

Drinking Water Advisory Work Group



Monthly Testing and Reporting
at Surface Water Treatment
Plants (RG-211)

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Presentation Outline



- Introduction to RG-211
- Overview of Guidance Document including customization, data entry and additional reports
- Additional Resources
- Questions



1. Introduction

- All surface water plants in Texas are required to complete the Surface Water Monthly Operating Report (SWMOR)
 - SWMOR, SWMOR-Alt, or SWMOR2
 - All versions can be found on the TCEQ website:
<https://www.tceq.texas.gov/drinkingwater/swmor/swmor/swmor-forms-and-instructions>
 - SWMOR-Alt has a separate guidance document and additional worksheets

Introduction



- Lists out general information and functions of the SWMOR spreadsheets
- Other Reporting Requirements
 - Monitoring Plan, Special Study Reports, Chlorine Dioxide MOR
- CT Study Template
 - www.tceq.texas.gov/goto/ct-study

2. Customizing Your SWMOR Spreadsheet



- Create a Master File
 - *ENABLE MACROS*
- Customize Plant Parameters
 - Sedimentation Basins
 - Filters
 - Disinfection Zones
 - Trains
 - Settled Water Turbidity

A screenshot of a software dialog box titled "Plant Parameters". The dialog box is divided into two main sections: "Plant" and "Monitoring".
In the "Plant" section, there are three input fields for "Number of Sedimentation Basins" (value: 2), "Number of Filters" (value: 6), and "Number of Disinfection Zones" (value: 3). Below these are ten rows for "Number of Trains" for disinfection zones D1 through D10. D1, D2, and D3 have checkboxes checked and values of 1. D4 through D10 have unchecked checkboxes and empty input fields.
In the "Monitoring" section, there is a checkbox labeled "Settled Water Turbidity Is Required" which is checked.
At the bottom of the dialog box are "OK" and "Cancel" buttons.

Customizing Your SWMOR Spreadsheet



- Customize Disinfection Process Parameters
 - Residual Disinfectant: Total Chlorine or Free Chlorine
 - Approved CT Study Parameters: flow rate, T_{10} , disinfectant type
 - Required Log Inactivation: Giardia, Viruses

The screenshot shows a software dialog box titled "Disinfection Process Parameters". It is divided into several sections:

- Residual Disinfectant:** This section is split into two columns. The left column is labeled "Leaving the Plant" and has radio buttons for "Free Chlorine" and "Total Chlorine", with "Total Chlorine" selected. The right column is labeled "In the Distribution System" and also has radio buttons for "Free Chlorine" and "Total Chlorine", with "Total Chlorine" selected.
- Approved CT Study Parameters:** This section contains a table with two rows of parameters. The first row is populated with values for zones 1, 2, and 3. The second row is empty. The parameters are Disinfection Zone, Flow Rate (MGD), T10 (Minutes), and Disinfectant.
- Required Log Inactivation:** This section has two input fields: "Giardia" with a value of 0.5 and "Viruses" with a value of 2.0.

At the bottom of the dialog box are "OK" and "CANCEL" buttons.

Disinfection Zone	1	2	3		
Flow Rate (MGD)	1,000	1,000	1,000		
T10 (Minutes)	1.0	1.0	1.0		
Disinfectant	FCL	CLA	CLA		
Disinfection Zone					
Flow Rate (MGD)					
T10 (Minutes)					
Disinfectant					

Customizing Your SWMOR Spreadsheet



- Page 2 – Turbidity Data
 - Enter System and Plant information

SURFACE WATER MONTHLY OPERATING REPORT			
FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)			
<i>Turbidity Data Page</i>			
PUBLIC WATER SYSTEM NAME:	_____	PLANT NAME OR NUMBER:	_____
PWS ID No.:	_____	Plant ID No.:	_____
Month:	_____	Year:	_____
		Connections:	_____
		Population:	_____

PERFORMANCE DATA

- Save Your Customized SWMOR Spreadsheet
 - Use this as a master copy and “Save as” for each subsequent Monthly Report
 - Always *ENABLE MACROS*

3. Entering Daily Data in the SWMOR



ENABLE MACROS

- *What tests to run, Where to sample, When to sample, How to enter results, MD/ND and other explanations*
- Daily Plant-Performance Data (Pg 2)
 - Raw and Settled Water Data
- Individual-Filter Performance (Pg 3)
 - IFE Turbidity and Summary & Compliance Actions Table

Entering Daily Data in the SWMOR



ENABLE MACROS

- Disinfection-Performance Data (Pg 4 & 5)
 - Disinfectant Residual, Flow, Temperature, pH, Inactivation Ratio
- TOC Data (Pg 6, 7, 8, and SUVA)
 - Raw Alkalinity, Raw TOC, Treated TOC, TOC Removal, ACC, Step 2

