

1. INTRODUCTION

1.1 PURPOSE AND APPLICABILITY

These rules require treatment plant operators at all surface water plants in Texas to complete one of three surface water monthly operating report each month and, if necessary, additional reports based on their daily individual filter effluent (IFE) or combined filter effluent (CFE) results. The specific spreadsheet an operator uses depends on the design of the water treatment plant and whether the system is subject to the additional requirements of the Long Term 2 Surface Water Treatment Rule (LT2).

The spreadsheets include:

- The SWMOR–version v14 spreadsheet (Form TCEQ-00102C) may only be used by conventional surface water plants that have turbidimeters on each filter and are not subject to the additional requirements of the LT2.
- The SWMOR–version v15 spreadsheet (Form TCEQ-00102D) must be used by plants that are subject to the provisions of the LT2 as well as any plant that uses unconventional, or alternative, treatment processes. Although this spreadsheet is commonly referred to as SWMOR-Alt, it can also be used by any plant that is required to report the data contained in the conventional SWMOR.
- The SWMOR2 spreadsheet (Form TCEQ-00103) must be used by plants that have no more than two filters and which continuously monitor the performance of the combined filter effluent but lack turbidimeters on each filter.
- The Filter Profile Report for Individual Filters, or FPR, spreadsheet (TCEQ Form 10276) must be submitted by any plant that has one or more filters which produce water with elevated turbidity levels.
- The Filter Assessment Report, or FAR, spreadsheet (TCEQ Form 10277), must be submitted by plants that have three or more turbidity exceedance events within any consecutive three month period.
- The Comprehensive Performance Evaluation Request (CPE Request) spreadsheet (TCEQ Form 10278) must be submitted if the plant produces filtered water with turbidity levels above 2.0 NTU during two consecutive months.

All of these spreadsheets are available on the TCEQ’s website at:

www.tceq.texas.gov/goto/swtp/forms

With the exception of the SWMORv15 spreadsheet, this document contains the information that operators need to help them properly complete each of these reports. Information about the SWMORv15 spreadsheet and the guidance for how to complete that report is available in a separate document.

Does your well produce “surface water”?

Under TCEQ rules, surface water includes more than just rivers, lakes, and streams. Wells drilled into groundwater sources that are under the direct influence of surface water (GUI) are also considered to be sources of surface water.

If your system’s well fits this description, you must complete the applicable SWMOR spreadsheet each month.

As Table 1.1 indicates, all of these surface water treatment reports are Excel spreadsheets that have been designed to work properly at plants that have Excel 2007 or a later edition of the Excel software. Although the TCEQ currently also provide copies of SWMORv14 and SWMOR2 in an Excel 2003 format, we no longer provide technical support for that format and expect to remove those files from our website in 2013.

Table 1.1. Excel versions of the SWMOR.

Spreadsheet version	Form Number	Available in the following formats	
		Excel 2003	Excel 2007
SWMORv14 (MGD and gpm versions)	00102C	Yes	Yes
SWMORv15 (std) (MGD and gpm versions)	00102D	No	Yes
SWMOR2 (MGD and gpm versions)	00103	Yes	Yes
FPR	10276	See Note below	Yes
FAR	10277	See Note below	Yes
CPE Request Form	10278	See Note below	Yes

Note: TCEQ Forms 10276, 10277, and 10278 are available in an Excel 2007 format only. However, they contain no Visual Basic for Applications (VBA) macros and will run properly when using Excel 2003 *if* the plant has installed the Microsoft Office Compatibility Pack. This compatibility pack was available free of charge from the Microsoft Support website at the time this version of RG-211 was published.

1.2 HOW IS THIS MANUAL ORGANIZED?

Table 1.2 gives a summary of the chapters in this manual and what they cover.

1.3 HOW TO INTERPRET THE SYMBOLS USED IN THIS MANUAL

Because the SWMOR and SWMOR2 reports are electronic files, we have been able to place many instructions and comments directly in the two spreadsheets. Once you figure out how to use the SWMOR and SWMOR2 spreadsheets, those electronic comments will reduce or eliminate your dependence on this manual.

