



Guadalupe-Blanco River Authority

Your Trusted  
Water Resource

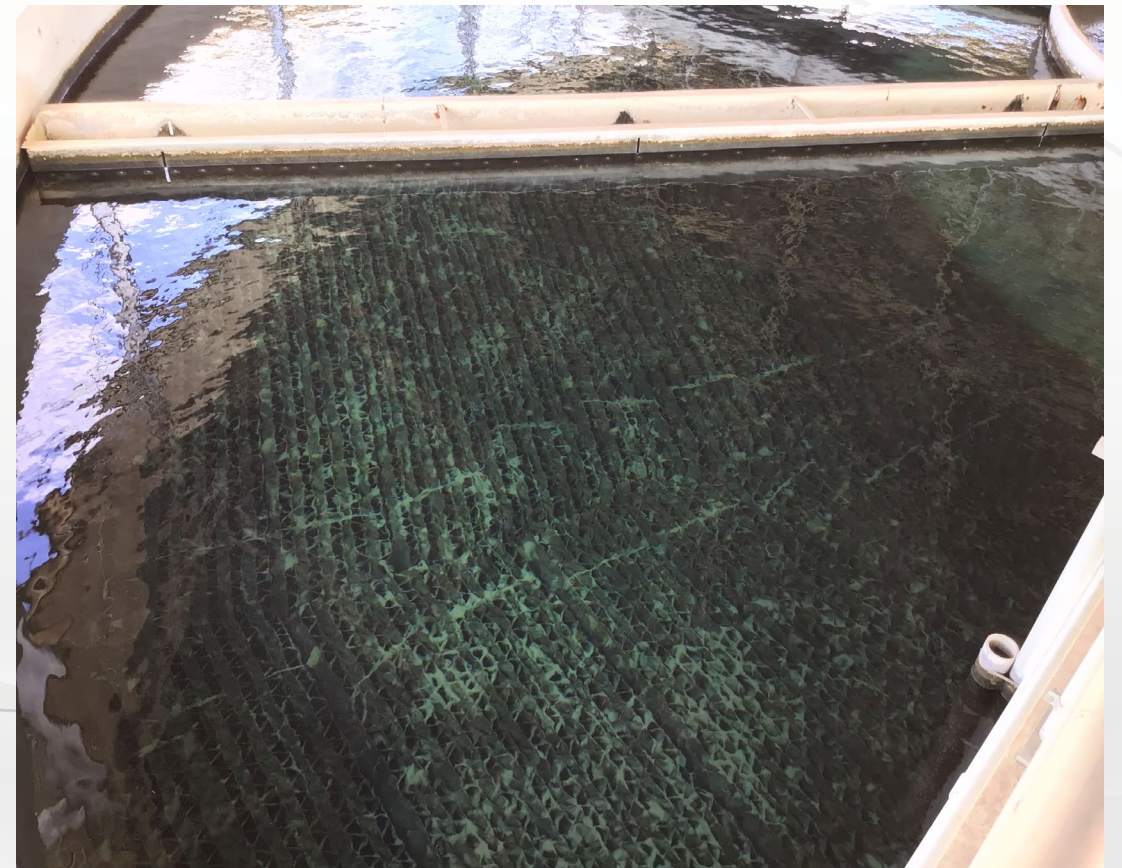
# Texas Optimization Program

# San Marcos Water Treatment Plant

- 21 Million Gallon per day facilities that operates 24 hours a day 365 days a year
- Currently the plant is under an expansion project that will increase the distribution capacity by 9MGD for a total of 30MGD to distribution capacity.
- Expansion is expected to be completed by May 2024.
- We serve 5 customers
- City of San Marcos           Pop 64,580
- City of Kyle                    Pop 51,789
- City of Buda                    Pop 15,643
- Goforth SUD                    Pop 34,893
- Monarch Utilities            Pop 500
- Serves a population a little over 167,405 people

