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SYSTEM ENHANCEMENT OF TITLE V PERMIT REVIEWS AND POINT SOURCE INVENTORIES

A Thesis Presented for the Master of Science Degree
The University of Tennessee, Knoxville

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ABSTRACT

Emission inventories are a critical component for air quality management. An accurate and up-to-date inventory data is an essential element of air quality modeling that is crucial in determining compliance with ambient standards and in making policy decisions. To insure that accurate inventory data are obtained in a State or local agency, a combined Title V permitting process and point source inventory reporting infrastructure are being implemented using Microsoft's Access database program. The purpose of this thesis is to develop a consolidated system for the State of Tennessee point source inventory, the Consolidated Emission Reporting Rule (CERR) request information system and Tennessee Title V permitting system, thus allowing the management of these tasks within the same system. The system provides a method for companies to complete their Title V permit applications electronically and, at the same time, generate their point source inventory required by CERR. For validation purposes, the inventory data obtained from the electronic Title V permit application via the system are checked against the National Emission Inventory Interchange Format (NIEIF 3.0) quality assurance algorithm. With this method of collecting and verifying data, regulatory agencies can update emission inventories with data to meet the requirements of the Consolidated Emissions Reporting Rule with minimal effort.

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CHAPTER 1

INTRODUCTION

Emission inventories are a critical component for air quality management. An accurate and up-to-date inventory data is an essential element of air dispersion modeling that provides future emissions projection. The correctness of the modeling results is based upon reliability and accurateness of the inventory data. It is an indispensable part of air quality management. The Federal, State, and local agencies utilize the modeling results as a basis for their policy decisions, as part of their efforts to attain and maintain National Ambient Air Quality Standards (NAAQS).

The national point source inventory has been established since 1985. It provides an estimation of emissions from major point sources across the United States. In 1990, Congress amended the federal Clean Air Act (CAA) and divided the existing air quality program into 11 major divisions from Title I to Title XI. NAAQS program falls under Title I and permit program falls under Title V. US EPA promulgated the regulation in 40CFR Part 70 on July 21, 1992. Title I requires state agencies to annually report criteria pollutant emission inventory information for all point sources for which their actual emissions are equal or greater than one of the following levels: 100 tons per year of SO_x, NO_x, VOC or PM₁₀; 1000 tons per year of CO; 5 tons per year of lead; or total facility emission of 250 tons per year. Title V required States to develop and submit a proposal for how they would operate the major source operating permits program to EPA by November 15, 1993. According to the Federal Register, the State of Tennessee received approval for their interim Title V operating permit program from EPA on August 28, 1996. The final program was approved on August 9, 2002. Under the Title V program,

any facility potentially emitting 100 tons per year of any criteria pollutant or 10 tons per year of any Hazardous Air Pollutant (HAP) or 25 tons of a combination of HAPs is defined as a major source and required to submit a federal operating permit application (“Title V application”). The intents of the Title V program are to ensure that all sources comply with all air pollution emission standards and will not have a detrimental impact on human health or the environment.

In August 2002, the U.S. Environmental Protection Agency (EPA) promulgated the Final Consolidated Emissions Reporting Rule (CERR) to simplify and streamline existing emission reporting requirements (including Title I reporting requirements) into one place in Code of Federal Regulations. CERR provides flexibility for data collection and exchange, and merges various reporting dates for various categories of criteria pollutant emission inventories. It combines the National Emission Trends (NET) inventory of criteria pollutants and the National Toxic Inventory (NTI) of Hazardous Air Pollutants (HAP) into a single inventory named the National Emission Inventory (NEI). It modifies the existing reporting thresholds and categorizes point sources into Type A (large point sources) and Type B (all point sources). Table 1.1 shows the emission reporting thresholds for Type A and Type B sources. All the emissions in the table are based on annual actual emissions. Unlike Title V reporting thresholds which are based on the annual potential emissions. Under CERR, states are required to submit annual point source emission inventories for Type A sources. Type B sources must be reported every three years to EPA. Pollutants regulated under this rule include all criteria pollutants, plus PM_{2.5} and ammonia.

Table1.1 Summary Requirements for Reporting Emission Inventories

Provision	Point source inventory		NO _x SIP call inventory	3-Year inventory
	Type A sources ¹	Type B sources ¹		
CAA citation	Section 110(a)(2)(F)	Section 110(a)(2)(F), § 112	Section 110(a)(2)	Section 172(c)(3), Section 182(a)(3)(A), and Section 187(a)(5), § 112
1. Frequency of reporting ...	Annual	Every three years	Annual	Every three years
2. Estimating period	Annual	Annual and Daily ³	Five month season	Annual and Daily ³
3. Areas to which provision applies.	Entire U.S. (Statewide)	Entire U.S. (Statewide)	NO _x SIP Call areas (Statewide).	Entire U.S. (Statewide)
4. Pollutants and source size thresholds.	Pollutant	Pollutant	Pollutant	Pollutant Ozone NA areas: ⁴
	tpy ² SO _x ≥ 2,500 NO _x ≥ 2,500 VOC ≥ 250 PM ₁₀ ≥ 250 PM _{2.5} ≥ 250 CO ≥ 2,500 NH ₃ ≥ 250	tpy ² SO _x ≥ 100 NO _x ≥ 100, VOC ≥ 100 PM ₁₀ ≥ 100 PM _{2.5} ≥ 100 CO ≥ 1,000 Pb ≥ 5 NH ₃ ≥ 100	tpy ² NO _x ≥ 100	tpy ² VOC ≥ 10, NO _x ≥ 100, CO ≥ 100.
			Lesser thresholds to be defined by state	CO NA areas: ⁴ CO ≥ 100.
			All sources not inventoried as point sources shall be inventoried as area or mobile sources and reported only if they are to be controlled to meet emission budget.	

In addition to the point source inventory requirement, CERR requires statewide reporting of area source, mobile source and biogenic emissions every three years.

Before the final CERR was fully implemented in 2002, the Tennessee Department of Environment and Conservation's Division of Air Pollution Control (TDEC APC) requested assistance from the University of Tennessee's Department of Civil and Environmental Engineering (Dr. Wayne T. Davis and Dr. Terry L. Miller, PIs, and Dr. Joshua S. Fu and graduate students) to develop the emission inventories and database management associated with the requirements of the CERR. The project was initiated in June 2000 and is on-going. The goals were to evaluate the current emission inventory program, identify critical paths required to maintain all the inventories that satisfying the requirements of CERR and evaluate any problems or weaknesses associated with the existing emission inventory management and reporting infrastructure. During the evaluation investigation, several weaknesses were identified.

- 1) The major source of information for the point source emission inventory was from the Title V permit applications. Unfortunately, the point source emission inventory and the Title V permit applications have somewhat different requirements and emission thresholds. The first is based upon actual emissions and the second is based upon actual or potential emissions, depending on how companies choose to pay their Title Permit fees. Therefore, companies fall into CERR requirements which may not necessary fall into Title V requirements.
- 2) Emission information from the Title V permit application is not sufficient to satisfy the CERR requirements.
- 3) Modifying the Title V permit application forms requires an approval from the State of Tennessee Air Pollution Board, and it is a lengthy process and may require a long time to be approved. However, CERR requirements change year by year.
- 4) The existing point source emission inventory system is not efficient in handling existing companies since it requires intensive labor to enter all the information from the Title V permit applications into the point source inventory.
- 5) Title V information is handled and submitted in paper form, not electronically.

Many suggestions have been proposed to TDEC to help solve the existing problems. TDEC has chosen one of the UT recommendations to help eliminate some of the existing problems. This thesis includes the development of an electronic Title V application form process that is also linked to the emission inventory process to provide a more efficient means of tying the two as yet independent systems together. The thesis includes the description of the development of the program and all documentation for the program. The expectation of the program is to link CERR reporting infrastructure and

Title V permit reporting infrastructure together, and make the program electronically available for use by the agency and by companies that are required to submit Title V permit applications. According to an Internet search conducted in 2002, only a few states have implemented electronic Title V permit application submission processes. Table 1.2 shows the current status of electronic Title V system development across the United States and Table 1.3 shows a list of states that have implemented an electronic Title V database management system. Software formats used for the electronic submittal are Visual Basic ®, Adobe PDF ®, Word® and Word Perfect ®.

Table 1.2 Summary of Current Electronic Title V System Status

Number of State/Local Air Pollution Control in the Survey	Permit Application Available to Download Online	Available in Word Processor Format	Available in Database Related Format
114	68	65	5

Table 1.3 List of States Implemented Electronic Title V System

EPA Region	State/Local Air Pollution Control	Web Address	Software/ Software Format	Submit Through Internet?
2	New Jersey	http://www.state.nj.us/de/p/aqpp/radius.html	RADIUS –Visual Basic	No
4	Florida	http://www.dep.state.fl.us/air/forms/transfer.htm#transferair	-	Yes
5	Ohio	http://www.epa.state.oh.us/dapc/fops/pmu.html	STARShip – Visual Basic	Yes
6	Texas	http://www.tnrc.state.tx.us/permitting/airperm/index.html#oppermits	Adobe PDF or WordPerfect	Yes
7	Iowa	http://www.state.ia.us/epd/air/prof/oper/opapp.htm	SPARS – Visual Basic, Adobe PDF or Word	Yes

CHAPTER 2

METHODOLOGY

Over 450 major source companies were listed by the Tennessee Department of Environment and Conservation (TDEC) to be participating in the Title V operating permit program in year 2000. Figure 2.1 shows the existing Tennessee permitting infrastructure.

For new permits, major source companies have to submit multiple copies of the Title V permit applications to the TDEC DAPC permitting group for review, after which the TDEC permitting group determines permit restrictions and operating requirements for the companies and issues operation permits. The submittal is by paper copy. A paper copy of the final permit is then provided to the TDEC DAPC inventory group. The inventory group reviews, organizes information and inputs necessary information into Tennessee Point Source Emissions Database (TPSED).

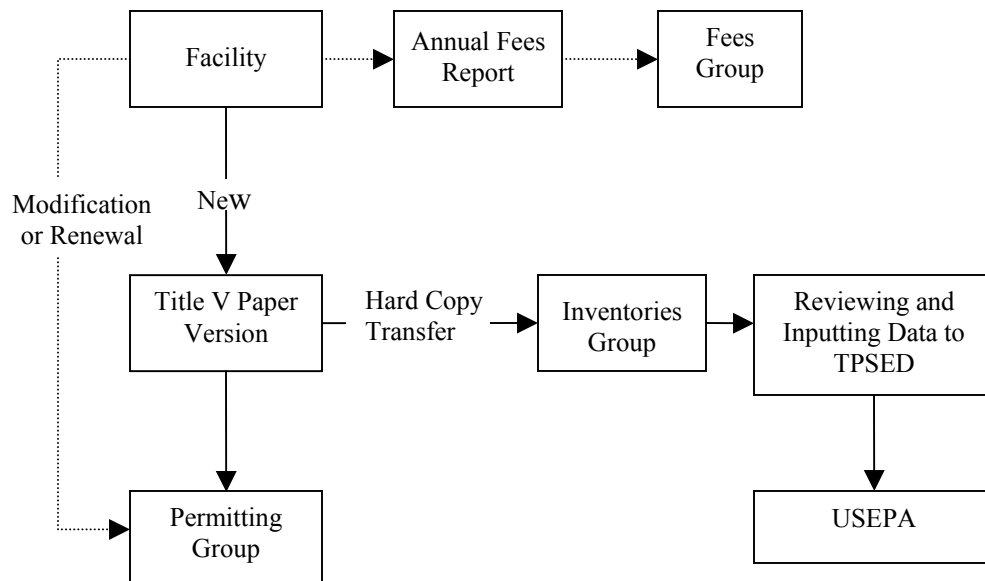


Figure 2.1. - Existing Permitting Infrastructure

This process is a time-consuming task that takes an average of 15 to 20 hours to complete. Often times, mandatory inventory information is not reported in the application because it is not required in the application. Therefore, the inventories group has to send out separate request questionnaires to the companies to obtain additional information.

When permit modifications are made or annual fees reports are submitted, the changes that were made by the companies in the modifications or renewal processes may not be provided on a timely basis to inform the inventory group of changes that need to be made in the inventory database. Also, up-to-date emissions information provided by annual fee reports is not necessarily being utilized as a source of data that can be used for updating the existing emissions database. These problems are being identified in the current system and can't be resolved without modifications of the current permitting infrastructure. Figure 2.2 shows the proposed changes of permitting infrastructure.

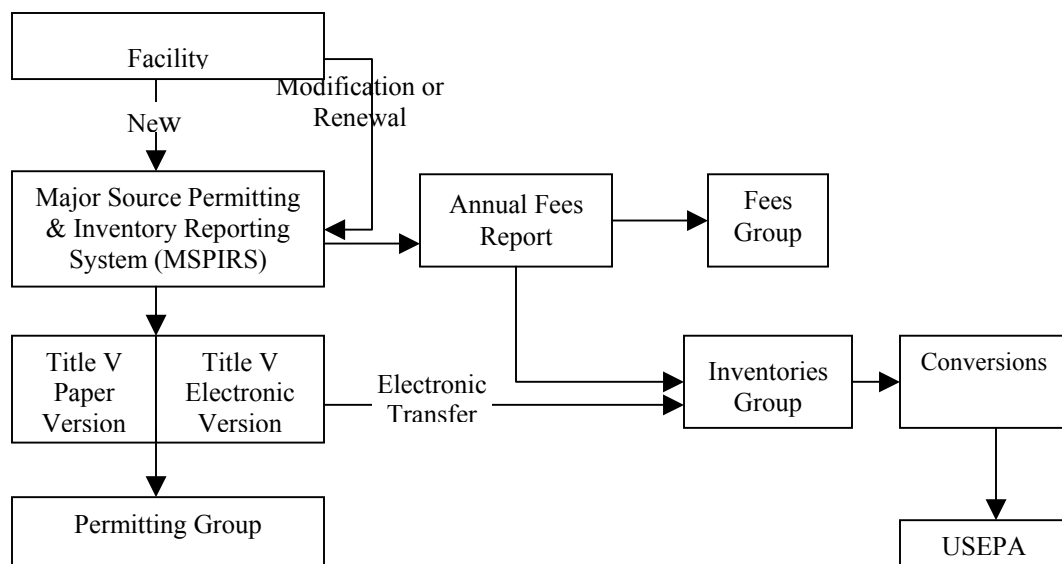


Figure 2.2. - Proposed Permitting Infrastructure

The main idea behind the changes is to create an electronic linkage between the permitting group, inventories group and the fees group. The linkage serves as a central information unit for all three groups and allows different groups within the department to share information electronically. The central information unit is referred to as the Major Source Permitting & Inventory Reporting System (MSPIRS). It is a Microsoft Access database program that provides a common electronic platform for data exchange among the groups and also to the companies. For validation purposes, MSPIRS incorporates Title V requirement checking recommended by TDEC and the National Emission Inventory Intput Format (NIF 3.0) quality assurances (currently available version) provided by the U.S. EPA to facilitate rapid error screening.