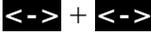
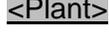
In this document, we have highlighted the calculated cells in the SWMOR and SWMOR2 using the symbol **CALC**. We have also used the symbols to designate keys on the computer keyboard; for example, **<Y>** means the “Y” key and **<Tab>** means the “Tab” key. If you need to push two or more keys at the same time, we will use the **<->** + **<->** format, for example **<Shift>** + **<Tab>** means to press the **<Shift>** and **<Tab>** keys at the same

time. If the spreadsheet has a “button” that you need to click in, the symbol is . For example,  means you should move your cursor over the “OK” button and click once on your left mouse button. Table 1.3 summarizes the meaning of the symbols used in this document.

Table 1.2. Chapters and descriptions.

Chapter	Topics
1	Introduction This chapter tells you who has to submit the SWMOR, and goes over how to use this guidance manual.
2	Customizing Your SWMOR or SWMOR2 Spreadsheet This chapter explains how you can customize your spreadsheet based on the design of your plant and how to prepare a monthly form that you can use to enter data.
3	Entering Daily Data in the SWMOR This chapter goes through the steps of using the SWMOR spreadsheet. It also goes over the requirements for each of the water quality parameters you must measure. This is the chapter that you will reference most frequently.
4	Filter-Profile Reports This chapter tells you how and when to fill out one of the additional reports that may be required based on the performance of your individual filters.
5	Completing Filter-Assessment Reports This chapter tells you how and when to fill out the second of the additional reports that may be required based on the performance of your individual filters.
6	Requesting a CPE This chapter tells you how and when to submit a request for a third-party CPE.
7	Analytical Methods This chapter summarizes the laboratory procedures that you must use to measure the constituents that you report on the SWMOR.
8	Public Notification If you violate one of the treatment-technique requirements, you will have to let your customers know. Instructions for how to go about notifying the public, and what you have to tell them, are in this chapter.
9	Instructions for Completing the SWMOR2 Spreadsheet If your plant serves less than 10,000 people, has only two filters, and uses a CFE monitor instead of IFE monitors, you must use the SWMOR2 instead of the SWMOR spreadsheet. This chapter contains the special instructions for the SWMOR2 spreadsheet.
	Appendixes The appendixes include an extensive background about why turbidity and disinfection are critical to public health. They also contain a variety of information that we refer to in the first five sections of the guidance manual

Table 1.3. Meaning of symbols used in this document.

Symbol	Meaning
	This shows a cell that you can't type in, because the spreadsheet contains a formula for automatically calculating a value.
	White type on a black background, with pointy brackets is the symbol for a key on the computer keyboard. For instance,  means the Escape key.
	Two keyboard symbols with a plus sign means you have to press the keys at the same time.
	Square brackets with a gray highlight means there is a button on the screen to click.
	Two pointy brackets with a gray highlight is the symbol for information you have to type in. For instance,  means you should type in the name of your plant.
Heading	We use words typed in this font to show that we are talking about an area on the SWMOR and SWMOR2 forms or a feature in the spreadsheets. For instance, Plant Parameters means we are describing an area of the report that is labeled "Plant Parameters."

1.4 SWMOR AND SWMOR2 FEATURES

To facilitate reporting and reduce reporting errors, the two spreadsheets have built-in functions and macros that:

- customize the spreadsheet so that it accurately describes your plant
- limit the type, kind, and values of data that you can enter in certain cells
- create a special toolbar that allows you to cut and paste data without messing up the program's automated features
- perform CT calculations
- automatically determine if you have left any data off the form
- help you to avoid accidentally overwriting the reports for previous months
- compile a majority of the summary data

In addition, the SWMOR spreadsheet includes many enhancements that:

- improve the security of the spreadsheet to reduce the chance of accidentally damaging the spreadsheet features
- reduce reporting violations by preventing you from submitting an incomplete SWMOR
- speed spreadsheet execution by removing formulas and macros that are no longer relevant
- incorporate a summary of monitoring and reporting violations that occurred during the month and provide you with the specific dates that specific violations, if any, occurred
- provide a way for you to slightly reduce the amount of data that has to be entered each day
- allow us to identify treatment plants that are supposed to conduct additional monitoring because they have been granted an exception to one or more regulatory requirements

1.5 GENERAL INFORMATION ABOUT THE SPREADSHEETS

As you work with the spreadsheets, you will find many features that make it easier for you to use. Chapters 2 and 3 provide specific information on how to fill out the spreadsheets. The following general information will help you use the spreadsheets.