Entering Daily Data in the SWMOR



ENABLE MACROS

- Summary Data (Pg 1)
 - Treatment Plant Performance
 - Turbidity Summary, CT Data Summary, Disinfectant Entering the Distribution System
 - Auto-populated from other portions of the SWMOR

Entering Daily Data in the SWMOR



ENABLE MACROS

- Summary Data (Pg 1)
 - Distribution System
 - Disinfection Data from the Distribution System
 - NOTE: You will enter most of these data

DISTRIBUTION SYSTEM	
Minimum disinfectant residual required in distribution system:	<u>0.5</u> mg/L, measured as Total Chlorine
Total number of readings this month:	<u>130</u>
Average disinfectant residual value:	<u>1.20</u>
Number of readings with a low residual:	<u>2</u>
Number of readings with no detectable residual:	<u>0</u>
Percentage of readings with a low residual this month:	<input type="text" value="1.5"/> % (6A)
Percentage of readings with a low residual last month:	<input type="text" value="0.0"/> % (6B)

Entering Daily Data in the SWMOR



ENABLE MACROS

- Summary Data (Pg 1)
 - Additional Reports & Worksheets
 - Filter Profile, Filter Assessment, CPE
 - Note the reports required and indicate which additional reports are included with the SWMOR

ADDITIONAL REPORTS & WORKSHEETS				
Additional report(s) for individual filter monitoring required:	<input checked="" type="radio"/> NONE	<input type="radio"/> Filter Profile	<input type="radio"/> Filter Assessment	<input type="radio"/> CPF
Additional report(s) for individual filter monitoring submitted:	<input checked="" type="radio"/> NONE	<input type="radio"/> Filter Profile (9)	<input type="radio"/> Filter Assessment (1)	<input type="radio"/> CPE (11)
No additional IFE Reports are required this month.				

Entering Daily Data in the SWMOR



ENABLE MACROS

- Summary Page Addendum (Pg 1 – Add)
 - Indicates violations for Treatment Technique and Monitoring/Reporting
 - Notice to TCEQ
 - Notice to Customers
- Print, Sign, and Submit
 - Sign all pages, Mail hard copy (faxes not accepted)

4. Filter-Profile Reports

<https://www.tceq.texas.gov/drinkingwater/swmor/swmor/fpr>



- Special Study Report Required if:
 - The IFE turbidity level exceeds 1.0 NTU in two consecutive 15-minute readings at any time during the filter run

Or

- Your plant serves at least 10,000 people *and* the IFE turbidity level exceeds 0.5 in two consecutive 15-minute readings at the end of the first four hours of continuous filter operation

Filter-Profile Reports



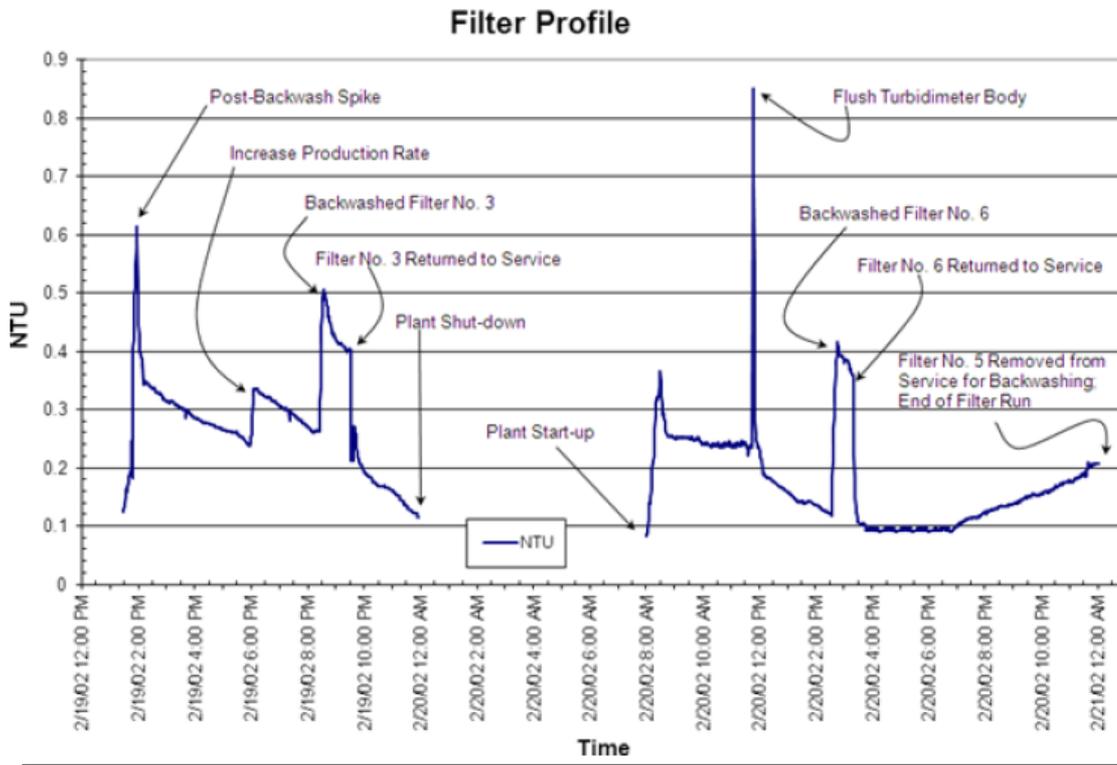
- Excel Spreadsheet similar to the SWMOR
- Plant and Operator Information
- Obvious Reasons
 - Identifying the Filter and Exceedance, Filter Problems, Turbidity Errors, Chemical Feed Equipment Failure, Poor Raw Water Quality
- Narrative Description of Filter Profile
 - Graphic representation of individual filter performance for an entire filter run