Under the new infrastructure, major source companies would be required to complete their permit applications through MSPIRS. MSPIRS allows the user to generate a hardcopy version of Title V permit application (Appendix A.1 to A.46), electronic data version of Title V permit application and electronic data version of emission inventory data. In general, the Title V permit application contains full details of plant information and the emission inventory data is just a subset of it because most of the detailed information in the Title V version is not needed for inventory purposes. Once the hardcopy version and both of the electronic versions are generated by the person preparing the forms, the hard copy version and the Title V electronic version would be submitted to the permitting and inventory groups for review.

The new infrastructure, if adopted, would allow the inventory group to capture all possible changes that were associated with modifications and renewals through MSPIRS, since the companies would only be allowed to make their modifications through

MSPIRS. This ensures that the inventory will be updated whenever the changes occur. Moreover, the duration of operating permits is set between 3 to 5 years in Tennessee and therefore, company information will be updated at least once every five years. The new infrastructure also covers the annual fees reports. Company that has completed MSPIRS would have full details of emission process information. If such information is included into the emission fees report, this will provide enough information for the inventory group to update the emission inventory.

MSPIRS consists of thirty-six application forms and five other user interface forms. Examples of all these forms (pre-filled example) and user interface forms are included in Appendix A (A.1 to A.46) and B (B.1 to B.5), respectively. The thirty-six forms essentially mimic the current Title V forms, with the slight modifications to include the additional inventory information needed by the emissions inventory group. Table A.1 to A7 in Appendix A shows the differences between the original Title V permit application forms and the modified Title V permit application forms. The intent here of maintaining the integrity of the original Title V forms in MSPIRS is to provide a familiar system for those who already have experience with the Tennessee Title V permit application process. It does not require extensive training and maintains a user-friendly approach. MSPIRS adopts the idea of “touch screen or switchboard concept” unlike the conventional program that requires a step-by-step process. The advantage of using the switchboard over the conventional step-by-step program is in the flexibility that it provides. The switchboard does not restrict the user to filling out the forms in a step-by-step way. The companies are allowed to fill out any form in any order in the switchboard. Figure 2.3 shows an example of the switchboard.

Microsoft Access - [Mainform]

GO BACK GO NEXT QA/QC Summary

OPERATIONS SWITCHBOARD

Facility Name Example 1

EMISSION UNIT INFORMATION				EMISSION PROCESS INFORMATION							
EMISSION UNIT ID	FORM	QA/QC CHECK			PROCESS ID	DESCRIPTION OF EMISSION PROCESS	FORM	FORM NUMBER	QA/QC CHECK		
		TV	INV	WRN					TV	INV	WRN
B230-1	GO	☐	☐	☐	1		GO	APCV4	☐	☐	☐
CE110	GO	☒	☒	☒	1	Clark Brothers Compressor Engines 110	GO	APCV5	☐	☐	☐
MR-1	GO	☒	☒	☒	1	Mixing Room	GO	APCV10	☒	☒	☐
MR-1	GO	☒	☒	☒	2	Open Burning	GO	APCV34	☒	☒	☒
P80	GO	☒	☒	☒	01	Source No. 01: Press 80 (Unit No. 01-101)	GO	APCV8	☐	☒	☐

Figure 2.3 - Operation Switchboard

The switchboard is like a TV remote control. One can press on the control to switch to any channel one wants to watch. In this analogy, the control will be the switchboard and the channel will be the form one wants to fill out. For instance, if the user wants to fill out the emission process information for process number 3 prior to filling out the emission unit information, then the user can simply click the “Go” (see the blue arrow) in the emission process information. The program automatically generates a new process form. Once the information is completed, then one can close the process form by clicking the “GO BACK” button in the opened process form and return to the switchboard. The “GO BACK” button automatically activates the internal quality check (QC) program and the results of QC program will show in the square box (see the red arrow). When the QC passes, a check will appear in the square box indicating that the process form has passed the QC requirement. Notice that three sets of QC check boxes

are shown in the program. They represent the different QC programs that are required by different groups for different purposes. “TV” check box shows the results of QC required by the permitting group, where as “INV” shows the results of QC required by the inventory group. “WRN” check box shows the results of warning criteria QC for both permitting group and inventory group. The details of the QC programs will be discussed in Chapter 3. Once all the information has been included in the switchboard, the user can visually see where the QC test failed. Failure to pass the QC programs is unacceptable and indicates that the application does not meet the requirements. This procedure, when properly used, insures that the inventory data and Title V data received from the company meets the requirements of all groups.

MSPIRS is a program that can also serve as a central information unit. On the management side, MSPIRS solves the communication problems that exist among the various groups. It provides an electronic copy of Title V permit application for the permitting group, while at the same time, eliminating unnecessary manual and often tedious reviewing of the Title V permit by the inventory group. It greatly improves the efficiency of the review process. The quality of the data is assured and is always up-to-date. On the company (or user) side, MSPIRS serves as a tool for completing the initial and subsequent modifications of the Title V permit application. The companies are able to maintain an electronic copy for future modification. The user-friendly design smoothes out the transition obstacles. The “switchboard design” provides flexibility for inputting data. The QA/QC design reduces the chances of the submittal being returned because of the lack of information or errors. MSPIRS satisfies the basic requirements of both the Title V rule and consolidation of emission reporting rule.

CHAPTER 3

QUALITY ASSURANCE/QUALITY CHECK

The quality assurance and quality check is an important part of MSPIRS. It ensures an acceptable quality of permit application can be achieved.

The QA/QC in MSPIRS was designed in the early stage of the database development to include and incorporate data structure and data definition (the most basic element in an access database) as a part of the QA/QC. Therefore, the permit application in MSPIRS would be compatible with the EPA National Emission Inventory Input Format (NIF 3.0). Moreover, criteria using in the EPA Quality Assurance / Quality Control Software 3.0 are implemented in MSPIRS, as well, to produce acceptable inventory data.

There are four objectives of the QA/QC in MSPIRS are: 1) reduce the chance of errors created in MSPIRS for Title V permit application submittal, 2) make sure all the Title V information have been completed before submitting to TDEC APC, 3) create a user-friendly framework for identifying and reporting errors, 4) ensure all the data that enter MSPIRS will be compactable with NIF 3.0 for inventory submittal.

Quality Assurance:

The quality assurance in MSPIRS can be divided into two major categories, which are database structural design and user interface interaction.

Database Structural Design

In the database structural design, MSPIRS adapts the field definitions (data type, size, etc.) of the NIF 3.0 and also defines the table relationships similar to NIF 3.0 for compatibility concerns. The table relationships maintain the data integrity and the consistence of the data in MSPIRS. Figure 3.1 shows a simply example of the table relationships in MSPIRS, including four different table definitions and three connection lines (relationship links). The figure also shows that the Cover Page table is linked to the Facility Identification (APCV.1) table, the Operations and Flow Diagrams (APCV.2) table and the Stack Identification/Fugitive Identification (APCV.3) table by the field called “strFacilityName.” Each end of the linkage shows the number of records restricted to each table and arrow marks show the directional relationships between tables. To easily understand how the table relationships maintain the data integrity and the consistence of the data in MSPIRS, an example will be helpful. Let say each table has a record of “example one” filled in the “strFacilityName”. If the record in the Cover Form table is deleted, any record in other tables that has “example one” in the “strFacilityName” will also be deleted. Or if one changes the “strFacilityName” from “example one” to “example two”, any record in other tables that has “example one” in the “strFacilityName” will automatically change to “example two”.

User Interface Interaction

In the user Interface interaction, MSPIRS pre-fills the information that is available from the previous form. This eliminates the chance of misspelling or typo that leads to inconsistency among forms and tables. Moreover, it ensures the automatic update

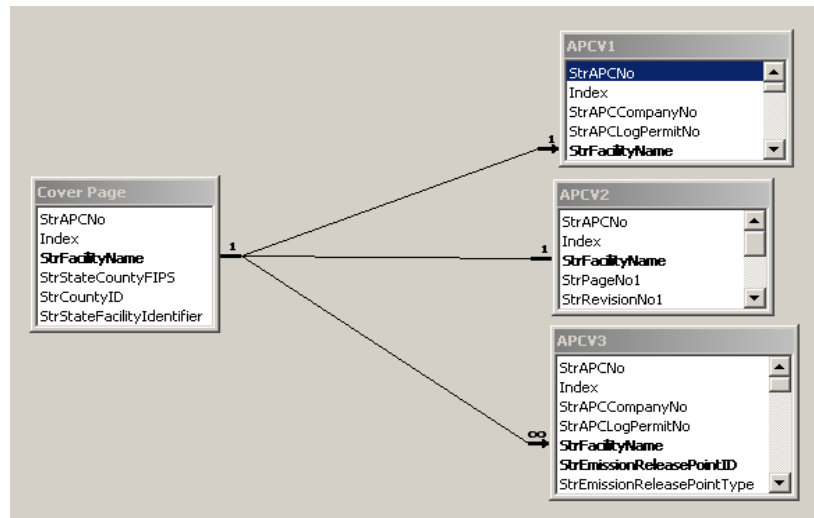


Figure 3.1 Simplified Table Relationships in MSPIRS

function supported by the database structure will work properly. The user interface restricts the number of forms that can be opened in the screen and the sequence of form opening to prevent violation of the table relationships rule.

To further eliminate the chance of typo or misspelling, some of the fields in the user interface have been designated as combo boxes with the “limit to list” property set to be “true”. This setting restricts the field such that it can only be filled with the data that comes from a list of selections designated by the programmer. In addition to the combo boxes, MSPIRS has been programmed to operate with the interactive auto-fill function and interactive field restriction. The interactive auto-fill function allows the user to fill out certain information and other information will be automatically generated. For example, when you select a SCC value in the SCC field, the program will automatically fill in a correct SCC unit for you. The interactive field restriction function prevents inappropriate information from being placed in the form. For example, in the Stack Identification/Fugitive Identification (APCV.3) form, if the user selects “fugitive” from

the selected list in the emission release type (item #3), any field that is not associated with fugitive emission (item#6 – 17) such as stack height and stack temperature will be disabled (eliminating access to the field). An example of the APCV.3 form can be found in Appendix A.6.

Quality Check (QC):

The QC program contains four major modules: the completeness module, the range check module, the comparison module and the number of comments module. Each time a form closed, the completeness model will automatically run, and depending on which form is being closed, the range check module and the comparison module may also run. The number of comments module will run at the end.

The function of the first three modules is to put QC comments into the QA/QC comment tables. There are two types of QA/QC comment tables in MSPIRS: type one and type two. The type one QA/QC comment table is used to store QC comments from APCV.1, APCV.2, APCV.29, APCV.31 and APCV.32 where the common unique fields or key fields (defined in the field definition) of these forms are facility name and form number. The unique fields in here mean one can only input a unique combination of name or value into these fields, so that the combination of these fields can be used as a unique ID in the form. Table 3.1 shows common QC comments that are associated with the forms listed above. The type one QA/QC comment table contains the information of form number, mandatory/warning, item number and comment. The facility name is hidden from the user since it will be identical in each form. The type two QA/QC comment table is used to store QC comments from forms other than those five forms

Table 3.1 Common QC Comments in the Type One QA/QC Comment Table

Form Number	Mandatory/Warning	Item Number	Comment
V1-APC	M	Item#3 - The Facility SIC Code;	Missing Data;
V1-APC	W	Item#9 - City or town;	No such city or town, please check the spelling;
V1-APC	W	Item#1 - State and zip code	State and zip code does not match; Or Missing data
V29-APC	M	Item#4 - Actual Emission (Ton/year);	Total emission of CARBON MONOXIDE from all the processes listed in the application is greater than the total emission listed in the emission summary form;
V29-APC	M	Item#4 - Actual Emission (Ton/year);	Total emission of NITROGEN OXIDES from all the processes listed in the application is smaller than the total emission listed in the emission summary form;

listed in the type one QA/QC comment table. Since the common unique fields in the type two are different from the type one, it is necessary to have the QC comments separated.

The common unique fields in the type two QA/QC are form number, facility name, emission unit ID (EU ID), process ID (PE ID), stack ID or fugitive ID (STK ID) and control device series (CDS). Table 3.2 shows a list of common QC comments associated with the type two forms which contains the information of form number, mandatory/warning (M/W), item number and comment in addition to the common unique fields.

