
179-2015	Corrosion Control	12/03/2015			02/19/2016			04/22/2022	EH
126-2010	Foss Rd Corrosion control	08/30/2010			09/21/2010			01/21/2011	KS

**OR41 00952 WHEELER**

Contact: TIM GROSSNICKLE  
PO BOX 177  
WHEELER, OR 97147

Population: 400

Operating Period: January 1 to December 31

Certified Operator(s)  
Required: Y  
Distribution class: 1  
Treatment class: 1  
Filtration Endorsement Required: No

### 3.4.2 Well Treatment

The well source has been classified as groundwater by OHA; consequently, filtration is not required. Treatment is currently limited to CO<sub>2</sub> removal, disinfection, and corrosion control (pH adjustment with caustic soda). Disinfection is via a MIOX mixed oxidant onsite disinfection system that is in poor condition and well past its useful life. The City is currently in the process of replacing it with a sodium hypochlorite system. The new disinfection system includes a Prominent Dual Gamma X Feed Panel that includes two Prominent Gamma X (metering) pumps (GMXA1604NPTVOOUDC1300EN) and chemical feed elements and piping that are skid mounted and ready for installation. Low salt sodium hypochlorite will be used because of the

**OR41 00505 MANZANITA**

Contact: DAN WEITZEL OR C  
PO BOX 129  
MANZANITA, OR 97130

Population: 3,200

Operating Period: January 1 to December 31

Certified Operator(s)  
Required: Y  
Distribution class: 2  
Treatment class: 2  
Filtration Endorsement Required: No

### Treatment

Facility ID	Facility Name	Filter Type	Giardia Removal Credit	Treatment Process	Treatment Objective
WTP-C	TP FOR WELLS #1 & #2			AERATION, PACKED TOWER GWR 4-LOG VIRUS COMPLIANCE MON MIXED OXIDANTS, POST	CORROSION CONTROL DISINFECTION DISINFECTION

Owner Type: LOCAL GOVERNMENT  
Licensed By: N/A  
Approved Drinking Water Protection Plan: No  
Source Water Assessment: Yes  
Last Survey Date: Jul 18, 2019 - Outstanding Performer!

### Sources

Facility ID	Facility Name	Activity Status	Availability	Source Type
EP-A	EP FOR ANDERSON CREEK SOURCES	I		SW
SRC-AA	NORTH FORK	I	Emergency	SW
SRC-AB	MIDDLE FORK	I	Emergency	SW
SRC-AC	WEST FORK	I	Emergency	SW
EP-B	EP FOR WHEELER WATER DEPT (4100952)	A		GW
SRC-BA	WHEELER WATER DEPT (4100952)	A	Permanent	GWP

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### Treatment

Facility ID	Facility Name	Filter Type	Giardia Removal Credit	Treatment Process	Treatment Objective
WTP-B	TP FOR WHEELER			PH/ALKAADJ-CAUSTIC SODA MIXED OXIDANTS, POST	CORROSION CONTROL DISINFECTION

The following minimum pH previously established for both water systems is still applicable:

Facility	pH	Alkalinity**	Required Frequency	Last Modified
<b>Wheeler Water System (00952) – Owns corrosion control treatment for wells</b>				
DIST-A	7.2	--	3 Years	Dec 19, 2011
EP-C	7.2	--	*	Jun 08, 2011
<b>City of Manzanita (00505) - Purchases treated water and operates treatment</b>				
DIST-A	7.2	--	3 Years	June 2, 2004
EP-A	7.2	--	*	Sept 3, 2003

\* Entry point readings can be taken daily but are required at least every 14 days.

\*\*Alkalinity monitoring is not required with packed tower aeration or caustic treatment.

Wheeler has only had one excursion since January 1, 2018, in their daily [entry point pH monitoring available on-line](#). Manzanita has only been sampling the distribution system every 3 years since 2013 and has had no excursions during that time as shown below (data is also available [online](#)).

Manzanita Water Quality Parameter Test Results				
Period	Facility	Excursions This Period	Total Excursions For 6-Month Monitoring Period	Date Received
Sep 2020	DIST-A	0	0	Oct 08, 2020
Sep 2017	DIST-A	0	0	Oct 20, 2017
Nov 2014	DIST-A	0	0	Dec 04, 2014
Aug 2014	DIST-A	0	0	Sep 09, 2014
Nov 2013	DIST-A	0	0	Dec 07, 2013

Recent lead and copper sampling results for both systems shows a marked improvement:

Sample Dates	Date Received	Sample Count	Duration	Lead (mg/L)*	Copper (mg/L)*
<b>Wheeler Water System (00952)</b>					
Jun 19, 2019 - Jun 19, 2019	Jun 27, 2019	5	3Y	0.0020	0.0750
Jun 23, 2017 - Jun 23, 2017	Jul 18, 2017	5	3Y	0.0020	0.1940
<b>City of Manzanita (00505)</b>					
Sep 24, 2020 - Sep 25, 2020	Oct 06, 2020	10	3Y	0.0000	0.0610
Sep 26, 2017 - Sep 27, 2017	Oct 10, 2017	10	3Y	0.0040	0.1450

\*Action Levels: Lead = 0.015 mg/L; Copper = 1.3 mg/L

pH sampling requirements are as follows:

***Minimum pH of 7.2:***

Results of entry point and distribution sampling must demonstrate that both water systems are serving water that meets the minimum pH of 7.2.

***Entry point pH sampling:***

pH (corrected for temperature) must be taken, post corrosion control treatment at the entry point to the distribution system, every two weeks and reported monthly for both Manzanita and Wheeler.

***Distribution pH sampling:***

- ***Wheeler:*** pH (corrected for temperature) must be sampled at 1 site in the distribution system with 2 rounds of samples taken at the time of each lead and copper tap sampling event. Sampling may be done at a coliform sampling site.
- ***Manzanita:*** pH (corrected for temperature) must be sampled at 2 sites in the distribution system with 2 rounds of samples taken at the time of lead and copper sampling events. Sampling may be done at coliform sampling sites. If Manzanita's population has reached at least 3,301 then samples must be taken at 3 sites.

Thank you for your cooperation in this plan review process and if you have any questions, please feel free to call me at (971) 200-0288 or reach out via e-mail at:

[evan.e.hofeld@dhsosha.state.or.us](mailto:evan.e.hofeld@dhsosha.state.or.us).

Sincerely,



Evan Hofeld, Regional Engineer  
Oregon Health Authority – Drinking Water Service

Cc: Dan Weitzel, Manzanita Water Department  
[dweitzel@ci.manzanita.or.us](mailto:dweitzel@ci.manzanita.or.us)  
Jaime Craig, Tillamook County Public Health  
[jcraig@co.tillamook.or.us](mailto:jcraig@co.tillamook.or.us)