Worksheets

An Excel spreadsheet is also called a workbook which is made up of separate worksheets. After you open the workbook, you will find a series of tabs at the bottom of the screen. Each of these tabs identifies one of the worksheets in the workbook. When you click on one of these tabs, the tab will change from gray to white and the program will take you to the worksheet for the pages shown on the tab. The worksheet tabs for the SWMOR and SWMOR2 spreadsheets are shown in Figure 1.1.

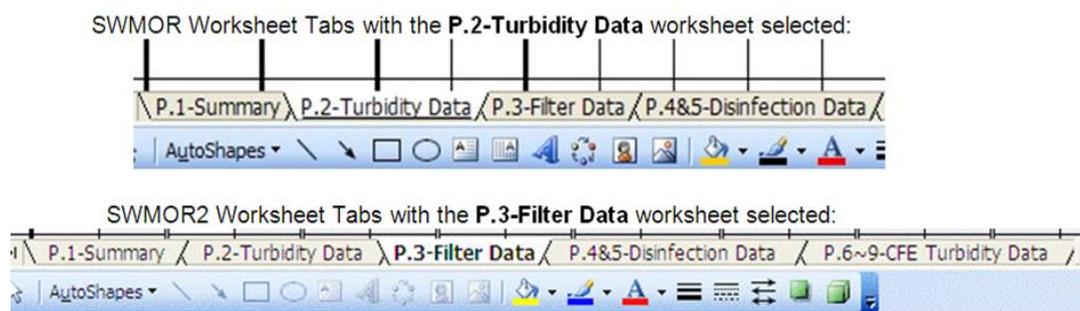


Figure 1.1. Workbook tabs for SWMOR and SWMOR2.

Each worksheet contains information about specific aspects of plant performance. Table 1.4 summarizes the SWMOR worksheets and their content.

Table 1.4. Contents of the SWMOR.

Worksheet	Title	Contents
1	P.1-Summary	This worksheet contains a summary of your monthly data, and shows whether the plant was in compliance for the month.
2	P.2-Turbidity Data	This worksheet has the raw and treated water data, the combined filter effluent data, and the disinfectant residual entering the distribution system.
3	P.3-Filter Data	This worksheet has the individual filter effluent turbidity data.
4	P.4&5-Disinfection Data	These worksheets contain the data used for CT calculations and show the inactivation ratios achieved each day.
5, 6, 7	P.6-TOCMOR, P.7-TOC ACC, P.8-TOC Step2	These worksheets contain the monthly report for total organic carbon (TOC) removal.
21	Imported data	This worksheet is used by plants that use SCADA data to import into the SWMOR workbook.

The LT2 rule required some plants to achieve additional inactivation or removal of *Cryptosporidium*, and approved a number of various technologies for that purpose. A new version of the SWMOR that supports LT2 compliance will be available in 2012. The new version (version 15) will include additional worksheets to contain data for plants that use site-specific methods to remove or inactivate *Cryptosporidium*.

Table 1.5 summarizes these additional SWMOR-Alt worksheets and their content.

Table 1.5. Additional contents of the SWMOR-Alt.

Worksheet	Title	Contents
8	Prefilters	This page contains data for plants that use prefilters to receive <i>Cryptosporidium</i> removal credit.
9	Enhanced IFE	This page contains data for plants that use enhanced IFE reporting.
10	Bag, Cartridge	This page contains data for plants that use bag or cartridge filters.
11	2ndStageFilters	This page contains data for plants that use two-stage filtration.
12	MembranePBT	This page contains data for membrane filter plants that use turbidity for indirect integrity testing and pressure decay rate for direct integrity testing.
13	MembraneQBT	This page contains data for membrane filter plants that use turbidity for indirect integrity testing and air flow rate for direct integrity testing.
14	MembraneMBT	This page contains data for membrane filter plants that use turbidity for indirect integrity testing and marker or tracer tracking for direct integrity testing.
15	UV—ISA	This page contains data for plants that use ultraviolet light disinfection with the intensity set point approach.
16	UV—CDA	This page contains data for plants that use ultraviolet light disinfection filters with the calculated dose approach.
17	UV—Sensor Data	This page contains the sensor calibration data for plants that use ultraviolet light disinfection with the intensity set point or calculated dose approach.
18	UV—UVT Analyzer	This page contains benchtop analyzer calibration data for plants that use ultraviolet light disinfection.
19	CryptoCT	This page contains the calculation for <i>Cryptosporidium</i> inactivation using chemical disinfectants, related to pages 4 and 5, which contain similar information for <i>Giardia</i> and virus inactivation.
20	LT2 Summary	All of the data related to <i>Cryptosporidium</i> inactivation for compliance with LT2 is contained in this page.
21	Imported data	This page is used by plants that use SCADA data to import into the SWMOR workbook.