Table 3.2 Common QC Comments in the Type Two QA/QC Comment Table

Form Number	EU ID	PE ID	STK ID	CDS	M/W	Item Number	Comment
V3-APC			230-1		M	Item#5 - Longitude;	Missing Data;
V3-APC			230-1		W	Item#12 - Exhaust Temperature;	The value is too low or too high, Please double check the value;
V3-APC			230-1		M	Item#5 - Latitude;	The value is out of state boundary, Please double check the value;
V3-APC			230-1		M	Item#16 - Have Any Bypass Stack	'Yes' has been selected. However, there is no bypass stack record;
V6-APC	RST-1	T-2	Fug 2		W	Item#19 – No Material Information;	Missing Data in the Table;
V19-APC	P80	01	S01-1		M	Item#5 – No APC V.21 Form;	APC V.21 Form is Required
V28-APC	MR-1	2	Fug3		W	Item#6 – No Emission Information;	Missing Data in the Table;
V30-APC	P80	01	S01-1		M	Item#9 - Limitation;	Missing Data;(PRIMARY PM, FILTERABLE PORTION ONLY)

Completeness Module

The function of the completeness module is to check through each individual field in the form to see whether the field has been filled. If it is not, a QC comment will be added to the QA/QC comment table (type one or type two depended on the form). Before the QC comment is added to the table, a conversion must be made to the field name since the field name is the name used in the table definition and may not understandable by the user. A cross-referencing table is used to do that. The example of the cross-referencing, as shown in Table 3.3, contains the information of type (Strtype), subform number (Form Table No), form number (FormNo), field name (Field) and user interface field name (Field Description), where the field name and the user interface field name are used for the conversion. Inside “()” shows the original description used in the MSPIRS.

Table 3.3 – QA/QC Type And Field Description Table

Type (StrType)	Subform Number (Form Table No)	Form Number (FormNo)	Field Name (Field)	Interface Field Name (Field Description)
B	V1-APC	V1-APC	StrFacilityName	Item#1 - Facility Name and Owner Name;
B	V1-APC	V1-APC	StrMailingAddress	Item#1 - Mailing Address;
T	V1-APC	V1-APC	StrCounty	Item#2 - County;
E	V1-APC	V1-APC	StrNAICSPrimary	Item#3 - The NAICS Code;
E	V1-APC	V1-APC	StrFacilityRegistryIdentifier	Item#4 - The Facility Registry ID;

Range Check Module

The range check module uses a set of pre-defined values to compare with the data that are listed in the form. If the data fall outside of the range, a QC comment will be added to the QA/QC comment table (type one or type two depending on the form).

These pre-defined values are adopted from the pre-defined value listed in the Quality Assurance / Quality Control Software 3.0 and are stored in tables inside MSPIRS (See Appendix D for some of these pre-defined values). The reason for storing the pre-defined values in tables is for easy modification. For example, if the values in pre-defined values have changed, one can simply change them in the tables without modifying any programming code. The fields that are included in the range check are city name, zip code, latitude/longitude coordinates, stack parameters (stack height, diameter, temperature, velocity and flow rate), fugitive parameters (fugitive height) and maximum emissions. Table 3.4 shows a list of forms that use this module in MSPIRS.

Table 3.4 – Forms that Use the Range Check Module

Range Check Item	Form Implemented the Range Check Module
City Name	APCV.1, APCV.32 and APCV.34
Zip Code	APCV.1, APCV.32 and APCV.34
Latitude/Longitude	APCV.1, APCV.3, APCV.3(BYPASS), APCV.4, APCV.5, APCV.6, APCV.7, APCV.8, APCV.9 and APCV.10
Latitude/Longitude	APCV.1, APCV.3, APCV.3(BYPASS), APCV.4, APCV.5, APCV.6, APCV.7, APCV.8, APCV.9 and APCV.10
Stack Height	APCV.3 and APCV.3(BYPASS)
Fugitive Release Height	APCV.3 and APCV.3(BYPASS)
Stack Diameter	APCV.3 and APCV.3(BYPASS)
Stack Temperature	APCV.3 and APCV.3(BYPASS)
Stack Velocity	APCV.3 and APCV.3(BYPASS)
Stack Flow Rate	APCV.3 and APCV.3(BYPASS)
Maximum Emission Rate	APCV.28 and APCV.29

Comparison Module

The comparison check module is mainly created for APCV.29. It checks the total emission for each pollutant from each individual APCV.28 form (process emission) versus the reported facility-wide emission for each pollutant in APCV.29 form. This ensures consistency of the emissions through out the permit application.

Number of Comments Module

The number of comments module checks the number of records that is listed in the QA/QC comment table to determine whether a form has passed the QC and whether to put a QA/QC check mark into the QA/QC check field in the main form/operating switchboard. The decision is strictly based on the module result. If the resultant count is more than one, the QA/QC check field in the main form/operating switchboard will be blank. However, if the resultant count is zero, the QA/QC check will be added to the

main form/operating switchboard. Since there are three QA/QC checks in each QA/QC check box, three separate runs will be performed. Table 3.3 shows examples of list of QA/QC fields that belong to each type of QA/QC check. The first column of the table is the type (strtype), which controls the type of QA/QC check. “T” represents the QC field that is used by the Title V check box; “I” represents the QC field that is used by the emission inventory check box; and “B” represents the QC field that is used by both the Title V check box and the emission inventory check box. Once again, the reason for using a table to store such information is for easy modification in the future.

CHAPTER 4

MSPIRS USER GUIDE

This chapter provides general information on the use of MSPIRS. You will need the information provided in this chapter when filling out an electronic version of the Tennessee Title V permit application.

In This Chapter

- What is MSPIRS?
- System Requirements
- MSPIRS Organization
- Getting Started
- Understanding the Touch Screen/Switchboard Style Main Form
 - Emission Unit Information
 - Process Information
 - Stack/Fugitive Information
 - Emission Information
 - Control Equipment Information
 - Emission Compliance Information
 - Emission Status Information
- Additional Information
- Facility Summary Form and Printing Switchboard
- Data Extraction

What is MSPIRS:

MSPIRS stands for Major Source Permitting and Inventory Reporting System. It is a Microsoft Access database program that incorporates various Tennessee Title V paper-based permit application forms into an electronic platform. MSPIRS organizes the existing Title V permit application into a well-defined hierarchy. Therefore, it can be maintained and managed in a relational database. The relational database allows the user to extract useful information such as emission inventory data required by the Tennessee Department of Environmental and Conservation, Air Pollution Control Division. In addition, MSPIRS provides excellent quality check verification capabilities for both Title V permit application and annual emission inventory purposes.

System Requirements:

Windows

- PC with a Intel ® Pentium® 75-megahertz (MHz) or higher processor
- Microsoft Windows® 95 or later operating system, or Microsoft Windows NT® Workstation operating system version 4.0 Service Pack 3 or later
- For Windows 95 or Windows 98:
16 megabytes (MB) of RAM for the operating system, plus an additional 16 MB of RAM for Access 2000
- For Windows NT Workstation:
32 MB of RAM for the operating system, plus an additional 8 MB of RAM for Access 2000

- 161 MB of available hard-disk space (Number indicates typical installation; your hard-disk usage will vary depending on configuration. Choices made during custom installation may require more or less hard-disk space.)
- CD-ROM drive
- VGA- or higher-resolution monitor; Super VGA recommended
- Microsoft Mouse, Microsoft IntelliMouse®, or compatible pointing device

Source of Data: Microsoft Access Website

MSPIRS Organization:

The Tennessee Title V permit application contains a total of thirty-six different forms. Each form has certain characteristics. Forms that contain similar characteristics are grouped into the same category. Seven categories are identified. Figure 4.1 shows how different forms are categorized and the relationship among the categories.

Getting Started:

MSPIRS was developed from Microsoft Access Runtime®, a developer version of Microsoft Access. To start the program, double click “MSPIRS.mdb” under Windows Explorer to launch the program. A main cover form screen pops up (Appendix B.1). There are three buttons on screen. The button with the door with an arrow mark on the lower right of the screen allows one to quit or exit the program. This button will show up on every page in the program. Click on the “Start” button. A cover form pops up (Appendix B.2). Enter the facility name, federal state and county ID (selected by county), and local facility ID. After the federal state and county ID are entered, the local

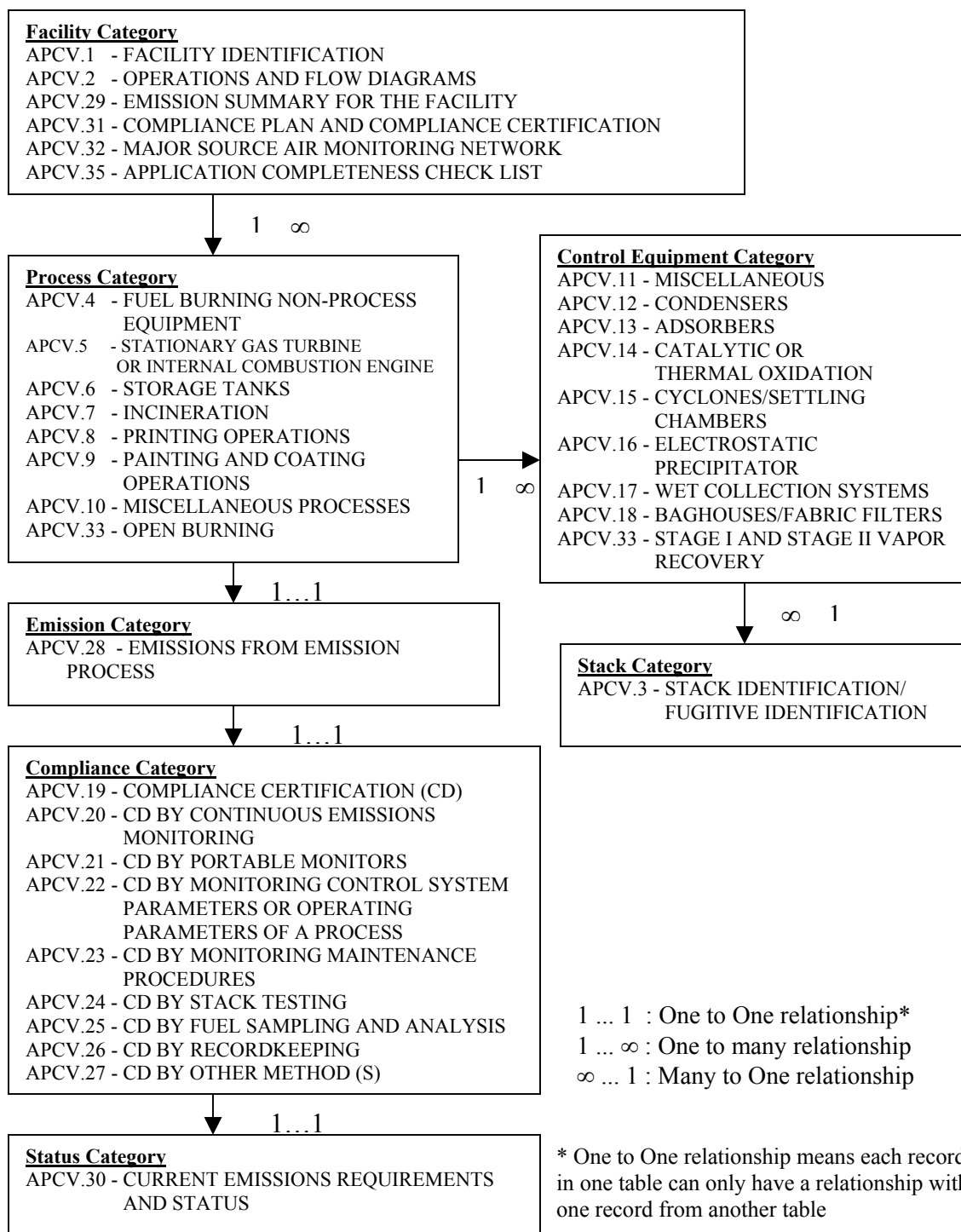


Figure 4.1 – Relational Flow Chart Of MSPIRS

county ID will be automatically created. If one does not know the local facility ID at this moment, one can enter it later. Click on the “Go Next” button. It brings up the APCV.1 form screen (Appendix C.1). Complete all the required information. Notice that fields with light blue color represent editable fields and fields with white color or grey are non-editable (these conventions are used throughout the program). At any time, one can go back to a previous page by clicking on the “GO BACK” button.

After one has completed the form, click on the “GO NEXT” button. The APC V.2 form will pop up. Complete the form and click on the “GO NEXT” button. The second page of the APC V.2 form shows up. Complete it and click on the “GO NEXT” button. A summary of the site information form will appear (Appendix B.3). This form shows the information that one has entered in the previous forms. At the bottom left hand side, there is a “QA/QC CHECK” box. The function of this box is to show the results of a sequence of quality checks performed in the previous forms (APC V.1, APC V.2 and APC V.2 (Page 2)) by the QA/QC program. Move the mouse cursor and locate the cursor on top of the acronym, TV. A yellow textbox will show up and explain what the acronym means. The “TV” check box shows the results of the quality check (QC) required by the permit application submittal, where as “INV” shows the results of QC required by the inventory submittal. “WRN” shows the results of warning criteria QC for both permit and inventory submittal. At the top of the form, there is a button called “QA/QC Summary”. Click on the button, and the QA/QC summary table pops up (Appendix C.2). This summary table provides detailed information on the QC results. Only the fields that failed the QC test will be listed on the table. The main function of the summary table is to show where the errors are. It can also be printed. Since it is very difficult to debug

errors using this comprehensive QA/QC summary table, a form specific QA/QC comments table is added to each APC form. One can simply click on the “QC COMMENTS” that are located on the right hand corner of each form to open the form specific QA/QC summary table (Appendix C.3). Errors are categorized into two types, *Mandatory* and *Warning* in the QA/QC summary table. Any errors designated with *Mandatory* are required to be fixed to pass the “TV” and “INV” quality check. On the other hand, the warning error indicates it is a potential error. However, if one believes the information one has entered in the forms is correct, warning errors can be ignored. Remember that prior to submitting MSPIRS to the Tennessee Department of Environmental and Conservation, all “TV” and “INV” boxes must be checked. Click on the “GO NEXT” button and a form called “main form” will pop up. (Appendix B.4)

Understanding the Touch Screen/Switchboard Style Main Form:

The title of the “main form” is “OPERATIONS SWITCHBOARD” which reflects the unique characteristic of the form. The “main form” adopted an idea of switchboard or touch screen that provides a great organization scheme and flexibility to fill out the permit forms. The switchboard is like one’s TV remote control. One can press any button on the control to switch to any channel one wants to watch. In this analogy, the control will be the switchboard and the channel one wants to watch will be the form that is to be filled out. As seen on the computer screen, the form is broken into seven different sections by thick black lines. Each section contains a “GO” button and a QA/QC check box. One can click on the “GO” button to open a form at any time. These

seven sections were divided based on the seven categories that were mentioned in the page 24.