Filter-Profile Reports



Example 4.1: Filter Profile

An example of a filter profile. The filter run represents a typical plant filter run that includes the backwash of another filter. The profile has been annotated to identify significant events and explain turbidity spikes during the run.



5. Filter-Assessment Reports

<https://www.tceq.texas.gov/drinkingwater/swmor/swmor/fpr>



- Special Study Report Required if:
 - Two consecutive 15-minute turbidity readings are above 1.0 NTU at the outlet of an individual filter on three separate occasions during any three months period
- Excel Spreadsheet similar to the SWMOR
- Includes a Filter Profile (example on previous slide)
- Plant and Operator Information

Filter-Assessment Reports



- Design Specifications
 - Filter Type, Operating Mode, Media Bed Dimensions, Underdrain System, Troughs, Supplemental Backwash, Filter-to-Waste, Flow and Loading Rates, Filter Control and Monitoring Equipment
- Operating Procedures
 - Calibration, Backwash, Standard Operating Procedures

Filter-Assessment Reports



- Current Conditions
 - Operating Conditions, Physical Condition
- Media Surface Conditions
 - Mounds, Depressions, Accumulated Floc, Retraction, Cracks, Mudballs
- Backwash Conditions
 - Rate and Duration, Troughs, Supplemental Backwash, Jetting, Water Distribution, Spent Backwash Water Turbidity, Expansion and Yield

Filter-Assessment Reports



- Filter Probe
 - Number of Sites, Support Material
- Filter Excavation
 - Media Layers and Interfaces, Mudballs, Media Condition
- Additional Studies
- Conclusions
- Filter Schematic

6. Requesting a CPE

https://www.tceq.texas.gov/drinkingwater/swmor/swmor/cpe_folder/cpe_form.html/view



- Mandatory Comprehensive Performance Evaluation (mCPE)
- Required participation if:
 - Two consecutive 15-minute IFE turbidity readings are above 2.0 NTU on two separate occasions during any two consecutive months.
- Purpose: To identify factors that limit the ability of your facility to produce high-quality drinking water.

Requesting a CPE



- Plant and Operator Information
- Events that Prompted the CPE Request
 - Filter Number, Date of Event, Filter Assessment,
- Public Water System Preferences
 - Preferred Dates, Contact Information
- Included with the monthly SWMOR



7. Analytical Methods

- Acceptable Analytical Methods
- Calibrating Instruments and Other Equipment
- Laboratory Records
 - Record Retention and Laboratory-Approval Form
- Rounding Numbers on Your SWMOR
 - Let the spreadsheet do all the rounding



8. Public Notification

- Page 1 Addendum of the SWMOR will notify you if there is a violation
 - Notify TCEQ for review of data and discussion of situation
 - Surface Water Treatment Violation Report Form and Instructions
 - <https://www.tceq.texas.gov/drinkingwater/swmor/swmor/violation-report-form2>

Public Notification



- How and When to Notify the TCEQ of...
 - Treatment Technique violations or Monitoring/Reporting violations
 - Surface Water Treatment Violation Report
- When and How to Notify Your Customers of...
 - Examples of mandatory language to be used for public notice (English and Spanish)
 - Certificate of Delivery to notify TCEQ

9. SWMOR2



- There are 5 requirements to use SWMOR2
 - PWS serves fewer than 10,000 people
 - No more than two filters
 - Filters construction prior to October 2000
 - Never had IFE turbidimeters installed on filters
 - CFE turbidimeter installed prior to the clearwell

SWMOR2



- Customization of SWMOR2
- Entering Monthly Data on the SWMOR2
- Print, Sign and Submit

*There are additional notes throughout the guidance that reference specifics for systems filling out SWMOR2 that say “Attention SWMOR2 Users”.

Appendixes



- Provide additional information on CT-Studies, Multiple-Barrier Treatment
- Explains Inactivation Calculations
- Provides CT Tables for Disinfection with Free Chlorine
- Examples of a completed SWMOR, Filter-Profile Report, Filter-Assessment Report, Standard Operating Procedure and CPE-Request Form

QUESTIONS



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RG-211 can be downloaded here:
<https://www.tceq.texas.gov/publications/rg/rg-211>