Figure 1.2 shows the worksheet tabs of the SWMOR-Alt.

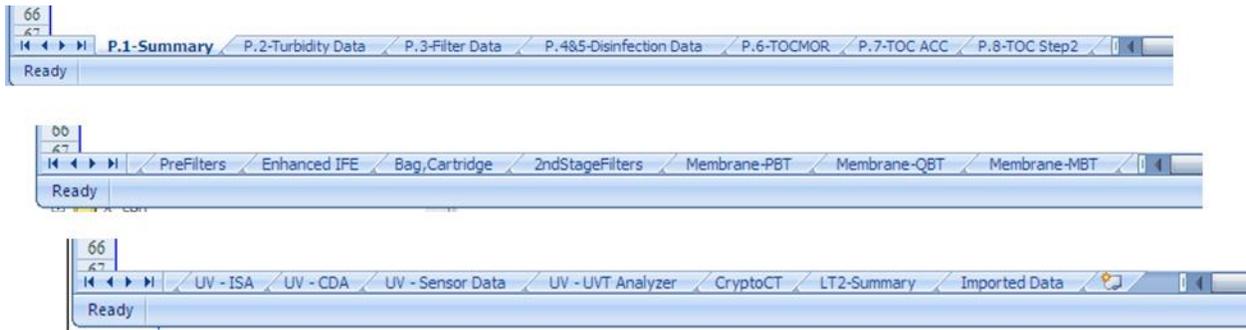


Figure 1.2. Workbook tabs for SWMOR-Alt.

ATTENTION SWMOR2 USERS

The SWMOR2 is organized in much the same way as the SWMOR. However, to avoid confusion, we have placed most of the discussion about SWMOR2 in Chapter 9, which deals entirely with that spreadsheet. Still, it would be helpful for you to read the rest of Chapter 1 because there are several cross-references to it in Chapter 9.

Custom Toolbar

We have developed a custom toolbar for the SWMOR and SWMOR2 spreadsheets. This toolbar, which is located at the top of each worksheet, is created when you open the spreadsheet and remains active until you close the spreadsheet. The toolbar, shown in Figure 1.3 includes two special commands; the [Save As . . .] button and [Paste Values] button.

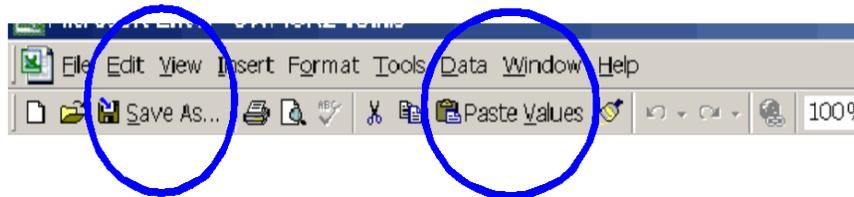


Figure 1.3. Custom toolbar.

The [Save As . . .] button helps you avoid accidentally overwriting data from a previous month by requiring you to confirm the proposed filename each time you save a file. It also helps you establish a standardized file structure that is based on the year, month, and location from which the data was collected. When you click on the button, the spreadsheet will suggest a filename that looks like:

FileType_Year_Month_PWSID Number_PlantName

In this filename:

- **FileType** means SWMOR if you are using the SWMOR spreadsheet or SWMOR2 if you are using the SWMOR2 spreadsheet
- **Year** means the year the data was collected
- **Month** means the number of the month the data was collected
- **PWSID Number** means the system’s seven-digit PWS ID number
- **PlantName** means the name of the surface water treatment plant.

(Note: If **PlantName** is not entered, the spreadsheets will call the plant **SWTP**.)

If the proposed name is correct, just click the **[OK]** button. However, if you prefer to use another filename, enter the filename and then click the **[OK]** button.

The **[Paste Values]** button helps you avoid accidentally damaging the automated features of the spreadsheets by only pasting values when you cut and paste data.

Red-Circling the Cells You Must Fill In

On each page, there are buttons that automatically draw a red circle around the cells in which you must enter data. Using this spreadsheet feature will help you find the cells your data goes in. Figure 1.4 shows that in the upper left corner of each worksheet are two buttons that look like this:



Figure 1.4. Buttons.

