9. INSTRUCTIONS FOR COMPLETING THE SWMOR2 SPREADSHEET

We allow some small surface water treatment plants to operate without a turbidimeter on each filter—only if they meet *all* of the following five requirements:

1. The public water system operating the plant must serve fewer than 10,000 people including those served through wholesale connections.
2. The plant must have no more than two filters.
3. The filters must have been constructed prior to October 2000.
4. The filters must not have (and may never have had) Individual Filter Effluent (IFE) turbidimeters.
5. The plant must have a combined-filter-effluent (CFE) turbidimeter installed prior to the clearwell.

The monitoring and reporting requirements for plants that only have CFE turbidimeters are very different from the requirements for plants that have IFE turbidimeters. Consequently, we have prepared a different spreadsheet, the SWMOR2, for the plants that do not have IFE turbidimeters. **These plants, and only these plants, should use the SWMOR2 instead of the SWMOR.**

The SWMOR2 and the SWMOR spreadsheets share many features and are very similar in appearance. However, it is important for you to know the differences, for additional instructions are necessary for completing the SWMOR2. **Plants that have (or are supposed to have) IFE turbidimeters do not need to read this chapter.**

9.1 INTRODUCTION

This section serves as a supplement to Chapter 1. However, this section focuses on the differences between the SWMOR2 and the SWMOR. We do not repeat much of the information contained in Chapter 1 if it applies to both spreadsheets. Consequently, you need to be familiar with the information in Chapter 1 to use the SWMOR2 spreadsheet.

> **NOTE**
> This chapter contains several cross-references to earlier chapters and sections in this manual. When we tell you that a particular part of Chapter 9 serves as a supplement to an earlier section, we are telling you that we are not repeating all of the information we discussed earlier. If you have any questions about the information we include in this chapter, you will need to review the earlier information.
> The SWMOR2 has nine pages instead of five. That is because you must report much more finished-water turbidity data than you would if you had a turbidimeter on each filter. In fact, you will be reporting 16 times as much CFE turbidity data as you would if you had IFE meters.

One of the next things you will probably notice is that the SWMOR2 seems to run much slower than the SWMOR. It takes longer to open the file, change worksheets, and save the file. This apparent "slowness" in the SWMOR2 is because the SWMOR2 is actually running more than 40 times as many compliance determinations on the turbidity data as the SWMOR runs.

SWMOR2 Spreadsheet Features

You must complete the SWMOR2 electronically. We developed the SWMOR2 using Microsoft Excel 2003. Some of the new macro commands used in this spreadsheet do not exist in earlier versions of Excel. Consequently, you must have Excel 2000 or a later version to use this form. SWMOR2 has built-in functions and macros that serve the same roles as those in SWMOR. Please refer to Section 1.5 for a general description of these features.

How the SWMOR2 Is Organized

The SWMOR2 spreadsheet has five separate worksheets that contain a total of nine pages. You must submit all nine pages when you submit the report. Table 9.1 summarizes the pages of the SWMOR2 and their content.

Table 9.1. Contents of the SWMOR2.

Page	Worksheet Title	Contents
1	Summary	This page contains a summary of your monthly data, and shows whether the plant was in compliance for the month.
2	Turbidity Data	This page has the raw- and treated-water data, and the disinfectant residual entering the distribution system. You will not use this page to report your CFE turbidity results.
3	Filter Data	This page has the grab-sample turbidity data, along with a CFE summary and compliance actions.
4–5	Disinfection Data	These pages contain the data about daily microbial inactivation.
6–9	CFE Turbidity Data	These pages have the CFE turbidity data.
10-12	TOC MOR	These pages have TOC removal data

The sequence of completing the form is very similar to that for the SWMOR (Table 9.2).

Table 9.2. Sequence for completing the SWMOR2.

Step	Process
0	**Customize your SWMOR2** (see Section 9.2) and save it with a sensible file name. You only have to do this once for each plant.
1	**Create that Month's File** (see Section 9.2): Enter Month, Year, Connections, and Population and then save the file for that specific month. You must do this once a month for each plant.
2	**Enter Each Day's Data** (see Section 9.3): Flow, turbidity, residual, total organic carbon, and so forth. You must do this each day for each plant.
3	**Fill out the Summary page** (see Section 9.3): You must do this at the end of each month for each plant.
4	**Print, Sign, and Submit that month's SWMOR2** (see Section 9.3): You must do this at the end of each month for each plant.