Emission Unit Information:

Click on the “GO” button in the emission unit information section. An emission unit information form will pop up. Fill out all the required information and close the windows. When the form is closed, the QA/QC program will automatically run, and the results will be shown on the QA/QC check box. If the box is checked, it means the form has passed the QA/QC.

Process Information:

Click on the “GO” button in the process information section. The process selection form will show up. Click on the form button best suited for the actual process. The selected form will pop up. Fill out all the required information and close the windows. There are two ways to close the windows: either clicking on the cross sign located on the top right hand corner or clicking on the “GO BACK” button. After the window is closed, a form number will be assigned to the form number box in the “main form”, and the QC program will automatically run. This form number indicates that a form has been selected and created during the process. If one believes one has selected a wrong form, one can go back to the selected form and click the “DELETE” button. Repeat the same step to generate other process forms.

Stack/Fugitive Information:

Click on the “GO” button in the Stack/Fugitive information section. A stack/fugitive (APC V.3) form will appear. Fill out the required information and close the windows by clicking on the “GO BACK” button. After the form is closed, a solid black dot will be added to the record indicator in the “main form”, and the QC program will automatically run. The dot indicates that a form has been created. If one wants to change the name of a stack at any time, one may click on the “Stacks Rename Wizard” button and a rename stack wizard form will pop up. Enter a new name in the new ID field and click the “RUN” button. Notice that only forms that have been created will show up on the rename stack wizard form.

Emission Information:

Click on the “GO” button in the emission information section. The emission (APC V.28) form will pop up. Fill out all the required information into the form. While completing the form, please be sure to delete any pollutant which is not emitted in the actual process. One can close the form by clicking on the “GO BACK” button. After the form is closed, a solid black dot will be added to the record indicator in the “main form”, and the QC program will automatically run. This dot indicates that a form has been created.

Control Equipment Information:

Click on the “GO” button in the control equipment information section. The control equipment selection form will pop up. Click on the form button that is best suited

for the actual control equipment. The selected form will pop up. Fill out all the required information and close the window. After the window is closed, a form number will be assigned to the control form number box in the “main form”, and the QC program will automatically run. This form number indicates that a form has been selected and generated. If one believes one has selected a wrong form, one may go back to the selected form and click the “DELETE” button. Repeat the same step to generate forms for all other control equipment.

Emission Compliance Information:

Click on the “GO” button in the emission compliance information section. The compliance certification form (APC V.19) form will pop up. Select an appropriate compliance method by clicking the check box. Once the method has been selected, the “OPEN FORM” button will be activated (in color). Click on the button and a new compliance method form will appear. Fill out all the required information and close the window. Once the form is closed, the window will return back to the compliance certification form. The form indicator next to the compliance method indicates that an attached compliance method form has been created. Repeat the same process for the rest of the compliance methods. If an inappropriate compliance method has been selected at any time, the form can be deleted by going back to the compliance method form and clicking on the “DELETE” button. After the compliance certification information has been filled out, the form may be closed by clicking on the “GO BACK” button and the screen will return back to the main form. In the main form, the compliance method box indicates the number of compliance methods has been selected in the compliance

certification form and the QA/QC check box shows whether the form receives a pass on the QC. A check mark in the QA/QC check box indicates a pass.

Emission Status Information:

Click on the “GO” button in the emission status information section. The emission status (APC V.30) form will appear. Fill out all the required information and close the window by clicking on the “GO BACK” button. After the form is closed, a solid black dot will be added to the record indicator in the main form and the QC program will automatically run. This dot indicates that a form has been created.

Additional Forms:

After filling out the main form, three additional forms are required prior to completing the entire permit application. The following instructions guide one through the process of completing the application.

In the main form, click on the “GO NEXT” button and the emission summary for the facility (APC V.29) form will show up. Fill out all the required information on the form. In the form, there are a total of 16 pollutants pre-inputted into the form. If the facility does not emit a particular pollutant, be sure to delete it. Go on to the next form by clicking on the “GO NEXT” button. The compliance plan (APC V.31) form will appear. Fill out all the required information on the form. Before going on to next form, please be sure to complete the additional question listed at the bottom of the form. If the answer in that question is yes, click on the “GO TO MAJOR SOURCE MONITORING FORM” and the monitoring network (APC V.32) will pop up. Fill out all the required information

in the monitoring network form and click on the “GO BACK” button. It will return back to the compliance plan (APC V.31) form. Click the “GO NEXT” button in the form. The facility summary form will finally appear (Appendix B.5).

Facility Summary Form and Printing Switchboard:

The Facility Summary Form, an automatically generated form, is a dual-purpose form that serves as a summary table and a printing switchboard. For the purpose of the summary table, the form provides summarized information about the permit application. Information such as form number, number of forms, and QC results are listed on this form. For the purpose of the printing switchboard, the form utilizes the summarized information with additional “GO” buttons to provide one the ability to retrieve any form for printing purposes. There are two types of page number options available in the program. One can choose either custom page number or default page number. The custom page number follows the page number scheme that one has entered when filling out the forms, whereas the default page number is based on a pre-programmed sequence according to Figure 4.1. For example, to print out the APCV.1 form, the first thing to do is to select the type of page number scheme that is desired from the page number box by pressing a button next to the text description. After that, click on the “GO” button next to the form number that is to be printed. A form selector will appear. Select the appropriate form and click on the “OPEN FORM” button. The APC V.1 form will appear. Click on the “PRINT” button in the form. After printing the form, one may close the form and the window will return back to the facility summary form. Repeat the same step for printing other forms.

Data Extraction:

In the facility summary form, one may click on the “Data Extraction Wizard” button to extract data or submittal. The data extraction wizard form will appear. Click on the “Query for emission inventory submittal” button and the file new database dialog box will appear (Appendix C.4). Navigate through the windows explorer and select the location where the file is to be saved. Change the “temp” file name to the desired name and click the “SAVE” button. This process may take some time due to the size of the file. When the file is created, a message will pop up indicating that a new file has successfully been created. Click “OK” to return to the facility summary form.

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REFERENCES

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APPENDICES

APPENDIX A

PREFILLED EXAMPLE FORMS (PRINTING VERSION) OF MSPIRS



MAJOR SOURCE OPERATING PERMIT APPLICATION FACILITY IDENTIFICATION

1. FACILITY NAME AND OWNER'S NAME IF DIFFERENT FROM THE FACILITY NAME Example 1		FOR	APC COMPANY NO.
MAILING ADDRESS (ST/RD/P.O. BOX) PO box 12345		APC	LOG/PERMIT NO.
CITY KINGSPORT	STATE TN	USE	
ZIP CODE 37662-		ONLY	
2. FACILITY LOCATION (ST/RD/HWY) 233 Kings Road		COUNTY NAME Hardeman County, Tennessee	
CITY OR DISTANCE TO NEAREST TOWN MIDDLETON	ZIP CODE 38052-	TELEPHONE NUMBER WITH AREA CODE (713) 777-1234	
3. FACILITY'S PRIMARY ACTIVITY Plastic Material Manufacturer		THE FACILITY SIC CODE (S) 2821	THE NAICS CODE (S) 325211
4. THE FACILITY REGISTRY ID: _____		FACILITY CATEGORY: _____	
NTI SITE ID: _____ TRI ID: _____		ORIS FACILITY CODE: _____	
DUN & BRADSTREET NUMBER: _____			
5. CONTACT PERSON'S NAME FOR THIS PERMIT Tammy lee		TITLE Environmental Engineer	TELEPHONE NUMBER WITH AREA CODE (423) 123-2345
6. IF FACILITY IS LOCATED IN AN AREA DESIGNATED AS "NONATTAINMENT" OR "ADDITIONAL CONTROL", INDICATE THE POLLUTANT (S) FOR THE DESIGNATION: _____			
7. LIST ALL VALID AIR POLLUTION PERMITS ISSUED TO THE SOURCES CONTAINED IN THIS APPLICATION [IDENTIFY ALL PERMITS WITH MOST RECENT PERMIT NUMBERS, EMISSION UNIT REFERENCE NUMBERS AND EXPIRATION DATES LISTED ON THE PERMIT(S)]*.			
DESCRIPTION		PERMIT NUMBER	EMISSION UNIT REFERENCE
Polyurethane Foam Product		12345	32-5525
			EXPIRATION DATE 12/12/2004
*NOTE: NOT APPLICABLE FOR FIRST SUBMITTALS.			
8. PERMIT REQUESTED FOR:			
INITIAL APPLICATION TO OPERATE: ☐ RELOCATION: ☐ MODIFICATION: ☐			
REVISION (ADMINISTRATIVE AMENDMENTS): ☐ PERMIT RENEWAL: ☒			
9. OWNER'S REGISTERED AGENT FOR SERVICE OF PROCESS			
NAME: Temp International, Inc		TELEPHONE NUMBER WITH AREA CODE: (423) 313-2562	
ADDRESS 123 temp strett		CITY: CHATTANOOGA	STATE: TN ZIPCODE: 37402-
10. IS THIS FACILITY SUBJECT TO THE PROVISIONS GOVERNING PREVENTION OF ACCIDENTAL RELEASES OF HAZARDOUS AIR CONTAMINANTS CONTAINED IN CHAPTER 1200-3-32 OF THE TENNESSEE AIR POLLUTION CONTROL REGULATIONS?			
IF THE ANSWER IS YES, ARE YOU IN COMPLIANCE WITH THE PROVISIONS OF CHAPTER 1200-3-32 OF THE TENNESSEE AIR POLLUTION CONTROL REGULATIONS?			
[] YES [] NO			
[] YES [] NO			
11. PAGE NUMBER A1		REVISION NUMBER 1	DATE OF REVISION 4 / 7 / 2004

Figure A.1 EXAMPLE OF FACILITY IDENTIFICATION FORM (APCV.1)



MAJOR SOURCE OPERATING PERMIT APPLICATION - OPERATIONS AND FLOW DIAGRAMS

1. FACILITY NAME AND OWNER'S NAME IF DIFFERENT FROM THE FACILITY NAME Example 1			
2. PLEASE LIST, IDENTIFY AND DESCRIBE BRIEFLY EACH EMISSION UNIT THAT IS CONTAINED IN THIS APPLICATION. INCLUDE ALL FUGITIVE EMISSIONS. PLEASE ATTACH A FLOW DIAGRAM FOR THIS APPLICATION AND LABEL ALL EMISSION UNIT ID (S), EMISSION PROCESS ID (S) AND STACK ID/FUGITIVE ID (S) ON THE FLOW DIAGRAM. NOTE: EACH PIECE OF FUEL-BURNING NON-PROCESS EQUIPMENT (V.4) SHOULD BE CONSIDERED AS AN INDIVIDUAL EMISSION UNIT.			
EMISSION UNIT ID	DESCRIPTION OF EMISSION UNIT	SIC UNIT LEVEL	NAICS UNIT LEVEL
B230-1	Boiler 1-1	3089	326122
CE110	Compressor Engine	3089	326122
M1	Other processes	3089	326122
MR-1	Mixing Room	3089	326122
P80	Press 90 (Unit No. P90-101)	3089	326122
RST- 1	Resin Storage Tanks	3089	326122
SB-1	Spray Booths (source No. 11-101)	3089	326122
WI-1	Waste Incinerator	3089	326122
3. PAGE NUMBER: A2 REVISION NUMBER: 1 DATE OF REVISION: 4 / 7 / 2004			

Figure A.2 EXAMPLE OF OPERATIONS AND FLOW DIAGRAMS FORM (APCV.2)



MAJOR SOURCE OPERATING PERMIT APPLICATION - OPERATIONS AND FLOW DIAGRAMS (continued)

4. PLEASE LIST, IDENTIFY AND DESCRIBE BRIEFLY ALL EMISSION PROCESSES (e.g. FUEL BURNING EQUIPMENT, INCINERATOR AND MISCELLANEOUS PROCESS) THAT CONTAINED IN THIS APPLICATION. ALSO INCLUDE ALL FUGITIVE EMISSION PROCESSES.
**NOT APPLICABLE FOR FIRST APPLICATION SUBMITTALS

The table will be printed on the next page

5. LIST ALL INSIGNIFICANT EMISSION PROCESSES WHICH ARE EXEMPTED BECAUSE OF SIZE OR PRODUCTION RATE AND CITE THE APPLICABLE REGULATIONS.