The first button will put red circles around all the cells you need to fill in, or that have errors. It will NOT circle cells you have already filled in correctly.



For instance, the cell that you type your system name in, on page 2, will change

from:

PUBLIC WATER SYSTEM NAME: _____

to:

PUBLIC WATER SYSTEM NAME: _____

so you know that this is a cell you need to type in.



To turn the red circles off, click the second button:

Comments

Many of the cells in the spreadsheet have comments. You can tell if there is a comment attached to a cell if there is a little red triangle in its upper right corner. To see the comment, just move the cursor (the arrow) over the cell—a comment will appear that describes the data you need to enter, as shown in Figure 1.5.



Figure 1.5. Comment boxes.

Drop-down Menus

Some cells in the spreadsheet have a drop-down list that supplies the acceptable options that you can put in that cell. You will know what cells have drop-down list because, when you move your cursor over them, a little downward-pointing arrow will appear.

For example, the month cell on page 2 of the spreadsheet looks like this:

Month: _____ ▲

But when you move your cursor over it, you see the downward-pointing arrow.

Month: _____ ▼

When you click the left mouse button once on the downward-pointing arrow, the drop-down list shown in Figure 1.6 appears.

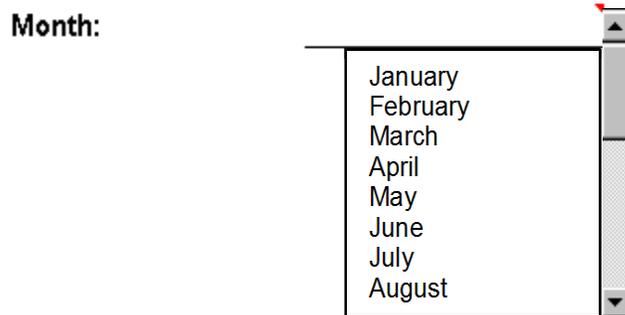


Figure 1.6. Drop-down list.

Now, you can move your cursor over the month you want to select and click your left mouse button again (once), and the month you selected will appear in the cell.

Month: **February** ▼

Protected Cells

Some of the cells in the spreadsheet are “protected” so that you can’t type in them. You should not have any reason to try to type in a protected cell. For instance, if you only have two filters, and you try to input data for Filter 3, the spreadsheet won’t let you do it. Another example of a protected cell is one that has a formula for doing automatic calculations. When you click on a protected cell, you will see the following screen, as shown in Figure 1.7.



Figure 1.7. Protected cell warning.

Just click **[OK]**, and the box will disappear.

Viewing the Spreadsheet

You can change how big or how little the type appears on your computer screen by using the zoom function. To do this, click **[View]** in the Excel Menu, select **[Zoom]** at the bottom of the drop-down list, and select the size you want.

Using the SWMOR and SWMOR2 Spreadsheets

Instead of going through the SWMOR page by page, this guidance manual is organized in the order that you complete the form. The sequence is summarized in Table 1.6.

Table 1.6. Sequence for completing the SWMOR.

Step	Process
0	Customize your SWMOR (see Sections 2.1 and 2.2): Save the SWMOR with a new file name for that specific month. You only have to do this once for each plant. Make sure you save the file every time you update it.
1	Create that month's file (Section 2.3): Enter month, year, connections, and population. You must do this once a month for each plant.
2	Enter each day's data (Chapter 3): Flow, turbidity, residual, and so forth. You must do this each day for each plant. Complete the TOC MOR (RG-379).
3	Fill out the summary page (Section 3.4): You must do this at the end of each month for each plant.
4	Fill out the summary addendum page (Section 3.5): You must do this at the end of each month for each plant if there was at least one violation.
5	Print, sign, and submit that month's SWMOR (Section 3.6): You must do this at the end of each month for each plant.
6	Submit MORs to the TCEQ Attach the completed TOC MOR page(s) to your completed SWMOR and submit them together.
7	If your plant uses chlorine dioxide for disinfection, complete the CLO2 MOR form and attach them to your completed SWMOR.
8	If your plant uses non-conventional treatment to achieve inactivation/removal credit, complete the pages related to that technology.

How to Submit Additional Remarks

You will notice that the SWMOR and SWMOR2 spreadsheets contain no space for comments or general remarks. Therefore, you must use a separate sheet of paper if you need to provide us with information about your plant.