9.2 CUSTOMIZING YOUR SWMOR2

This section serves as a supplement to Chapter 2. You create and customize the SWMOR2 in much the same manner that other plants create and customize their SWMOR spreadsheet. It is very important that you be familiar with the material in Chapter 2 before you proceed.

Fill Out the Plant Parameters Dialog Box

The directions we provide in Section 2.2 for filling out the SWMOR's plant parameters dialog box also apply to the SWMOR2. The only differences between the two spreadsheets are related to the number of filters and what will happen when you finish entering the data and click on the [OK] button.

We designed the SWMOR2 for plants that only have one filter and for plants that have two filters, a CFE turbidimeter, and no IFE turbidimeters. Consequently, SWMOR2 will give you the error message shown in Figure 9.1 if you tell it you have more than two filters.
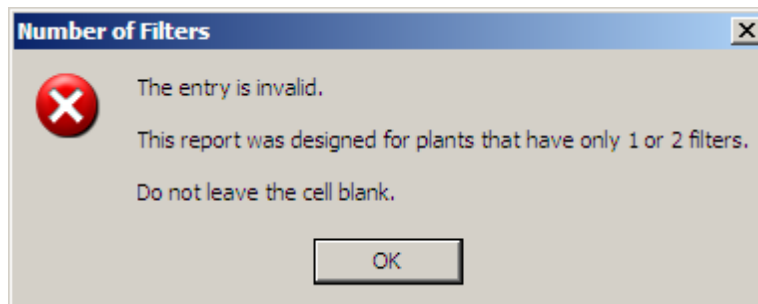

Figure 9.1. Error message box for the SWMOR2.

If you get this error message, click the [OK] button to return to the dialog box and reenter the proper number of filters. If you have more than two filters, you are using the wrong spreadsheet; you need to be using the SWMOR report.

If you report that you have two filters, the SWMOR2 will ask you to confirm that you have a turbidimeter on the combined filter effluent but do not have a turbidimeter on each filter. If this is correct, click on the [Yes] button and continue entering data. If this is not correct, click on the [No] button.
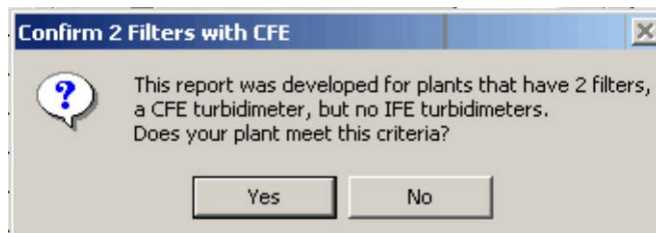
Figure 9.2. Two-filter confirmation box for the SWMOR2.

IMPORTANT
If the answer to the question in the confirmation dialog box shown as Figure 9.2 is "No," it means that you should use SWMOR instead of SWMOR2. Once you click the [No] button, the box shown below will pop up. You have to click the [OK] button before the macro will finish running. This macro adds a watermark to each of the worksheets stating *"You have indicated that your plant uses Individual Filter Effluent monitors. Therefore you must use the regular SWMOR. Contact the TCEQ for this report."* Although the spreadsheet is still functional, the watermark will be printed on every page when you print the report and the TCEQ will not accept the report. You should immediately close the spreadsheet without saving any changes and use the SWMOR instead.

Once you have finished entering all the data and click [OK] button, one of the two boxes shown in Figure 9.3 will pop up and ask you to confirm that you are eligible to use the SWMOR2 report. If the answer is yes, then click [Yes] and the macro will finish running and create the customized SWMOR2 for your plant. This procedure may take a while (generally less than 180 seconds) but it takes longer than with the SWMOR. As explained in Section 2.2, touching any button during this waiting period might cause serious problems. When the macro finishes running, you will be in the spreadsheet and ready to enter data.
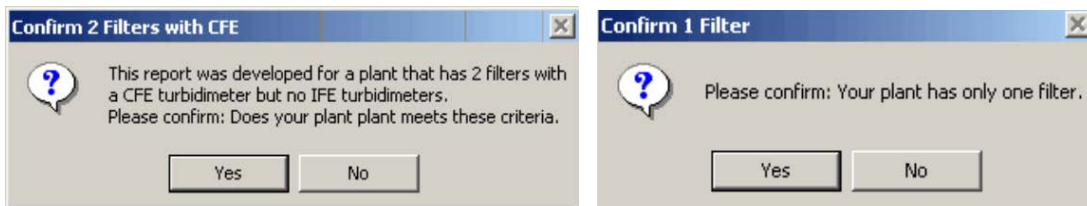
Figure 9.3. Final confirmation boxes for the SWMOR2.