EMISSION UNIT ID	EMISSION PROCESS ID	DESCRIPTION OF EMISSION PROCESS	REGULATION APPLIED
M1	1	Miscell. Processes	N/A

6. ARE THERE ANY STORAGE PILES?

☒ YES ☐ NO

7. LIST THE STATES THAT ARE WITHIN 50 MILES OF YOUR FACILITY

1) MISSISSIPPI

2)

3)

8. PAGE NUMBER:

A3

- REVISION NUMBER:

1

- DATE OF REVISION

4/7/2004

**Figure A.3 EXAMPLE OF OPERATIONS AND FLOW DIAGRAMS
(CONTINUED) FORM (APCV.2)**

MAJOR SOURCE OPEATING PERMIT APPLICATION - OPERATIONS AND FLOW DIAGRAMS (Continued)
APCV.2 - INFORMATION FOR ITEM NO. 4

EMISSION UNIT ID	EMISSION PROCESS ID	STACK ID / FUGITIVE ID	DESCRIPTION OF EMISSION PROCESS	ASSIGNED PERMIT NUMBER**
B230-1	1	230-1	Boiler #1	
CE110	1	1A	Clark Brothers Compressor Engines 110	
MR-1	1	MRS1	Mixing Room	
MR-1	2	Fug3	Open Burning	
P80	01	S01-1	Source No. 01: Press 80 (Unit No. 01-101)	
RST- 1	T-1	Fug 1	Resin Storage Tank (Building 231)	
RST- 1	T-2	Fug 2	Resin Storage Tank (Building 230)	
SB-1	SB-1	S11-1	Spray Booths	
WI-1	Inc-1	Inc-S1	Waste Incinerator	

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**Figure A.4 EXAMPLE OF OPERATIONS AND FLOW DIAGRAMS
(CONTINUED) FORM – ADDITIONAL INFORMATION
SHEET (APCV.2)**



MAJOR SOURCE OPERATING PERMIT APPLICATION - STACK IDENTIFICATION/FUGITIVE IDENTIFICATION

1. FACILITY NAME: Example 1		FOR APC	APC COMPANY NO.
2. STACK ID/FUGITIVE ID: 230-1	3. EMISSION RELEASE POINT TYPE: VERTICAL	USE ONLY	LOG/PERMIT NO.
4. STACK DESCRIPTION/FUGITIVE DESCRIPTION: Boiler #1 - Building230			
5. LOCATION OF THE STACK/FUGITIVE EMISSION IN LATITUDE/LONGITUDE COORDINATES: LATITUDE: 35.03778 LONGITUDE: -88.89111			
FOR EACH STACK, PLEASE COMPLETE NUMBERS 6 TO 19.			
6. STACK TYPE (MAIN/BYPASS): MAIN		7. STACK HEIGHT ABOVE GRADE IN FEET: 40	
8. VELOCITY (DATA AT EXIT CONDITIONS): 27.73 (ACTUAL FEET PER SECOND)		9. INSIDE DIMENSIONS AT OUTLET IN FEET: ☒ CIRCULAR DIAMETER: 2 FT OR ☐ RECTANGULAR DIMENSION: FT X FT	
10. EXHAUST FLOW RATE AT EXIT CONDITIONS (ACFM): 87.11636		11. FLOW RATE AT STANDARD CONDITIONS (DSCFM): 60.11	
12. EXHAUST TEMPERATURE: 348 DEGREES FAHRENHEIT (°F)		13. MOISTURE CONTENT (DATA AT EXIT CONDITIONS): 6.33 PERCENT 23.4 GRAINS PER DRY STANDARD CUBIC FOOT (gr/dscf)	
14. EXHAUST TEMPERATURE THAT IS EQUALED OR EXCEEDED DURING NINETY (90) PERCENT OR MORE OF THE OPERATING TIME (FOR STACKS SUBJECT TO DIFFUSION EQUATIONS ONLY): -9.99 (°F)			
15. IF THIS STACK IS EQUIPPED WITH CONTINUOUS POLLUTANT MONITORING EQUIPMENT REQUIRED FOR COMPLIANCE, WHAT POLLUTANT (S) DOES THIS EQUIPMENT MONITOR (e.g., OPACITY, SO ₂ , NO _x , etc.)?			
Pollutant N/A		Type of Monitor N/A	
16. DO YOU HAVE A BYPASS STACK? ☐ YES ☒ NO IF YES, DESCRIBE THE CONDITIONS WHICH REQUIRE ITS USE & COMPLETE APC FORM V.3 FOR THE BYPASS STACK. PLEASE IDENTIFY THE STACK NUMBER (S) OR FLOW DIAGRAM POINT NUMBER (S) EXHAUSTING THROUGH THIS BYPASS STACK.		17. DESCRIPTION OF THE CONDITIONS WHEN THE BYPASS STACK IS BEING USED: N/A	
COMPLETE THE APPROPRIATE APC FORM (S) V.4, V.5, V.7, V.8, V.9 OR V.10 FOR EACH SOURCE EXHAUSTING THROUGH THIS STACK.			
FOR A FUGITIVE EMISSION, PLEASE COMPLETE NUMBER 18 AND NUMBER 19.			
18. FUGITIVE SOURCE DIMENSIONS: EQUIVALENT HORIZONTAL AREA: SQUARE FEET FUGITIVE RELEASE HEIGHT: FEET			
COMPLETE THE APPROPRIATE APC FORM (S) V.6 OR V.10 FOR EACH FUGITIVE EMISSION.			
19. PAGE NUMBER: A6		REVISION NUMBER: 1	DATE OF REVISION 6 /7 /2004

Figure A.5 EXAMPLE OF STACK IDENTIFICATION/FUGITIVE IDENTIFICATION FORM (APCV.3) – STACK EXAMPLE



MAJOR SOURCE OPERATING PERMIT APPLICATION - STACK IDENTIFICATION/FUGITIVE IDENTIFICATION

1. FACILITY NAME: Example 1		FOR APC	APC COMPANY NO.
2. STACK ID/FUGITIVE ID: Fug3	3. EMISSION RELEASE POINT TYPE: FUGITIVE	USE ONLY	LOG/PERMIT NO.
4. STACK DESCRIPTION/FUGITIVE DESCRIPTION: Fugitive emissions from open burning			
5. LOCATION OF THE STACK/FUGITIVE EMISSION IN LATITUDE/LONGITUDE COORDINATES: LATITUDE: 35.12 LONGITUDE: -88.8911			
FOR EACH STACK, PLEASE COMPLETE NUMBERS 6 TO 19.			
6. STACK TYPE (MAIN/BYPASS): 		7. STACK HEIGHT ABOVE GRADE IN FEET: 	
8. VELOCITY (DATA AT EXIT CONDITIONS): (ACTUAL FEET PER SECOND)		9. INSIDE DIMENSIONS AT OUTLET IN FEET: ☐ CIRCULAR DIAMETER: FT OR ☐ RECTANGULAR DIMENSION: FT X FT	
10. EXHAUST FLOW RATE AT EXIT CONDITIONS (ACFM): 		11. FLOW RATE AT STANDARD CONDITIONS (QSCFM): 	
12. EXHAUST TEMPERATURE: DEGREES FAHRENHEIT (°F)		13. MOISTURE CONTENT (DATA AT EXIT CONDITIONS): PERCENT GRAINS PER DRY STANDARD CUBIC FOOT (gr/dscf)	
14. EXHAUST TEMPERATURE THAT IS EQUALED OR EXCEEDED DURING NINETY (90) PERCENT OR MORE OF THE OPERATING TIME (FOR STACKS SUBJECT TO DIFFUSION EQUATIONS ONLY): (°F)			
15. IF THIS STACK IS EQUIPPED WITH CONTINUOUS POLLUTANT MONITORING EQUIPMENT REQUIRED FOR COMPLIANCE, WHAT POLLUTANT (S) DOES THIS EQUIPMENT MONITOR (e.g., OPACTY, SO ₂ , NO _x , etc.)? 			
16. DO YOU HAVE A BYPASS STACK? ☐ YES ☐ NO IF YES, DESCRIBE THE CONDITIONS WHICH REQUIRE ITS USE & COMPLETE APC FORM V.3 FOR THE BYPASS STACK. PLEASE IDENTIFY THE STACK NUMBER (S) OR FLOW DIAGRAM POINT NUMBER (S) EXHAUSTING THROUGH THIS BYPASS STACK. 		17. DESCRIPTION OF THE CONDITIONS WHEN THE BYPASS STACK IS BEING USED: 	
COMPLETE THE APPROPRIATE APC FORM (S) V.4, V.5, V.7, V.8, V.9 OR V.10 FOR EACH SOURCE EXHAUSTING THROUGH THIS STACK.			
FOR A FUGITIVE EMISSION, PLEASE COMPLETE NUMBER 18 AND NUMBER 19.			
18. FUGITIVE SOURCE DIMENSIONS: EQUIVALENT HORIZONTAL AREA: 50 SQUARE FEET FUGITIVE RELEASE HEIGHT: 7 FEET			
COMPLETE THE APPROPRIATE APC FORM (S) V.6 OR V.10 FOR EACH FUGITIVE EMISSION.			
19. PAGE NUMBER: A30		REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

Figure A.6 EXAMPLE OF STACK IDENTIFICATION/FUGITIVE IDENTIFICATION FORM (APCV.3) – FUGITIVE EXAMPLE



MAJOR SOURCE OPERATING PERMIT APPLICATION-FUEL BURNING NON-PROCESS EQUIPMENT

1. FACILITY NAME: Example 1					
2. LIST ALL FUEL - BURNING EQUIPMENT THAT IS AT THIS FUEL BURNING INSTALLATION (PLEASE COMPLETE AN APC V.4 FORM FOR EACH PIECE OF FUEL-BURNING EQUIPMENT). <table border="1" style="width: 100%;"><tr><td style="text-align: center;">NAME OF FUEL BURNING EQUIPMENT</td></tr><tr><td style="text-align: center;">Building 230 - Boiler #1</td></tr></table>				NAME OF FUEL BURNING EQUIPMENT	Building 230 - Boiler #1
NAME OF FUEL BURNING EQUIPMENT					
Building 230 - Boiler #1					
3. EMISSION UNIT ID: B230-1		4. EMISSION PROCESS ID: 1			
5. STACK ID: 230-1		6. YEAR OF INSTALLATION OR LAST MODIFICATION OF FUEL BURNING EQUIPMENT: 1978			
7. FUEL BURNING EQUIPMENT DESCRIPTION: Boiler No. 1 (BR1), Building 230					
8. FURNACE TYPE: Automatic Burn		9. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): Trane (Serial No. NB # 123)			
10. MAXIMUM RATED HEAT INPUT CAPACITY (IN MILLION BTU/HOUR): 18.7		11. AVERAGE OPERATIONAL CAPACITY (IN MILLION BTU/HOUR): 16.2			
12. IF THIS FUEL-BURNING EQUIPMENT IS AN ELECTRICITY GENERATING UNIT, LIST ORIS BOILER ID: N/A		13. IF WOOD IS USED AS FUEL, SPECIFY THE AMOUNT OF WOOD USED AS A FRACTION OF TOTAL HEAT INPUT: -9.99			
14. FUELS:	PRIMARY FUEL	BACKUP FUEL #1	BACKUP FUEL #2		
FUEL NAME	Natural Gas	Distillate Oil (No. 2)	Distillate Oil (No. 4)		
ACTUAL YEARLY CONSUMPTION (UNIT)	30.21 (E6FT3)	11.3 (E3GAL)	-9.99 ()		
15. FUEL-BURNING EQUIPMENT SCC VALUE (THE UNIT OF MEASURE OF THE SCC MUST MATCH THE UNIT OF THE PRIMARY FUEL (e.g. TONS BURNED): 10300602					
16. PRIMARY FUEL INFORMATION: HEAT CONTENT: -9.99 MMBTU/SCC UNIT (I.E. MMBTU/MILLION CUBIC FEET BURNED) SULFUR CONTENT: -9.99 % ASH CONTENT: -9.99 %					
17. PAGE NUMBER: A4		REVISION NUMBER: 1 DATE OF REVISION: 6/7/2004			

Figure A.7 EXAMPLE OF FUEL BURNING NON-PROCESS EQUIPMENT FORM (APCV.4)



MAJOR SOURCE OPERATING PERMIT APPLICATION-FUEL BURNING NON-PROCESS EQUIPMENT (continued)

18. IF EMISSIONS FROM THIS FUEL BURNING EQUIPMENT ARE CONTROLLED FOR COMPLIANCE, PLEASE SPECIFY THE TYPE OF CONTROL EQUIPMENT:

POLLUTANT	CONTROL EQUIPMENT
N/A	N/A

19. IF EMISSIONS FROM THIS FUEL BURNING EQUIPMENT ARE MONITORED FOR COMPLIANCE, PLEASE SPECIFY THE TYPE OF MONITORING:

POLLUTANT	MONITORING EQUIPMENT
N/A	N/A

20. SEASONAL VARIATION OF OPERATION IN PERCENT:

SPRING: 25 SUMMER: 25 FALL: 25 WINTER: 25

21. NORMAL OPERATING SCHEDULE:

24 HRS/DAY 7 DAYS/WK 52 WKS/YR 8760 HRS/YR

22. LOCATION OF THIS FUEL-BURNING INSTALLATION IN LATITUDE/LONGITUDE:

LATITUDE: 35.03778 LONGITUDE: -88.89111

23. DESCRIBE ANY FUGITIVE EMISSIONS ASSOCIATED WITH THIS PROCESS, SUCH AS OUTDOOR STORAGE PILES, OPEN CONVEYORS, MATERIAL HANDLING OPERATIONS, etc. (PLEASE COMPLETE AN APC V.10 FORM FOR EACH FUGITIVE EMISSION SOURCE).