1.6 OTHER REPORTING REQUIREMENTS

The SWMOR is only one of the reports that a surface water treatment plant must send to the TCEQ. We have put many of these forms and instructions on our website so that you can download copies of them. You can access each of the forms discussed in this section (and many others) at:

www.tceq.texas.gov/goto/sw-mon

If you do not have access to the Internet, you may call the TCEQ public drinking water program at 512-239-4691—ask for the Surface Water Treatment Rule Coordinator—or by e-mail at <SWTPMOR@tceq.texas.gov>. We can send you copies of the materials.

The Texas Optimization Program Monthly Operating Report (TOPMOR)

The Texas Optimization Program (TOP) is a voluntary program that recognizes surface water treatment plants that consistently produce high-quality drinking water. If you are participating in the TOP Recognition Program, you must submit the TOPMOR monthly. You can find more information about the TOP and download copies of the TOPMOR at the following Web address:

www.tceq.texas.gov/goto/sw-top

If you do not have access to the Internet, you may call the TCEQ at 512-239-4691, or e-mail <PDWS@tceq.texas.gov>, and request a copy of the information on a compact disk.

Monitoring Plan

Every system must have a monitoring plan describing sampling in the plant and its distribution system. You have to submit a copy of this plan for our review and approval. You must also provide us with the updated copy of the plan if you make any revisions. We have published a separate guide, *How to Develop a Monitoring Plan for a Public Water System* (TCEQ publication RG-384). You can find more information about monitoring plan requirements at the following Web address:

www.tceq.texas.gov/goto/pws-monplans

If you do not have an Internet connection, call the TCEQ Public Drinking Water Section at 512-239-4691, or e-mail <PWSCHEM@tceq.texas.gov>, and request the monitoring plan guidance document.

Special Study Reports for Individual Filters

Under certain conditions, you may be required to perform a special study on a filter, and send in a report with the results to the TCEQ. This manual discusses these special reports in Chapters 4 through 6.

Chlorine Dioxide Monthly Operational Report (CLO2MOR)

If your plant uses chlorine dioxide, you must also submit a CLO2MOR each month. The report provides a place for you to record the chlorine dioxide and chlorite levels entering the distribution system each day and to report the number of chlorite samples collected from the distribution system each month. You can get a copy of the CLO2MOR and instructions on the Internet at:

www.tceq.texas.gov/goto/clo2mor

If you do not have an Internet connection, call the TCEQ Public Drinking Water Section at 512-239-4691, or e-mail <PWSCHEM@tceq.texas.gov>, and request the CLO2MOR form and instructions.

1.7 CT STUDY TEMPLATE

The CT Study Template is an Excel 2003 (or Excel 2007) spreadsheet that you can customize to describe the disinfection process at your plant. This template helps you evaluate alternative disinfection protocols. It also provides a convenient place to record all of the information you will need when you request permission to change the disinfection practices at your plant. The CT Study Template can handle up to 10 disinfection zones/treatment trains with up to 10 treatment units in each zone.

You can download a copy of the template and its instruction manual at:

www.tceq.texas.gov/goto/ct-study

If you do not have access to the Internet, you may call the TCEQ Plan and Technical Review Section at 512-239-4691 to request a copy on compact disk. You may also obtain a disk via e-mail to <CTstudy@tceq.texas.gov>.

This template can be completed by public water system personnel; a professional engineer is not required. When the template is completed, copy the completed spreadsheet to CD and submit it with a cover letter stating the reason for the CT study revision request and the contact person who can answer any questions we may have. The template can be submitted to us through the United States Postal Service (USPS) at:

Technical Review and Oversight Team, MC-159, Attn: CT Study
TCEQ
PO Box 13087
Austin, TX 78711-3087

If you wish you may submit documents to our physical address at:

Technical Review and Oversight Team, MC-159
Attn: CT Study
TCEQ
12100 Park 35 Circle, Building F
Austin, TX 78753

You may also send us the completed template to a special e-mail account that we have established for this purpose: <CTstudy@tceq.texas.gov>. If you submit the CT

study electronically, please be sure to include your name, title, and telephone number in the e-mail and to attach the completed template before sending it. We highly recommend that you retain proof of your submission in the form of a certified mail receipt, fax transmittal confirmation, or return e-mail from us.