After the plant parameters macro finishes running, you will still need to finish customizing the SWMOR2 for your plant and then save the customized spreadsheet. This process is exactly the same as it is for the SWMOR spreadsheet. Please refer to Section 2.2 for identifying your plant on page 2, entering **Disinfection Process Parameters** data on page 4, and saving your customized spreadsheet.

Creating Monthly Files

Please refer to Section 2.3, which also applies to the SWMOR2, for instructions on creating monthly files.

9.3 ENTERING MONTHLY DATA ON THE SWMOR2

Every day that your plant treats water or sends water to the distribution system, you must monitor plant operations and record the data you collect in the tables on pages 2 through 9 of the SWMOR2. Although this section covers some of the important differences in the way that data is entered on the two forms, it does not repeat the information that is the same for the two reports. This section supplements the information presented in Chapter 3. Please refer to the beginning of Chapter 3 for help on how to enable the macros and (in virtually all cases) cancel the plant parameters dialog box. The specific areas in Chapter 3 that you will need to use for SWMOR2 include:
*   Section 3.1—except for the subsection "Turbidity (of the Finished Water)"
*   Sections 3.3 through 3.5

Enter Daily Performance Data (Page 2)

The only difference between page 2 of the SWMOR and page 2 of the SWMOR2 has to do with where you will enter the plant's data on finished-water turbidity; in the SWMOR2 spreadsheet, the CFE turbidity data is entered on pages 6 through 9 rather than on page 2.

All the turbidity columns have been grayed out in the SWMOR2 spreadsheet. You cannot enter data there now. The finished water turbidity section has been modified and moved to pages 6 through 9 of the SWMOR2. You should enter all of your finished water turbidity data on pages 6 though 9 of the SWMOR2.

All of the other data on page 2 are entered in the same way on both reports. Section 9.3.2 (located below) contains the instructions for entering the CFE turbidity data on SWMOR2. For help on entering the other data on page 2, refer to the applicable part of Section 3.1. For example:
*   For information on entering raw- and settled-water data, refer to Subsection 3.1.1 of this manual.

- For information on entering information about the disinfectant residual in the treated water, refer to Subsection 3.1.3 of this guidance manual.

Enter Finished Water Turbidity Data (Pages 6–9)

Data on finished-water turbidity is entered on pages 6 through 9. To get there, click on the **P.6~9 CFE Turbidity Data** tab at the bottom of the spreadsheet, as shown in Figure 9.4.
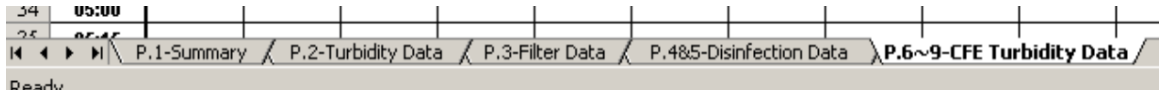

Figure 9.4. SWMOR2 tabs.

You must measure the turbidity of the finished water each day that your plant treats water and record the data on pages 6 through 9 of the SWMOR2. These pages serve the same role as the **Turbidity** columns on page 2 in the SWMOR.

*What Test to Run***:** Using an acceptable method from Table 7.1, measure the turbidity of the finished water on a regular schedule using an online turbidimeter. You must check the calibration of the turbidity monitor at least once each week. See Section 4.2 for more information about calibrating continuous turbidity monitors and recorders.

> **IMPORTANT**
> Try to avoid calibrating your turbidimeters immediately before a sample is scheduled to be collected. If there is a problem during calibration, you could end up recording an erroneous result. To avoid this problem, you need to calibrate the meter when the plant is offline so that you don't end up missing a sample.

*Where to Sample***:** All samples must be collected at a point between the filters and the clearwell. The TCEQ will not approve other sampling sites for plants that do not have turbidimeters on each filter. For plants using two filters, the sampling point must also be located downstream of (after) the water leaving the two filters has been blended.

*When to Sample***:** Turbidity readings must be collected at regular 15-minute intervals whenever the plant is in operation using an online turbidity monitor. For example, you may take these readings at midnight, 00:15, 00:30, 00:45, and so on to 23:45. Use the same schedule every day. Only the readings made at the designated times can be used to determine whether your plant is in compliance.