PROCESS	DESCRIPTION
N/A	N/A

24. PAGE NUMBER:

A5

REVISION NUMBER:

1

DATE OF REVISION:

6 / 7 / 2004

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Figure A.8 EXAMPLE OF FUEL BURNING NON-PROCESS EQUIPMENT (CONTINUED) FORM (APCV.4)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
STATIONARY GAS TURBINE OR INTERNAL COMBUSTION ENGINE**

1. FACILITY NAME: Example 1				
2. LIST ALL GAS TURBINES AND INTERNAL COMBUSTION ENGINES AT THIS FACILITY (PLEASE COMPLETE AN APC V.5 FORM FOR EACH PIECE OF EQUIPMENT).				
<table border="1"> <thead> <tr> <th>EQUIPMENT NAME</th> </tr> </thead> <tbody> <tr> <td>Clark Brothers Compressor Engines 110</td> </tr> </tbody> </table>			EQUIPMENT NAME	Clark Brothers Compressor Engines 110
EQUIPMENT NAME				
Clark Brothers Compressor Engines 110				
3. EMISSION UNIT ID: CE110	4. EMISSION PROCESS ID: 1			
5. STACK ID: 1A	6. EQUIPMENT TYPE: ☐ GAS TURBINE ☒ INTERNAL COMBUSTION ENGINE			
7. EQUIPMENT DESCRIPTION: Internal Combustion Engines for compression of pipeline natural gas.				
8. DATE OF INSTALLATION OR LAST MODIFICATION OF EQUIPMENT: 1973	9. MANUFACTURER AND MODEL NUMBER: N/A			
10. IF EQUIPMENT IS <u>GAS TURBINE</u> , LIST TYPE. ☐ SIMPLE CYCLE ☐ REGENERATIVE CYCLE ☐ COMBINED CYCLE	11. RATED HEAT INPUT CAPACITY (IN MILLION BTU/HOUR): 3.3 RATED HORSEPOWER (IN MILLION BTU/HOUR): 1300 STATE WHICH HEATING VALUE WAS UTILIZED: ☒ HIGHER HEATING VALUE ☐ LOWER HEATING VALUE			
12. (FOR NSPS TURBINES ONLY) MANUFACTURER'S RATED HEAT RATE AT MANUFACTURER'S RATED PEAK LOAD (KILOJOULES PER WATT HOUR), OR ACTUAL MEASURED HEAT RATE BASED ON LOWER HEATING VALUE OF FUEL AS MEASURED AT ACTUAL PEAK LOAD FOR THE UNIT: N/A				
13. PAGE NUMBER: A11	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004		

**Figure A.9 EXAMPLE OF STATIONARY GAS TURBINE OR
INTERNAL COMBUSTION ENGINE FORM (APCV.5)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
STATIONARY GAS TURBINE OR INTERNAL COMBUSTION ENGINE (continued)**

14. FUELS:	PRIMARY FUEL	BACKUP FUEL #1	BACKUP FUEL #2
FUEL NAME	Natural Gas		
ACTUAL YEARLY CONSUMPTION (UNIT)	478.4 (E6FT3)	()	()
15. EQUIPMENT SCC CODE (THE UNIT OF SCC CODE MUST MATCH THE UNITS OF MEASUREMENT OF PRIMARY FUEL). 20100202			
16. PRIMARY FUEL INFORMATION: HEAT CONTENT: -9.99 (I.E. MMBTU/MILLION CUBIC FEET BURNED OR MMBTU/1000 GALLONS OF OIL OR MMBTU/TON OF COAL) SULFUR CONTENT: % ASH CONTENT: %			
17. SEASONAL VARIATION OF OPERATION IN PERCENT: SPRING: 25 SUMMER: 25 FALL: 25 WINTER: 25			
18. NORMAL OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WK 52 WKS/YR 8760 HRS/YR			
19. LOCATION OF THIS EQUIPMENT IN LATITUDE/LONGITUDE: LATITUDE: 35.03778 LONGITUDE: -88.8911			
20. PAGE NUMBER: A12		REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

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**Figure A.10 EXAMPLE OF STATIONARY GAS TURBINE OR
INTERNAL COMBUSTION ENGINE (CONTINUED)
FORM (APCV.5)**

APC V.6

MAJOR SOURCE OPERATING PERMIT APPLICATION - STORAGE TANKS

1. FACILITY NAME: Example 1																																										
2. EMISSION UNIT: RST- 1		3. EMISSION PROCESS ID: T-1																																								
4. STACK ID/FUGITIVE ID: Fug 1																																										
5. DESCRIPTION OF TANK: Resin Storage Tanks (Bldg. 231)																																										
6. TANK DIMENSIONS: ☒ CIRCULAR DIAMETER: 19 FT ☐ RECTANGULAR: FT X FT TANK HEIGHT: 19 FT		7. STORAGE TANK CAPACITY 11646 GALLONS																																								
8. YEAR OF INSTALLATION: 1982																																										
9. COLOR OF TANK: ☐ WHITE ☒ OTHER Gray		10. IS THIS TANK EQUIPPED WITH SUBMERGED FILL PIPE? ☐ YES ☒ NO																																								
11. TYPE OF STORAGE TANK: ☐ OPEN TOP TANK ☒ FIXED ROOF ☐ FIXED ROOF W/INTERNAL FLOATING ROOF ☐ OTHER (SPECIFY) ☐ PRESSURIZED TANK ☐ EXTERNAL FLOATING ROOF ☐ VARIABLE VAPOR SPACE 																																										
12. FOR FIXED ROOF TANKS A. TANK CONFIGURATION (CHECK ONE): ☐ VERTICAL (UPRIGHT CYLINDER) ☒ HORIZONTAL B. TANK ROOF TYPE: ☒ CONE ROOF-INDICATE TANK ROOF HEIGHT 5 (FT) INDICATE SHELL RADIUS 4 (FT) ☐ DOME ROOF-INDICATE TANK ROOF HEIGHT 																																										
13. FOR FLOATING ROOF TANKS (BOTH INTERNAL AND EXTERNAL) - SHELL CONDITION (CHECK ONE): ☐ LIGHT RUST ☐ DENSE RUST ☐ GUNITE LINED																																										
14. FOR EXTERNAL FLOATING ROOF TANKS: A. TANK CONSTRUCTION (CHECK ONE): ☐ WELDED TANK ☐ RIVETED TANK B. RIM SEAL SYSTEM DESCRIPTION (CHECK ONE): ☐ SHOE MOUNTED PRIMARY ☐ VAPOR MOUNTED PRIMARY ☐ LIQUID MOUNTED PRIMARY ☐ SHOE PRIMARY, RIM SECONDARY ☐ VAPOR PRIMARY, RIM SECONDARY ☐ LIQUID PRIMARY, RIM SECONDARY ☐ LIQUID PRIMARY W/WEATHER SHIELD ☐ SHOE PRIMARY AND SECONDARY ☐ VAPOR PRIMARY W/WEATHER SHIELD C. ROOF TYPE (CHECK ONE): ☐ PONTOON ROOF ☐ DOUBLE DECK ROOF D. ROOF FITTING TYPES (INDICATE THE NUMBER OF EACH TYPE): <table border="0"> <tr> <td><u>ACCESS HATCH (24" DIAMETER WELL)</u></td> <td><u>UNSLOTTED GUIDE-POLE WELL</u></td> <td><u>GAUGE-FLOAT WELL (20" DIAMETER)</u></td> </tr> <tr> <td>☐ BOLTED COVER, GASKETED</td> <td>☐ (8" DIA) UNSLOTTED POLE, 21" DIA WELL</td> <td>☐ UNBOLTED COVER, UNGASKETED</td> </tr> <tr> <td>☐ UNBOLTED COVER, GASKETED</td> <td>☐ UNGASKETED SLIDING COVER</td> <td>☐ UNBOLTED COVER, GASKETED</td> </tr> <tr> <td>☐ UNBOLTED COVER, UNGASKETED</td> <td>☐ GASKETED SLIDING COVER</td> <td>☐ BOLTED COVER, GASKETED</td> </tr> <tr> <td><u>GAUGE-HATCH/SAMPLE WELL (8" DIA)</u></td> <td><u>VACUUM BREAKER (10" DIA WELL)</u></td> <td><u>ROOF DRAIN</u></td> </tr> <tr> <td>☐ WEIGHTED MECHANICAL ACTUATION GASKETED</td> <td>☐ WEIGHTED MECHANICAL ACTUATION GASKETED</td> <td>☐ OPEN</td> </tr> <tr> <td>☐ WEIGHTED MECHANICAL ACTUATION UNGASKETED</td> <td>☐ WEIGHTED MECHANICAL ACTUATION UNGASKETED</td> <td>☐ 90% CLOSED</td> </tr> <tr> <td><u>SLOTTED GUIDE-POLE/SAMPLE WELL</u></td> <td><u>ROOF LEG (3" DIA)</u></td> <td><u>ROOF LEG (2-1/2" DIA)</u></td> </tr> <tr> <td>☐ (8" DIA SLOTTED POLE, 21" DIA WELL)</td> <td>☐ ADJUSTABLE, PONTOON AREA</td> <td>☐ ADJUSTABLE, PONTOON AREA</td> </tr> <tr> <td>☐ UNGASKETED SLIDING COVER, WITHOUT FLOAT</td> <td>☐ ADJUSTABLE, CENTER AREA</td> <td>☐ ADJUSTABLE, CENTER AREA</td> </tr> <tr> <td>☐ UNGASKETED SLIDING COVER, WITH FLOAT</td> <td>☐ ADJUSTABLE, DOUBLE-DECK ROOF</td> <td>☐ ADJUSTABLE, DOUBLE-DECK ROOFS</td> </tr> <tr> <td>☐ GASKETED SLIDING COVER, WITHOUT FLOAT</td> <td>☐ ROOF</td> <td>☐ ROOFS</td> </tr> <tr> <td>☐ GASKETED SLIDING COVER, WITH FLOAT</td> <td>☐ FIXED</td> <td>☐ FIXED</td> </tr> </table>				<u>ACCESS HATCH (24" DIAMETER WELL)</u>	<u>UNSLOTTED GUIDE-POLE WELL</u>	<u>GAUGE-FLOAT WELL (20" DIAMETER)</u>	☐ BOLTED COVER, GASKETED	☐ (8" DIA) UNSLOTTED POLE, 21" DIA WELL	☐ UNBOLTED COVER, UNGASKETED	☐ UNBOLTED COVER, GASKETED	☐ UNGASKETED SLIDING COVER	☐ UNBOLTED COVER, GASKETED	☐ UNBOLTED COVER, UNGASKETED	☐ GASKETED SLIDING COVER	☐ BOLTED COVER, GASKETED	<u>GAUGE-HATCH/SAMPLE WELL (8" DIA)</u>	<u>VACUUM BREAKER (10" DIA WELL)</u>	<u>ROOF DRAIN</u>	☐ WEIGHTED MECHANICAL ACTUATION GASKETED	☐ WEIGHTED MECHANICAL ACTUATION GASKETED	☐ OPEN	☐ WEIGHTED MECHANICAL ACTUATION UNGASKETED	☐ WEIGHTED MECHANICAL ACTUATION UNGASKETED	☐ 90% CLOSED	<u>SLOTTED GUIDE-POLE/SAMPLE WELL</u>	<u>ROOF LEG (3" DIA)</u>	<u>ROOF LEG (2-1/2" DIA)</u>	☐ (8" DIA SLOTTED POLE, 21" DIA WELL)	☐ ADJUSTABLE, PONTOON AREA	☐ ADJUSTABLE, PONTOON AREA	☐ UNGASKETED SLIDING COVER, WITHOUT FLOAT	☐ ADJUSTABLE, CENTER AREA	☐ ADJUSTABLE, CENTER AREA	☐ UNGASKETED SLIDING COVER, WITH FLOAT	☐ ADJUSTABLE, DOUBLE-DECK ROOF	☐ ADJUSTABLE, DOUBLE-DECK ROOFS	☐ GASKETED SLIDING COVER, WITHOUT FLOAT	☐ ROOF	☐ ROOFS	☐ GASKETED SLIDING COVER, WITH FLOAT	☐ FIXED	☐ FIXED
<u>ACCESS HATCH (24" DIAMETER WELL)</u>	<u>UNSLOTTED GUIDE-POLE WELL</u>	<u>GAUGE-FLOAT WELL (20" DIAMETER)</u>																																								
☐ BOLTED COVER, GASKETED	☐ (8" DIA) UNSLOTTED POLE, 21" DIA WELL	☐ UNBOLTED COVER, UNGASKETED																																								
☐ UNBOLTED COVER, GASKETED	☐ UNGASKETED SLIDING COVER	☐ UNBOLTED COVER, GASKETED																																								
☐ UNBOLTED COVER, UNGASKETED	☐ GASKETED SLIDING COVER	☐ BOLTED COVER, GASKETED																																								
<u>GAUGE-HATCH/SAMPLE WELL (8" DIA)</u>	<u>VACUUM BREAKER (10" DIA WELL)</u>	<u>ROOF DRAIN</u>																																								
☐ WEIGHTED MECHANICAL ACTUATION GASKETED	☐ WEIGHTED MECHANICAL ACTUATION GASKETED	☐ OPEN																																								
☐ WEIGHTED MECHANICAL ACTUATION UNGASKETED	☐ WEIGHTED MECHANICAL ACTUATION UNGASKETED	☐ 90% CLOSED																																								
<u>SLOTTED GUIDE-POLE/SAMPLE WELL</u>	<u>ROOF LEG (3" DIA)</u>	<u>ROOF LEG (2-1/2" DIA)</u>																																								
☐ (8" DIA SLOTTED POLE, 21" DIA WELL)	☐ ADJUSTABLE, PONTOON AREA	☐ ADJUSTABLE, PONTOON AREA																																								
☐ UNGASKETED SLIDING COVER, WITHOUT FLOAT	☐ ADJUSTABLE, CENTER AREA	☐ ADJUSTABLE, CENTER AREA																																								
☐ UNGASKETED SLIDING COVER, WITH FLOAT	☐ ADJUSTABLE, DOUBLE-DECK ROOF	☐ ADJUSTABLE, DOUBLE-DECK ROOFS																																								
☐ GASKETED SLIDING COVER, WITHOUT FLOAT	☐ ROOF	☐ ROOFS																																								
☐ GASKETED SLIDING COVER, WITH FLOAT	☐ FIXED	☐ FIXED																																								

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Figure A.11 EXAMPLE OF STORAGE TANKS FORM (APCV.6)



MAJOR SOURCE OPERATING PERMIT APPLICATION - STORAGE TANKS (continued)

15. FOR INTERNAL FLOATING ROOF TANKS:

A. RIM SEAL SYSTEM DESCRIPTION:

- ☐ LIQUID MOUNTED PRIMARY ☐ LIQUID MOUNTED PRIMARY PLUS SECONDARY SEAL
☐ VAPOR MOUNTED PRIMARY ☐ VAPOR MOUNTED PRIMARY PLUS SECONDARY SEAL

