

Case Study

USOHPW-1027.001

10+ Years of TTHM Removal Success for an Ohio Village

No more worries about EPA compliance with long-term GridBee® THM solution.

Topics: clearwell, certified tests, chlorine, trihalomethane reduction, stratification



One of two identical partially buried concrete clearwell tanks

Location & Contact Information:

Further information may be available upon request. Please contact Ixom Watercare by phone at +1 866-437-8076 or by e-mail, watercare@ixom.com

System Overview: This is a two (2) clearwell system with water flow in series through Clearwell #1, Clearwell #2, then into distribution. The Production Rate for this water treatment plant is 1 MGD (3785 kL/D). The Daily Production at the time of installation was 0.5 to 0.6 MG (1893 - 2271 kL/D).

Clearwell Build Information: Two (2) identical partially buried concrete tanks with low headspace and tight baffle walls.

- Tank Size: 300,000 gallons (1136 kL)
- Height: 16.75 ft. (5.1 m)
- Diameter: 58 ft. (17.7 m)
- Baffles: Tanks are divided into four (4) sections.

Disinfectant Type: Chlorine

Pre-Deployment Conditions: The community conducted a distribution system evaluation for total

trihalomethanes (TTHMs). Concentrations at several locations exceeded the maximum contaminant level of 80 ppb ($\mu\text{g/L}$) as required by EPA Stage 2 DBPR.

Project Objectives: To lower TTHMs to maintain continuous EPA compliance.

Solution:

- Clearwell #1: One (1) GridBee® GS-12 Submersible Tank Mixer (2013)
- Clearwell #2: Two (2) first-generation "cone nozzle" GridBee® SN Series THM Removal Systems (2013)



First-generation GridBee® SN Series Spray Aeration

Case Study (cont'd)

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Results: The Customer conducted certified lab tests during the peak THM season. Results show consistent **THM reduction of 60% or more.** (See certified lab test data below). They are pleased with the ongoing THM reduction results and are happy with the service & support they receive from Ixom Watercare.

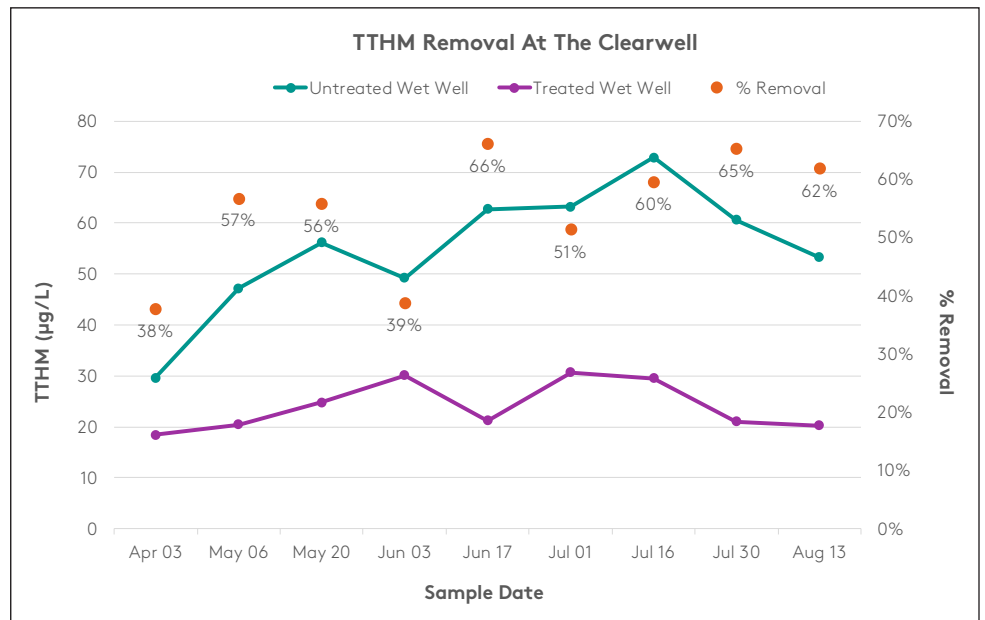
Update (Feb. 2023): The Customer remains happy with the long-term performance of the equipment and continues to realize consistent THM removal and compliance.



UP TO
66%
TTHM REMOVED

SN Series THM Removal System Design Criteria

This SN Series THM Removal System was designed to directly treat ~1440 GPM (5.5 kL/minute) or 2.1 MGD (7949 kL/day). The certified results below were obtained during lower flow rate periods in the first six (6) months of equipment deployment.



SAMPLE DATE	WATER TEMP °C	WTP PRODUCTION (MG)	WTP PRODUCTION RATE (GPM)	UNTREATED WET WELL	TREATED WET WELL	DS202 (Dist. Sample)	% REMOVAL IN CLEARWELL #2	REGROWTH IN SYSTEM	"COULD'VE BEEN" TTHM VALUE
4/03/2013	7	0.411	600	29.6	18.4	31.8	38%	13.4	43
5/06/2013	15	0.554	600	47.2	20.4	43.4	57%	23	70
5/20/2013	18	0.657	700	56.2	24.8	64.7	56%	39.9	96
6/03/2013	20	0.412	700	49.2	30.1	58.8	39%	28.7	78
6/17/2013	22	0.520	700	62.7	21.2	62.3	66%	41.1	104
7/01/2013	24	0.535	700	63.2	30.7	64.7	51%	34	97
7/16/2013	26	0.531	700	72.9	29.5	72.5	60%	43	116
7/30/2013	24	0.450	700	60.6	21	60.3	65%	39.3	100
8/13/2013	23	0.435	700	53.3	20.3	52.1	62%	31.8	85