A plant that experiences a failure in the continuous monitoring equipment may collect grab samples every four hours for no more than 14 working days. If the result of a grab sample is greater than 1.0 NTU, the plant must collect a confirmation sample 15 minutes later.

*How to Enter Results***:** The SWMOR2 contains 31 columns and 96 rows for recording the turbidity of the finished water. Each column represents a

different day of the month and each row represents a different 15-minute period of the day—for example, the midnight row represents midnight to 00:15. If your plant is in operation during any portion of the 15-minute period, you must measure and record a turbidity reading and enter the result in the appropriate row. If your plant is offline during the entire 15-minute period, enter <u><X></u> in the corresponding row.

Enter Daily IFE Turbidity Data and CFE Summary Data (Page 3)

If your plant has two filters, you must collect at least one grab sample from each of the two filters at least once each day that the filter is in service. The **Performance Data** table on page 3 of the SWMOR2 contains columns for recording the turbidity of the grab sample of the two filters. Figure 9.5 shows the portion of the SWMOR2 that is described in this portion of the manual.

Figure 9.5. Individual Filter Turbidity data section of the SWMOR2.

What Test to Run: You must use one of the acceptable methods from Table 7.1 to measure the turbidity of the water produced by each filter.

Where to Sample: You must collect the IFE turbidity sample at the outlet of each filter before that water is mixed with the water from any other filter.

When to Sample: If your system serves fewer than 10,000 people, you must measure and record the turbidity level from each filter that is in operation at least once during the day. The sample must be collected when the filter is in a normal operation mode and is sending filtered water to the clearwell. **Do not** collect the sample when the filter is being backwashed, when it is idle, when it is operating in a filter-to-waste mode, or during the first 15 minutes of a filter run.

How to Enter Results: You must measure and record the turbidity of the grab sample for the two filters each day that your plant treats water. That means that you must record turbidity results each day that you show a raw water pumpage above 0.000 MGD.

Summary and Compliance Actions (page 3)

The **Summary and Compliance Actions** table at the bottom of page 3 of the SWMOR2 contains columns for summarizing the historical finished water turbidity data (i.e., the CFE data from the full current month and the previous two months). Figure 9.6 shows this portion of the SWMOR2, and specific instructions about each line are given below. For reporting months January and February 2005, appropriate cells have been disabled because of the lack of historical data.

Figure 9.6. Summary and Compliance Actions section on page 3 of the SWMOR2.

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Number of events above 1.0 NTU this month `CALC`

The SWMOR2 counts the number of events when two or more consecutive 15-minute turbidity readings were above 1.0 NTU. The SMWOR2 bases this calculation on the CFE turbidity data you entered on pages 6 through 9.

> **NOTE**
> An uninterrupted series of readings above 1.0 NTU is considered to be a single event. For example:
> - An event that started at 4:15 a.m. with a reading of 1.1 NTU and ended at 5:15 am with a reading of 0.93 NTU will be considered a single event.
> - An event that started at 11:30 p.m. with a reading of 1.3 NTU and ended with a reading of 0.79 NTU at 1:15 a.m. the following morning will be considered a single event.

Number of events above 1.0 NTU last month

In this cell, record the number of events above 1.0 NTU during the last reporting month. Pull this information from the cell **Number of events above 1.0 NTU this month** on last month's SWMOR2.

Number of events above 1.0 NTU two months ago

Record the number of events above 1.0 NTU that occurred during the reporting period two months ago. If you pull this information from the **Number of events above 1.0 NTU last month** cell of last month's SWMOR2, you will not have to look at the SWMOR2 from two months ago.

Total number of events above 1.0 NTU in three months `CALC`

The SWMOR2 calculates the total number of events above 1.0 NTU during the last three reporting months using the information in the three cells above.

Number of consecutive events above 2.0 NTU this month   `CALC`

The SWMOR2 counts the number of events when two or more consecutive 15-minute turbidity readings were above 2.0 NTU. The SWMOR2 again bases this calculation on the CFE turbidity data you entered on pages 6 through 9.

Number of consecutive events above 2.0 NTU last month

You will need to record the number of consecutive events above 2.0 NTU during the last reporting month. Pull this information from the cell **Number of consecutive events above 2.0 NTU last month** of last month's SWMOR2.

Does the plant have an approved Corrective Action Plan?