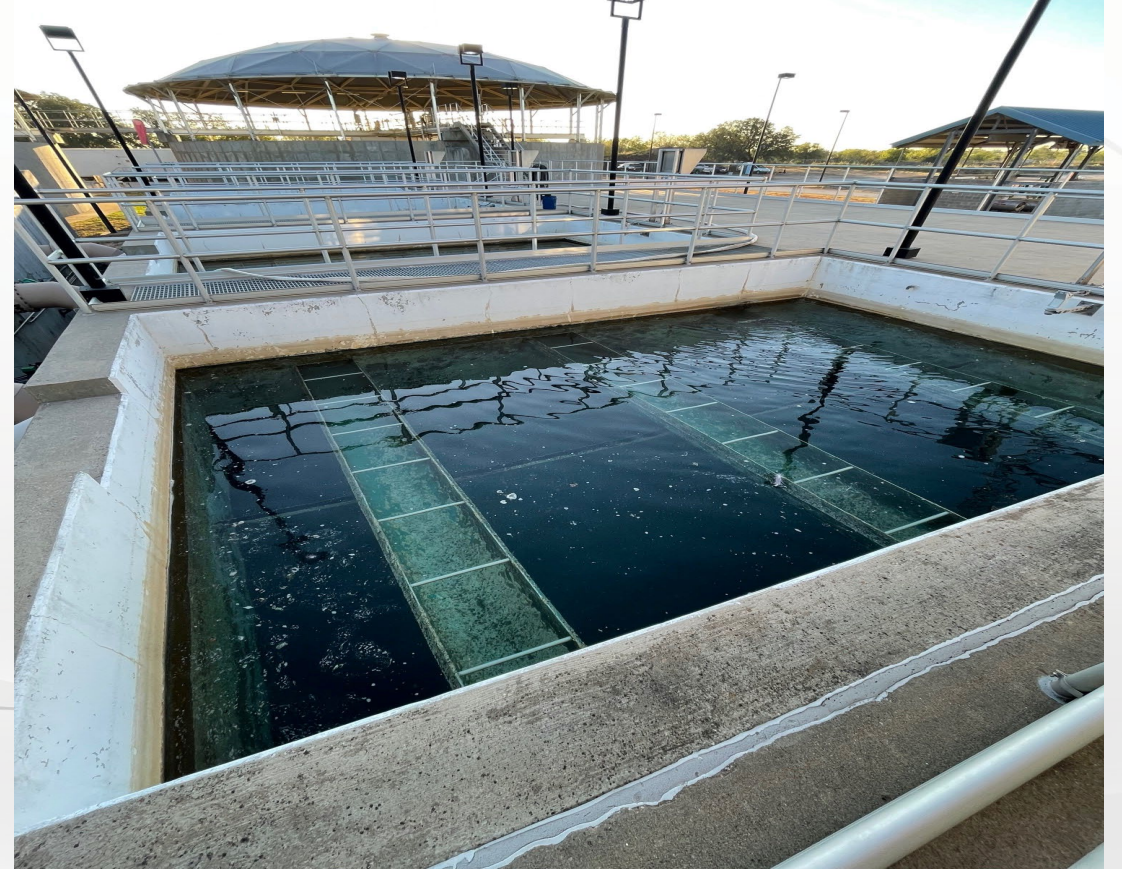


# Conventional Treatment





# 8 Duel Media Filters rated at 3MGD Each





# What expansion looks like





# Texas Optimization Program- Recognition Program

- Today we will discuss the TOP Recognition program participation and enhanced filter performance and data acquisition. You can achieve TOP Recognition with the right tools and “Can do” attitude.
- What is the Top Recognition Program ?
- How Can My Surface Water Treatment Plant Participate in TOP?
- What are the reporting requirements of the program?
- What is the benefit on joining the TOP Recognition Program?

# What is the Top Recognition Program ?

- The Texas Optimization Program or TOP-Recognition program is a voluntary program that is made available to the utility by the TCEQ. It is a program that is for conventional surface water treatment plants. Currently there are about 320 Conventional plants in Texas and 22 Plant currently participate in TOP
- This program goes above and beyond the normal reporting, filter performance and requirements set by 30 TAC 290 F.
- This program challenges your operations staff to meet and exceed all TCEQ requirements for turbidity limits and acknowledges those operations that do meet the TOPs-Recognition requirements
- It gives your team a goal, something they can be proud of. Acknowledgement that your plant provides the highest quality drinking water to its customers.



# How Can My Conventional Surface Water Treatment Plant Participate in TOP?

- Since the TOP Recognition Program is not a regulatory requirement, you will need to contact the TCEQ know that you are interested in participating in the voluntary program.
- If you are interested you will need to contact Mason Miller with the TCEQ TOP Recognition program. Mason T. Miller [mason.miller@tceq.texas.gov](mailto:mason.miller@tceq.texas.gov)
- Additional information can be found at:  
[https://www.tceq.texas.gov/drinkingwater/swmor/top/top\\_requirements.html](https://www.tceq.texas.gov/drinkingwater/swmor/top/top_requirements.html)
- You will need to request a copy of the TOP's participation agreement form.
- Once you sign and return the agreement, you are enrolled and you system can begin the TOP evaluation process.