B. NUMBER OF COLUMNS:

D. DECK TYPE (CHECK ONE):

☐ WELDED ☐ BOLTED

C. EFFECTIVE COLUMN DIAMETER (FEET)

E. TOTAL DECK SEAM LENGTH: (FEET)

F. DECK AREA: (SQUARE FEET)

G. DECK FITTING TYPES (INDICATE THE NUMBER OF EACH TYPE):

ACCESS HATCH (24" DIA)

- ☐ UNBOLTED COVER, UNGASKETED
☐ UNBOLTED COVER, GASKETED
☐ BOLTED COVER, GASKETED

AUTOMATIC GAUGE FLOAT WELL

- ☐ UNBOLTED COVER, GASKETED
☐ BOLTED COVER, GASKETED
☐ UNBOLTED COVER, UNGASKETED

SAMPLE PIPE OR WELL

- ☐ SLIDING COVER, GASKETED
☐ SLIDING COVER, UNGASKETED

COLUMN WELL

- ☐ BUILT-UP COLUMN-SLIDING COVER, GASKETED
☐ BUILT-UP COLUMN-SLIDING COVER, UNGASKETED
☐ PIPE COLUMN-FLEXIBLE FABRIC SLEEVE SEAL
☐ PIPE COLUMN-SLIDING COVER, GASKETED
☐ PIPE COLUMN-SLIDING COVER, UNGASKETED

SAMPLE PIPE OR WELL

- ☐ SLOTTED PIPE-SLIDING COVER, GASKETED
☐ SLOTTED PIPE-SLIDING COVER, UNGASKETED
☐ SAMPLE WELL-SLIT FABRIC SEAL, 10% OPEN AREA
☐ STUB DRAIN, 1 INCH DIAMETER

ROOF LEG OR HANGER WELL

- ☐ ADJUSTABLE
☐ FIXED

VACUUM BREAKER

- ☐ WEIGHTED MECHANICAL ACTUATION, GASKETED
☐ WEIGHTED MECHANICAL ACTUATION, UNGASKETED

16. FOR VARIABLE VAPOR SPACE TANKS:

VOLUME EXPANSION CAPACITY (GALLONS)

17. STORAGE TANK SCC CODE:

30101840

18. ANNUAL THROUGHPUT OF THE TANK (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE):

NUMERICAL VALUE SCC UNITS OF SCC MATERIAL
100 (E3GAL-YR) OF Thinned Resin

19. COMPLETE THE FOLLOWING TABLE FOR MATERIALS TO BE STORED IN THIS TANK:

MULTIPURPOSE TANK WITH VARIABLE COMPOSITION: ☐ YES ☒ NO

20. DESCRIBE THE OPERATION THIS TANK WILL SERVE:

It is used to storage raw resin

21. SEASONAL VARIATION OF MATERIAL STORED IN TANK IN PERCENT:

SPRING: 25 SUMMER: 25 FALL: 25 WINTER: 25

22. LOCATION OF THIS TANK IN LATITUDE/LONGITUDE:

LATITUDE: 35.03778 LONGITUDE: -88.8911

23. PAGE NUMBER:

A45

REVISION NUMBER:

1

DATE OF REVISION:

6 / 7 / 2004

Figure A.12 EXAMPLE OF STORAGE TANKS (CONTINUED) FORM (APCV.6)



MAJOR SOURCE OPERATING PERMIT APPLICATION - INCINERATION

1. FACILITY NAME: Example 1											
2. EMISSION UNIT ID: WI-1		3. EMISSION PROCESS ID: Inc-1									
4. STACK ID: Inc-S1		5. YEAR OF CONSTRUCTION OR LAST MODIFICATION: 1979									
6. INCINERATOR DESCRIPTION: Building 231, Waste Incinerator (Medical Waste)											
IF THIS INCINERATOR IS CONTROLLED FOR COMPLIANCE UTILIZING ADD-ON CONTROL EQUIPMENT, ATTACH AN APPROPRIATE AIR POLLUTION CONTROL SYSTEM FORM											
7. TYPE OF INCINERATOR (CHECK ONE): ☐ SINGLE CHAMBER ☐ CONTROLLED AIR ☐ MULTIPLE CHAMBER ☐ STEPPED HEARTH ☐ ROTARY KILN ☒ FIXED HEARTH ☐ OTHER (SPECIFY): _____											
8. DESCRIBE ALL TYPES OF MATERIALS TO BE BURNED IN THIS UNIT. (DECLARE MATERIALS STATED IN 1200-3-31-.02(g) OF THE TENNESSEE AIR POLLUTION CONTROL REGULATIONS AND IDENTIFY)											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">TYPES OF MATERIALS TO BE BURNED</th> <th style="text-align: center;">WEIGHT PERCENTAGE OF</th> <th style="text-align: center;">HEATING VALUE</th> <th style="text-align: center;">UNITS (Unit/Ton)</th> </tr> </thead> <tbody> <tr> <td>Medical waste (waste paper, cartons, rages, floor sweepings, wood scraps, carcasses and solid organic waste)</td> <td style="text-align: center;">100</td> <td style="text-align: center;">16</td> <td style="text-align: center;">E6BTU</td> </tr> </tbody> </table>		TYPES OF MATERIALS TO BE BURNED	WEIGHT PERCENTAGE OF	HEATING VALUE	UNITS (Unit/Ton)	Medical waste (waste paper, cartons, rages, floor sweepings, wood scraps, carcasses and solid organic waste)	100	16	E6BTU		
TYPES OF MATERIALS TO BE BURNED	WEIGHT PERCENTAGE OF	HEATING VALUE	UNITS (Unit/Ton)								
Medical waste (waste paper, cartons, rages, floor sweepings, wood scraps, carcasses and solid organic waste)	100	16	E6BTU								
9. INCINERATOR SCC: 10301201		10. ANNUAL THROUGHPUT OF THE INCINERATOR (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE): <table style="width: 100%;"> <tr> <td style="text-align: center;">NUMERICAL VALUE</td> <td style="text-align: center;">SCC UNITS</td> <td style="text-align: center;">SCC MATERIAL</td> </tr> <tr> <td style="text-align: center;">150</td> <td style="text-align: center;">(TON)</td> <td style="text-align: center;">OF Solid Waste</td> </tr> </table>		NUMERICAL VALUE	SCC UNITS	SCC MATERIAL	150	(TON)	OF Solid Waste		
NUMERICAL VALUE	SCC UNITS	SCC MATERIAL									
150	(TON)	OF Solid Waste									
11. TYPE OF INCINERATOR CHARGING: A. ☒ BATCH FEED ☐ CONTINUOUS FEED B. MAXIMUM CHARGING RATE: 180 LBS/HR. C. WASTE CHARGING METHOD: N/A											
12. TYPE OF CHAMBER:											
COMBUSTION INFORMATION	DESIGN TEMPERATURE (°F)	SIZE (MILLION BTU/HR)	BURNER FUELS								
PRIMARY CHAMBER	1800	1.2	Natural Gas								
SECONDARY CHAMBER	2200	1	Natural Gas								
13. RESIDENCE TIME OF GAS IN THE SECONDARY CHAMBER (IN SECONDS): Minimun of 1 second											

Figure A.13 EXAMPLE OF INCINERATION FORM (APCV.7)

DEPARTMENT OF ENVIRONMENT AND
CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L & C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531



APCV.7

MAJOR SOURCE OPERATING PERMIT APPLICATION – INCINERATION (continued)

14. IF THIS INCINERATOR IS EQUIPPED WITH A HEAT RECOVERY SYSTEM, WHAT IS THE PROJECTED ENERGY PRODUCTION RATE? (i.e. pounds of steam per hour)			
N/A			
15. SEASONAL VARIATION OF OPERATION IN PERCENT:			
SPRING:	25	SUMMER:	25
FALL:	25	WINTER:	25
16. NORMAL OPERATING SCHEDULE:			
10	HRS/DAY	5	DAYS/WK
52	WKS/YR	2600	HRS/YR
IF THIS INCINERATOR'S EMISSIONS AND/OR OPERATIONS ARE MONITORED FOR COMPLIANCE, PLEASE ATTACH THE APPROPRIATE COMPLIANCE DEMONSTRATION FORM.			
17. IF THIS INCINERATOR IS REGULATED UNDER RCRA, PLEASE PROVIDE THE PERMIT NUMBER (THE WASTE MATERIALS BURNED IN A RCRA PERMITTED INCINERATOR (S) ARE NOT REQUIRED TO BE INCLUDED IN ITEM 8 ABOVE).			
N/A			
18. LOCATION OF THIS INCINERATOR IN LATITUDE/LONGITUDE:			
LATITUDE:	35.03778	LONGITUDE:	-88.8911
19. PAGE NUMBER:		REVISION NUMBER:	
A64		1	
		DATE OF REVISION:	
		6 / 7 / 2004	

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Figure A.14 EXAMPLE OF INCINERATION (CONTINUED) FORM (APCV.7)

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L&C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531



APC V.8

MAJOR SOURCE OPERATING PERMIT APPLICATION - PRINTING OPERATIONS

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID: P80	3. EMISSION PROCESS ID: 01	4. STACK ID: S01-1
5. PROCESS DESCRIPTION: Source No. 01: Press 80		
6. YEAR OF CONSTRUCTION OR LAST MODIFICATION: 1997		
IF THE EMISSIONS ARE CONTROLLED FOR COMPLIANCE, ATTACH AN APPROPRIATE AIR POLLUTION CONTROL SYSTEM FORM. IF THIS PRINTING OPERATION IS MONITORED FOR COMPLIANCE, PLEASE ATTACH THE APPROPRIATE COMPLIANCE DEMONSTRATION FORM.		
7. OPERATION TYPE: ☐ FLEXOGRAPHIC ☒ WEB-OFFSET ☐ WEB-OFFSET (NON-HEATSET) ☐ PACKAGING ROTOGRAPHURE ☐ PUBLICATION ROTOGRAPHURE ☐ SCREEN PRINTING ☐ OTHER: _____		
8. SEASONAL VARIATION OF THE OPERATION IN PERCENT: SPRING: 25 SUMMER: 25 FALL: 25 WINTER: 25		
9. NORMAL OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WK 52 WKS/YR 8760 HRS/YR		
10. PRINTING OPERATION SCC: 40500201	11. ANNUAL PRINTING OPERATION THROUGHPUT (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE): NUMERICAL VALUE SCC UNITS SCC MATERIAL 30 (TON) OF Ink	
12. PAGE NUMBER: A33	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

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Figure A.15 EXAMPLE OF PRINTING OPERATIONS FORM (APCV.8)



MAJOR SOURCE OPERATING PERMIT APPLICATION - PRINTING OPERATIONS (continued)

13. COMPLETE THE FOLLOWING TABLE - ATTACH ADDITIONAL TABLES AS NEEDED - FILL IN ONLY THE ITEMS NECESSARY FOR DETERMINATION OF COMPLIANCE WITH EMISSION STANDARD (S)

☐		☒						
IDENTIFY INKS AND SOLVENTS (NAME OR TYPE OF INK)	DAILY USAGE		MONTHLY USAGE	COATING COMPOSITION WEIGHT PERCENT AS APPLIED				INK DENSITY LBS/GAL
	AVERAGE	MAXIMUM	MAXIMUM	SOLIDS	SOLVENTS (VOCs)	WATER	EXEMPT SOLVENTS	
				WT %	WT %	WT %	WT %	
Ink	164	220	5000	55	45	-9.99	-9.99	-9.99
TOTAL INKS	164	220	5000					

LIST THE THINNING SOLVENTS USED WITH THE INKS IDENTIFIED ABOVE:

blanket wash	14	22	250	0	100	0	0	-9.99
--------------	----	----	-----	---	-----	---	---	-------

14. LOCATION OF THIS OPERATION IN LATITUDE/LONGITUDE COORDINATES:

LATITUDE: 35.03778 LONGITUDE: -88.8911

15. PAGE NUMBER:

A34

REVISION NUMBER:

1

DATE OF REVISION:

6/7/2004

Figure A.16 EXAMPLE OF PRINTING OPERATIONS (CONTINUED) FORM (APCV.8)



MAJOR SOURCE OPERATING PERMIT APPLICATION - PAINTING AND COATING OPERATIONS

1. FACILITY NAME: Example 1			
2. EMISSION UNIT ID: SB-1		3. EMISSION PROCESS ID: SB-1	
		4. STACK ID: S11-1	
5. PROCESS DESCRIPTION: Spray Booths		6. YEAR OF CONSTRUCTION OR LAST MODIFICATION: 1997	
IF THE EMISSIONS ARE CONTROLLED FOR COMPLIANCE, ATTACH AN APPROPRIATE AIR POLLUTION CONTROL SYSTEM FORM IF THIS PAINTING OPERATION IS MONITORED FOR COMPLIANCE, PLEASE ATTACH THE APPROPRIATE COMPLIANCE DEMONSTRATION FORM			
7. OVEN CURING (COMPLETE IF APPLICABLE): NUMBER OF OVENS: N/A TEMPERATURE OF AIR CONTACTING COATED MATERIAL AS IT LEAVES THE OVEN (°F): N/A SPECIFY OVEN FUELS: N/A TOTAL MAXIMUM HEAT INPUT TO EACH OVEN (BTU): N/A			
8. APPLICATION TECHNIQUE: Hand Spraying		9. TRANSFER EFFICIENCY (%): 50	
10. SEASONAL VARIATION OF THE OPERATION IN PERCENT: SPRING: 25 SUMMER: 25 FALL: 25 WINTER: 25			
11. NORMAL OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WK 52 WKS/YR 8760 HRS/YR			
12. PAINTING AND COATING OPERATION SCC: 40200110		13. ANNUAL PAINTING AND COATING OPERATION THROUGHPUT (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE): NUMERICAL VALUE: 3000 SCC UNITS: GAL OF Coating	
14. PAGE NUMBER: A54		DATE OF REVISION: 8/7/2004	
REVISION NUMBER: 1			