Using the drop-down lists, indicate whether the plant has an approved corrective-action plan. The SWMOR2 will automatically create the appropriate drop-down list based on the data that you have entered on this worksheet and pages 6 through 9. However, you will need to select the answer that applies to your plant. For example:

- If your plant will not be required to conduct any additional monitoring this month, the SWMOR2 will give you the option of <u>\<NA\></u> or <u>\<Y\></u> from the drop-down list.

  > If your plant does not have an approved CAP, select <u>\<NA\></u>.
  > If it does have an approved CAP, select <u>\<Y\></u>.

- If your plant will be required to complete any additional monitoring, the SWMOR2 will give you the option of selecting <u>\<Y\></u> or <u>\<N\></u> from the drop-down list.

  > If your plant does have an approved CAP, select <u>\<Y\></u> because there is no need to complete the special study and develop a new CAP.
  > If it does not have an approved CAP, select <u>\<N\></u> from the drop-down list and the SWMOR2 will tell you what follow-up action to take.

IMPORTANT

There are two different types of corrective-action plans. The first type is a CAP that the plant staff develops itself based on the results of special studies conducted by plant staff or a contractor. The second type of CAP is developed by our staff following a mandatory comprehensive performance evaluation (mCPE) that we conduct.

The mCPE is a more comprehensive evaluation than those typically conducted by plant staff. Consequently, the action plan we prepare following a mCPE can be used for both CAPs while the CAP prepared by the plant staff cannot.

Is the plant required to submit a Filter Profile Report?   `CALC`

The SWMOR2 determines if the plant is required to conduct a filter profile study and submit a filter-profile report with the SWMOR2; a built-in function will automatically insert a <u>\<Y\></u> or <u>\<N\></u> in this box. Refer to Section 3.2 for more information.

Is the plant required to submit Filter Assessment Report?   `CALC`

The SWMOR2 determines if the plant is required to conduct any filter assessment and submit a filter-assessment report with the SWMOR2; a built-in function will

automatically insert a <Y> or <N> in this box. Refer to Section 3.2 for more information.

Is the plant required to submit a Request for Compliance CPE? `CALC`

The SWMOR2 determines if the plant is required to participate in a third-party comprehensive performance evaluation and submit a request-for-compliance CPE with the SWMOR2; a built-in function will automatically insert a <Y> or <N> in this box. Refer to Section 3.2 for more information.

Example 9.1: Individual Filter Summary and Compliance Section

The following figure includes the **Summary and Compliance Action** areas of the June and May 2006 SWMORs for a treatment plant in Texas.

June 2006 (this month's SWMOR2)

May 2006 (last month's SWMOR2)

This example shows:
1. How to use the preceding month's SWMOR2 to help you complete the information in the:
   a. **Number of events above 1.0 NTU last month** row
   b. **Number of events above 1.0 NTU two months ago** row
   c. **Number of events above 2.0 NTU last month** row
2. You will need to submit a **Filter Profile Report** (FPR) with your June SWMOR2 because:
   a. There was at least one event when the CFE turbidity readings were above 1.0 NTU, or
   b. We have not yet approved a CAP for the plant.
3. You do not need to submit a filter-assessment report with your June SWMOR2 even though the plant does not have a CAP. An FAR was not required because:

a. The CFE turbidity level did not exceed 1.0 NTU on at least three occasions this month

b. An FAR was required last month because the CFE turbidity level exceeded 1.0 NTU on four occasions.
Note: Once an FAR is required, the three-event counter resets to zero and a new count begins.

4. You were required to submit both an FPR and an FAR with your May SWMOR2 because:

a. An FPR was required because at least one event when the CFE turbidity readings were above 1.0 NTU

b. An FAR was required because there were at least three events in May when the CFE turbidity level rose above 1.0 NTU

c. We have not yet approved a CAP for the plant

Enter Disinfection Performance Data (Pages 4 and 5)

Refer to Section 3.3 for the information about Pages 4 and 5.

Compile Summary Data (Page 1)

The **p.1-Summary** worksheets for SWMOR and SWMOR2 are identical in almost every respect. The only real difference is that the SWMOR2 bases its compliance calculations on the results of 15-minute CFE readings instead of those from 4-hour readings. Please refer to Section 3.4 for information about the data you need to enter on the **p1-Summary** worksheet of SWMOR2.

9.4 PRINT, SIGN, AND SUBMIT THE REPORT

Refer to Section 3.5 for instructions on printing, signing, and submitting the report.