# What is Optimization?

- Optimization is an ongoing process that involves:
- setting performance targets for each major treatment unit in the surface water treatment plant,
- monitoring the performance of each major treatment unit,
- analyzing the data to determine if each unit is achieving the desired performance level, and
- taking corrective action if the performance objectives are not being met.
- The goal of optimization is to lower the risk of waterborne disease by reducing the number of pathogenic organisms that could pass through a treatment plant. Optimization of a surface water treatment plant is achieved by identifying and addressing the various factors that limit its performance.



# Top Evaluation

To produce the safest water possible, water systems must thoroughly evaluate the performance of its treatment plant and identify the various factors that might be limiting plant performance. The most common technique used for the evaluation is the Comprehensive Performance Evaluation (CPE). The evaluation must include a detailed assessment of the following:

- plant design,
- operational procedures,
- maintenance practices, and
- administrative policies.

# Adjustments

- Once performance-limiting factors are identified, the water system can begin to correct any problems identified in the evaluation process.
- Frequently, the water system has all of the expertise that it needs to address the performance-limiting factors.
- However, in other cases, the plant may need the help of qualified engineers or other consultants.
- Some technical assistance may also be available from TCEQ staff that work in the Texas Optimization Program (TOP).
- If you do not receive at least one TOP Recognition Award every 18 months, you will need to withdraw from the program or have a CPE conducted by the TCEQ or an independent party.
- You are not required to provide the TCEQ with a copy of the CPE results but you will need to tell them that the CPE has been completed.



# TOP's Routine Monitoring Requirements

- A water treatment plant that participates in the TOP's Recognition Program must monitor the performance of each major treatment unit at the plant.
- While some of this testing is required by state and federal regulations, other tests are used to show that each treatment unit is achieving optimized performance.
- For example:
- Raw water turbidity levels (i.e., the turbidity of the water entering the plant) must be tested at least once each day.
- The turbidity of the water leaving each sedimentation basin or clarifier must be tested at least once each day.



# TOP's Routine Monitoring Requirements

- The turbidity of the water leaving each filter must be continuously monitored.
- The turbidity level of the water leaving the plant must be monitored at least once every four hours.





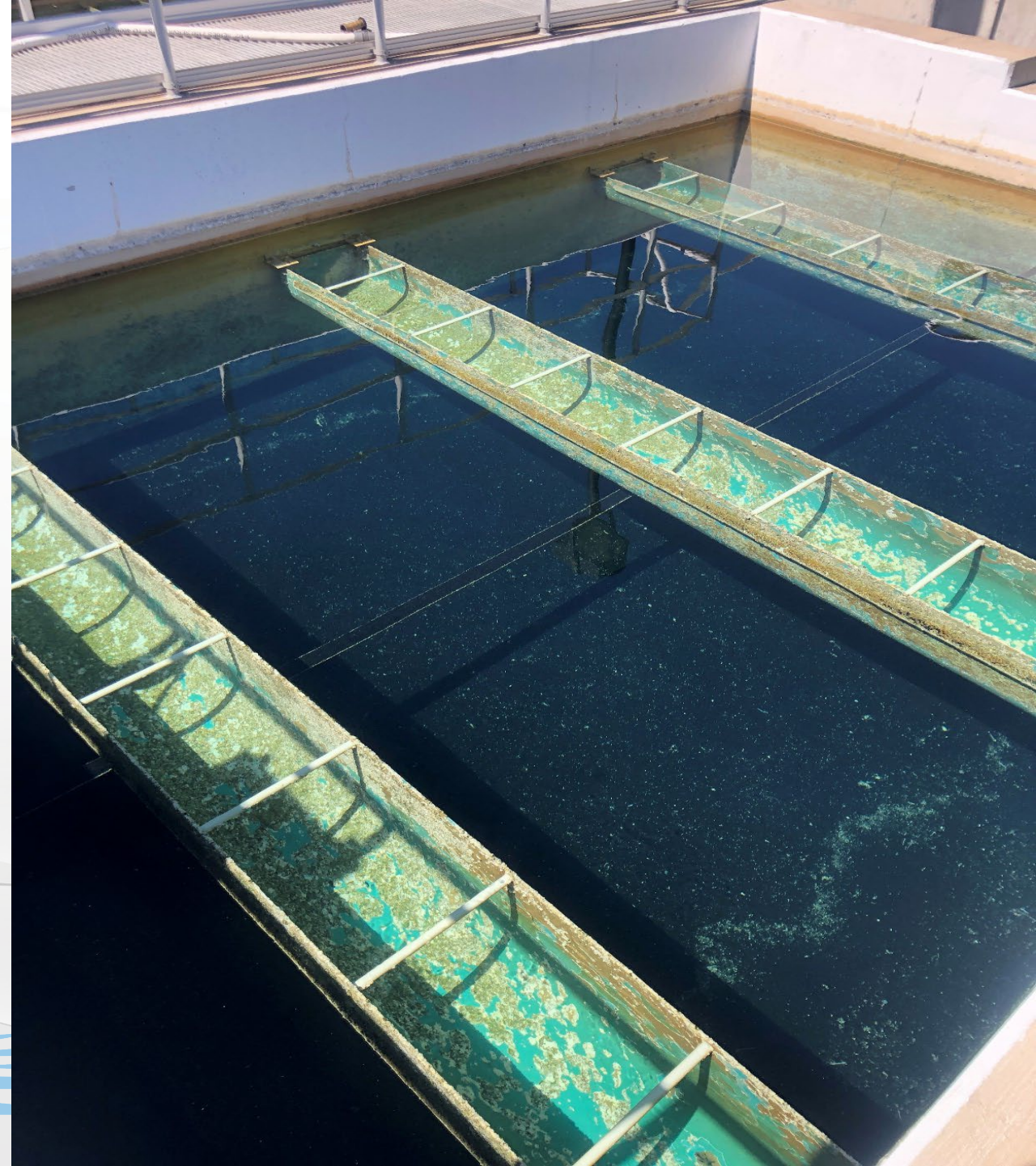
# Added Monitoring Filter performance FTW





# TOP's Special Monitoring Requirements

- At least once each month, the performance of each filter must be recorded during an entire filter run using an on-line turbidimeter with a continuous recorder.
- The purpose of this special study is to determine how quickly the filter is recovering to normal conditions after it is placed into service and to determine if there might be any unusual performance characteristics that are not detected by routine filter monitoring.
- During the first 30 minutes of the filter run, data must be collected at 1-minute intervals.
- After 30 minutes, the data should be collected at least once every 15 minutes.





# TOP Reporting Requirements

- Every plant that is participating in the TOP Recognition Program must submit a TOPMOR each month.
- The plant staff must record the following information on that form:
  - Total number turbidity readings
  - Maximum turbidity level recorded
  - Minimum turbidity level recorded





SEDIMENTATION BASINS/CLARIFIERS						
Basin #	No. of Readings	# Above 2.0 NTU	% Above 2.0 NTU	# Above 5.0 NTU	Maximum NTU	Minimum NTU
1	31	0	0.0%	0	1.4	0.2
2	31	0	0.0%	0	1.3	0.3
3	NA					
4	NA					
5	NA					
6	NA					
7	NA					
8	NA					
<b>Summary</b>	<b>62</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>1.4</b>	<b>0.2</b>

## TEXAS OPTIMIZATION PROGRAM Monthly Optimization Report

Month/Year: January 2021

PWS ID No.: 1050001 Plant ID No.: 18095

PWS Name: City of San Marcos

Plant Name: Surface Water Treatment Plant

TURBIDITY DATA SUMMARY										POST-BACKWASH PROFILE				
Filter #	Number of Readings	Number Above 0.10 NTU	Number Above 0.1 NTU	Percent Above 0.1 NTU	Number Above 0.3 NTU	Percent Above 0.3 NTU	Number Above 0.5 NTU	Maximum NTU	Minimum NTU	Date	Maximum Spike after Backwash	15 Minute Post Backwash	30 Minute Post Backwash	Maximum NTU During Filter Run
1	2915	0	0	0.0%	0	0.0%	0	0.024	0.003	1/10/2021	0.023	0.020	0.017	0.016
2	2910	0	0	0.0%	0	0.0%	0	0.027	0.007	1/7/2021	0.032	0.025	0.024	0.021
3	2920	0	0	0.0%	0	0.0%	0	0.029	0.011	1/8/2021	0.023	0.023	0.022	0.023
4	2921	0	0	0.0%	0	0.0%	0	0.029	0.009	1/9/2021	0.028	0.025	0.023	0.028
5	2926	0	0	0.0%	0	0.0%	0	0.047	0.013	1/10/2021	0.046	0.043	0.045	0.045
6	2923	0	0	0.0%	0	0.0%	0	0.063	0.020	1/7/2021	0.034	0.032	0.031	0.063
7	2927	0	0	0.0%	0	0.0%	0	0.079	0.016	1/8/2021	0.051	0.047	0.043	0.079
8	2925	0	0	0.0%	0	0.0%	0	0.086	0.012	1/9/2021	0.045	0.027	0.027	0.086
9	NA													
10	NA													
11	NA													
12	NA													
13	NA													
14	NA													
15	NA													
16	NA													
17	NA													
18	NA													
19	NA													
20	NA													
<b>Summary</b>	<b>23387</b>	<b>0</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.086</b>	<b>0.020</b>		<b>0.051</b>	<b>0.047</b>	<b>0.045</b>	<b>0.086</b>

TCEQ-10493 (Rev. 06-01-13)

TOPMOR

# For specific monitoring sites in your plant:

- Number of settled water readings > 2.0 NTU
- Number of settled water readings > 5.0 NTU
  
- Number of filtered water readings > 0.105 NTU
- Number of filtered water readings > 0.150 NTU
- Number of filtered water readings > 0.350 NTU
- Number of filtered water readings > 0.550 NTU

SEDIMENTATION BASINS/CLARIFIERS						
Basin #	No. of Readings	# Above 2.0 NTU	% Above 2.0 NTU	# Above 5.0 NTU	Maximum NTU	Minimum NTU
1	31	0	0.0%	0	0.8	0.2
2	31	0	0.0%	0	0.8	0.1
3	NA					
4	NA					
5	NA					
6	NA					
7	NA					
8	NA					
<b>Summary</b>	62	0	0.0%	0	0.8	0.1

**TEXAS OPTIMIZATION PROGRAM**  
**Monthly Optimization Report**

Month/Year: October 2020

PWS ID No.: 1050001 Plant ID No.: 18095

PWS Name: City of San Marcos

Plant Name: Surface Water Treatment Plant

FILTERS														
TURBIDITY DATA SUMMARY										POST-BACKWASH PROFILE				
Filter #	Number of Readings	Number Above 0.10 NTU	Number Above 0.1 NTU	Percent Above 0.1 NTU	Number Above 0.3 NTU	Percent Above 0.3 NTU	Number Above 0.5 NTU	Maximum NTU	Minimum NTU	Date	Maximum Spike after Backwash	15 Minute Post Backwash	30 Minute Post Backwash	Maximum NTU During Filter Run
1	2914	0	0	0.0%	0	0.0%	0	0.097	0.001	10/14/2020	0.019	0.017	0.016	0.056
2	2919	0	0	0.0%	0	0.0%	0	0.057	0.007	10/15/2020	0.031	0.031	0.028	0.023
3	2924	0	0	0.0%	0	0.0%	0	0.073	0.011	10/16/2020	0.025	0.025	0.023	0.023
4	2925	0	0	0.0%	0	0.0%	0	0.093	0.011	10/13/2020	0.033	0.028	0.027	0.022
5	2923	0	0	0.0%	0	0.0%	0	0.064	0.010	10/14/2020	0.028	0.024	0.023	0.024
6	2923	0	0	0.0%	0	0.0%	0	0.034	0.010	10/15/2020	0.029	0.022	0.020	0.020
7	2923	0	0	0.0%	0	0.0%	0	0.051	0.013	10/16/2020	0.048	0.039	0.038	0.030
8	2927	0	0	0.0%	0	0.0%	0	0.058	0.009	10/13/2020	0.063	0.052	0.047	0.043
9	NA													
10	NA													
11	NA													
12	NA													
13	NA													
14	NA													
15	NA													
16	NA													
17	NA													
18	NA													
19	NA													
20	NA													
<b>Summary</b>	23378	0	0	0.0%	0	0.0%	0	0.097	0.013		0.063	0.052	0.047	0.056

TCEQ-10493 (Rev. 06-01-13)

TOPMOR



# For each filter profile: Post Filter Backwash

- Maximum Spike after Backwash – Record the max turbidity recorded during the first four hours of after the filter has been placed back into service.
- Post backwash turbidity level after 15 minutes of operation – the turbidity reading detected exactly 15 minutes after filter returns to service
- Post backwash turbidity level after 30 minutes of operation – the turbidity reading detected exactly 30 minutes after filter returns to service
- Maximum NTU During Filter Run – excluding the first 30 minutes after the filter is returned to service , enter the maximum turbidity level reported during the filter run.

SEDIMENTATION BASINS/CLARIFIERS						
Basin #	No. of Readings	# Above 2.0 NTU	% Above 2.0 NTU	# Above 5.0 NTU	Maximum NTU	Minimum NTU
1	31	0	0.0%	0	1.4	0.2
2	31	0	0.0%	0	1.3	0.3
3	NA					
4	NA					
5	NA					
6	NA					
7	NA					
8	NA					
<b>Summary</b>	62	0	0.0%	0	1.4	0.2

**TEXAS OPTIMIZATION PROGRAM**  
**Monthly Optimization Report**

Month/Year: January 2021

PWS ID No.: 1050001 Plant ID No.: 18095

PWS Name: City of San Marcos

Plant Name: Surface Water Treatment Plant

TURBIDITY DATA SUMMARY										POST-BACKWASH PROFILE				
Filter #	Number of Readings	Number Above 0.10 NTU	Number Above 0.1 NTU	Percent Above 0.1 NTU	Number Above 0.3 NTU	Percent Above 0.3 NTU	Number Above 0.5 NTU	Maximum NTU	Minimum NTU	Date	Maximum Spike after Backwash	15 Minute Post Backwash	30 Minute Post Backwash	Maximum NTU During Filter Run
1	2915	0	0	0.0%	0	0.0%	0	0.024	0.003	1/10/2021	0.023	0.020	0.017	0.016
2	2910	0	0	0.0%	0	0.0%	0	0.027	0.007	1/7/2021	0.032	0.025	0.024	0.021
3	2920	0	0	0.0%	0	0.0%	0	0.029	0.011	1/8/2021	0.023	0.022	0.022	0.023
4	2921	0	0	0.0%	0	0.0%	0	0.029	0.009	1/9/2021	0.028	0.025	0.023	0.028
5	2926	0	0	0.0%	0	0.0%	0	0.047	0.013	1/10/2021	0.046	0.043	0.045	0.045
6	2923	0	0	0.0%	0	0.0%	0	0.063	0.020	1/7/2021	0.034	0.032	0.031	0.063
7	2927	0	0	0.0%	0	0.0%	0	0.079	0.018	1/8/2021	0.051	0.047	0.043	0.079
8	2925	0	0	0.0%	0	0.0%	0	0.086	0.012	1/9/2021	0.045	0.027	0.027	0.086
9	NA													
10	NA													
11	NA													
12	NA													
13	NA													
14	NA													
15	NA													
16	NA													
17	NA													
18	NA													
19	NA													
20	NA													
<b>Summary</b>	23367	0	0	0.0%	0	0.0%	0	0.086	0.020		0.051	0.047	0.045	0.086

TCEQ-10493 (Rev. 06-01-13)

TOPMOR

# Submitting your TOP's Report

- Submitting your monthly TOP's report is simple and easy
- It is one of the few reports that can be submitted electronically
- Should you find yourself needing help or instructions you can find them @
- [https://www.tceq.texas.gov/drinkingwater/swmor/top/top\\_requirements.html](https://www.tceq.texas.gov/drinkingwater/swmor/top/top_requirements.html)
- You will also find the TOPMOR on this webpage



# TOP's and Your Facilities

- I would like to encourage water plants of all sizes to get involved with the Texas Optimization Program or TOP's Recognition Program.
- It gives your operations team a common goal, as it is a team effort to accomplish this task
- It gives recognition to your staff and operations that you provide the highest quality drinking water to your customers.
- The recognition can be used for publicity purposes.





# It's a Team Effort





**THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

issues a

**Texas Optimization Program  
Recognition Award**

to the

***City of San Marcos  
Water Treatment Plant***

The Texas Commission on Environmental Quality (TCEQ) recognizes the City of San Marcos Water Treatment Plant's commitment to the goals of the Texas Optimization Program and its efforts to improve the quality of the drinking water it provides to its customers. The City of San Marcos Water Treatment Plant has met the Texas Optimization Program's recognition criteria for 10 consecutive years and, therefore, the TCEQ issues this Recognition Award for the period from

**December 2013 through November 2023**

**10 Year Award**

Deputy Director Water Supply Division



12/1/2023

Date



# Questions?



Guadalupe-Blanco River Authority

Your Trusted  
Water Resource

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