Figure A.17 EXAMPLE OF PAINTING AND COATING OPERATIONS FORM (APCV.9)



MAJOR SOURCE OPERATING PERMIT APPLICATION - PAINTING AND COATING OPERATIONS (continued)

15. COMPLETE THE FOLLOWING TABLE - ATTACH ADDITIONAL TABLES AS NEEDED - FILL IN ONLY THE ITEMS NECESSARY FOR DETERMINATION OF COMPLIANCE WITH EMISSION STANDARD (S)

IDENTIFY COATING	MAXIMUM USAGE		NORMAL USAGE	COATING COMPOSITION VOLUM AND WEIGHT PERCENT AS APPLIED								DENSITY OF SOLVENT FRACTION	COATING DENSITY
	GAL/HR	GAL/MO	GAL/MO	SOLIDS		SOLVENTS (VOCs)		WATER		EXEMPT SOLVENTS		LBS/GAL	
				VOL %	WT %	WT %		VOL %	WT %	VOL %	WT %		
stain	3	360	240	-9.99	26	74		-9.99	-9.99	-9.99	-9.99	-9.99	-9.99
TOTAL	3	360	240										

LIST THE THINNING SOLVENTS USED WITH THE COATING IDENTIFIED ABOVE:

16. LOCATION OF THIS OPERATION IN LATITUDE/LONGITUDE COORDINATES

LATITUDE: 35.03778 LONGITUDE: -88.8911

17. PAGE NUMBER:

A55

REVISION NUMBER:

1

DATE OF REVISION:

6/7/2004

Figure A.18 EXAMPLE OF PAINTING AND COATING OPERATIONS (CONTINUED) FORM (APCV.9)



MAJOR SOURCE OPERATING PERMIT APPLICATION - MISCELLANEOUS PROCESSES

1. FACILITY NAME: Example 1			
2. EMISSION UNIT ID: MR-1		3. EMISSION PROCESS ID: 1	
4. STACK ID/FUGITIVE ID: MRS1		5. YEAR OF CONSTRUCTION OR LAST MODIFICATION: 1979	
6. MISCELLANEOUS PROCESS DESCRIPTION: Processes inside the mixing room			
IF EMISSIONS ARE CONTROLLED FOR COMPLIANCE, ATTACH THE APPROPRIATE AIR POLLUTION CONTROL SYSTEM FORM.			
7. DESCRIBE THIS PROCESS (PLEASE ATTACH A FLOW DIAGRAM OF THIS PROCESS) AND CHECK ONE OF THE FOLLOWING: ☒ BATCH ☐ CONTINUOUS			
8. LIST THE TYPES AND AMOUNTS OF RAW MATERIALS INPUT TO THIS PROCESS:			
MATERIAL	STORAGE/MATERIAL HANDLING PROCESS	AVERAGE USAGE (UNIT)	MAXIMUM USAGE (UNIT)
resin solution	Piped from storage tanks	3116 lb/hr	4111 lb/hr
Monomer (styrene, MMA) Filter	Piped from storage tanks	912 lb/hr	1214 lb/hr
Pigments	Drum	131 lb/hr	171 lb/hr
9. LIST THE TYPES AND AMOUNTS OF PRIMARY PRODUCTS PRODUCED BY THIS PROCESS:			
MATERIAL	STORAGE/MATERIAL HANDLING PROCESS	AVERAGE AMOUNT PRODUCED (UNIT)	MAXIMUM AMOUNT PRODUCED (UNIT)
Resin Mix	Line 1-2-3	5980 lb/hr	7800 lb/hr
10. MISCELLANEOUS PROCESS SCC: 40201103		11. ANNUAL THROUGHPUT (MUST USE THE MATERIAL AND THE UNITS IN THE SCC CODE TABLE): NUMERICAL VALUE SCC UNITS SCC MATERIAL 18006 (TON) OF Solvent in Coating	
12. PAGE NUMBER: A20		REVISION NUMBER: DATE OF REVISION 1 6/7/2004	

Figure A.19 EXAMPLE OF MISCELLANEOUS PROCESSES FORM (APCV.10)



MAJOR SOURCE OPERATING PERMIT APPLICATION - MISCELLANEOUS PROCESSES (continued)

13. PROCESS FUEL USAGE:

14. LIST ANY SOLVENTS, CLEANERS, ETC., ASSOCIATED WITH THIS PROCESS:

MONOMERS (STYRENE, MMA)

IF THE EMISSIONS AND/OR OPERATIONS OF THIS PROCESS ARE MONITORED FOR COMPLIANCE, PLEASE ATTACH THE APROPRIATE COMPLIANCE DEMONSTRATION FORM.

15. DESCRIBE ANY FUGITIVE EMISSIONS ASSOCIATED WITH THIS PROCESS, SUCH AS OUTDOOR STORAGE PILES, OPEN CONVEYORS, OPEN AIR SAND BLASTING, MATERIAL HANDLING OPERATIONS, ETC (PLEASE ATTACH A SEPARATE SHEET IF NECESSARY).

PROCESS	DESCRIPTION
N/A	N/A

16. SEASONAL VARIATION OF OPERATION IN PERCENT:

SPRING: 25 SUMMER: 25 FALL: 25 WINTER: 25

17. NORMAL OPERATING SCHEDULE:

24 HRS/DAY 7 DAYS/WK 52 WKS/YR 8760 HRS/YR

18. LOCATION OF THIS MISCELLANEOUS PROCESS IN LATITUDE/LONGITUDE COORDINATES:

LATITUDE: 35.03778 LONGITUDE: -88.8911

19. PAGE NUMBER:

A21

REVISION NUMBER:

1

DATE OF REVISION

6 /7 /2004

**Figure A.20 EXAMPLE OF MISCELLANEOUS PROCESSES (CONTINUED)
FORM (APCV.10)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - MISCELLANEOUS**

1. FACILITY NAME: Example 1											
2. EMISSION UNIT ID: SB-1		3. EMISSION PROCESS ID: SB-1									
4. STACK ID: S11-1		5. CONTROL DEVICE TYPE: FABRIC FILTER - HIGH TEMPERATURE, I.E. T>250F									
6. CONTROL DEVICE DESCRIPTION: Dry filter											
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE (e.g., PRESSURE DROP, GAS FLOW RATE, TEMPERATURE): Dry filters are used for control of particulate emissions resulting from overspray											
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): N/A		9. YEAR OF INSTALLATION: 1965									
10. LIST OF POLLUTANT (S) TO BE CONTROLLED BY THIS EQUIPMENT AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT: <table border="1"><thead><tr><th>POLLUTANT</th><th>POLLUTANT CAPTURE EFFICIENCY (%)</th><th>TOTAL CAPTURE CONTROL EFFICIENCY (%)</th><th>SOURCE OF DATA</th></tr></thead><tbody><tr><td>PRIMARY PM, FILTERABLE PORTION ONLY</td><td>98</td><td>98</td><td>Conservative estimate</td></tr></tbody></table>				POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA	PRIMARY PM, FILTERABLE PORTION ONLY	98	98	Conservative estimate
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA								
PRIMARY PM, FILTERABLE PORTION ONLY	98	98	Conservative estimate								
11. DISCUSS HOW COLLECTED MATERIAL IS HANDLED FOR REUSE OR DISPOSAL: Spent filters are sent off-site for disposal											
12. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT) ☐ YES ☒ NO											
13. IF ANSWER IS YES IN ITEM #12 STATE THE OVERALL CONTROL EFFICIENCY: (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.): 1											
14. PAGE NUMBER: A59		REVISION NUMBER: 1									
		DATE OF REVISION: 6 /7 /2004									

**Figure A.21 EXAMPLE OF CONTROL EQUIPMENT - MISCELLANEOUS
FORM (APCV.11)**



MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - CONDENSERS

1. FACILITY NAME: Example 1											
2. EMISSION UNIT ID: B230-1		3. EMISSION PROCESS ID: 1									
4. STACK ID: 230-1		5. CONTROL DEVICE TYPE: CONDENSER									
6. CONTROL DEVICE DESCRIPTION: Condenser No 230-1											
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE (e.g., PRESSURE DROP, GAS FLOW RATE, TEMPERATURE): A condenser is used to reclaim solvent(1,1,1-TCA) from mixer C-123 in the drum brake lining friction materials manufacturing process.											
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): UKK Inc		9. YEAR OF INSTALLATION: 1979									
10. LIST OF POLLUTANT (S) TO BE CONTROLLED BY THIS EQUIPMENT AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT.											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">POLLUTANT</th> <th style="width: 15%;">POLLUTANT CAPTURE EFFICIENCY (%)</th> <th style="width: 15%;">TOTAL CAPTURE CONTROL EFFICIENCY (%)</th> <th style="width: 35%;">SOURCE OF DATA</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">VOLATILE ORGANIC COMPOUNDS</td> <td style="text-align: center;">90</td> <td style="text-align: center;">90</td> <td style="text-align: center;">Manufacturer</td> </tr> </tbody> </table>				POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA	VOLATILE ORGANIC COMPOUNDS	90	90	Manufacturer
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA								
VOLATILE ORGANIC COMPOUNDS	90	90	Manufacturer								
11. DISCUSS HOW COLLECTED MATERIAL IS HANDLED FOR REUSE OR DISPOSAL. Solvent is condensed for reuse											
12. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT). ☐ YES ☒ NO											
13. IF ANSWER IS YES IN ITEM #12 STATE THE OVERALL CONTROL EFFICIENCY: (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, etc)? : <u> 1 </u>											
14. PAGE NUMBER: 12		REVISION NUMBER: 1 DATE OF REVISION 6 /12/2004									

Figure A.22 EXAMPLE OF CONTROL EQUIPMENT - CONDENSERS FORM (APCV.12)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - ADSORBERS**

1. FACILITY NAME: Example 1								
2. EMISSION UNIT ID: RST- 1			3. EMISSION PROCESS ID: T-1					
4. STACK ID: Fug 1			5. CONTROL DEVICE TYPE: ACTIVATED CARBON ADSORPTION					
6. CONTROL DEVICE DESCRIPTION: Carbon adsorber								
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE (e.g., PRESSURE DROP, GAS FLOW RATE, TEMPERATURE). A carbon adsorber is used to control VOC/TCE emission from the vapor degreaser and mixer J-3								
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): VIC Model 124			9. YEAR OF INSTALLATION: 1986					
10. ARE YOU RECOVERING SOLVENT? IF THE ANSWER IS "YES", PLEASE DESCRIBE. ☐ YES ☒ NO DESCRIPTION: _____								
11. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT:								
POLLUTANT		INLET CONCENTRATION		OUTLET CONCENTRATION		CAPTURE EFFICIENCY (%)	ADSORBER EFFICIENCY (%)	TOTAL EFFICIENCY (%)
		GR/ACF	PPMV	GR/ACF	PPMV			
VOLATILE ORGANIC COMPOUNDS						100	100	99.8
12. PLEASE DESCRIBE HOW THE BED BREAK THROUGH IS MONITORED OR CONTROLLED. The carbon is sampled approximately every five months for bed breakthrough and carbon quality. Carbon will be changed when necessary								
13. DISCUSS HOW COLLECTED MATERIAL IS HANDLED FOR REUSE OR DISPOSAL. INDICATE IF THE BED MATERIAL IS DISPOSABLE. DISCUSS METHOD OF DISPOSAL OR REGENERATION METHOD. Used carbon and collected solvent are shipped offsite for disposal								
14. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT). ☐ YES ☒ NO								
15. IF ANSWER IS YES IN ITEM #14, STATE THE OVERALL CONTROL EFFICIENCY: _____ (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : _____ WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.): 1								
16. PAGE NUMBER:		REVISION NUMBER:		DATE OF REVISION:				
12		1		2 /12/2004				

Figure A.23 EXAMPLE OF CONTROL EQUIPMENT - ADSORBERS FORM (APCV.13)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - CATALYTIC OR THERMAL OXIDATION**

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID: P80	3. EMISSION PROCESS ID: 01	
4. STACK ID: S01-1	5. CONTROL DEVICE TYPE: CATALYTIC AFTERBURNER	
6. CONTROL DEVICE DESCRIPTION:		
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE. (e.g., PRESSURE DROP, GAS FLOW RATE, TEMPERATURE) Regenerative catalytic oxidizer; precious metal catalyst; Temperature set point = 750 F ±50 F		
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): EngelSoft	9. YEAR OF INSTALLATION: 1997	10. TYPE (check one): CATALYTIC OXIDIZER ☒ THERMAL OXIDIZER ☐
11. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT.		
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)
VOLATILE ORGANIC COMPOUNDS	95	95
SOURCE OF DATA Manufacturer (conservative estimate)		
12. IF APPLICABLE, DISCUSS HOW SPENT CATALYST IS HANDLED FOR REUSE OR DISPOSAL. Return to vendor for reclaim		
13. EQUIPMENT SPECIFICATIONS:		
CATALYTIC OXIDATION		THERMAL OXIDATION
13A. MINIMUM OPERATING TEMPERATURE (°F): 700	13B. MINIMUM OPERATING TEMPERATURE (°F):	
14A. TYPE OF FUEL USED: Natural Gas	14B. TYPE OF FUEL USED:	
15. TYPE OF CATALYST USED: Precious Metal	VOLUME OF CATALYST USED (FT ³): 100	
16A. MAXIMUM FUEL USAGE (SPECIFY UNIT): 535000 Btu/hr	16B. MAXIMUM FUEL USAGE (SPECIFY UNIT):	
17A. RESIDENCE TIME (SEC): 30	17B. RESIDENCE TIME (SEC):	
18. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT). ☐ YES ☒ NO		
19. IF ANSWER IS YES IN ITEM #18 STATE THE OVERALL CONTROL EFFICIENCY: (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.): 1		
20. PAGE NUMBER: A38	REVISION NUMBER: 1	DATE OF REVISION: 6 /7 /2004

Figure A.24 EXAMPLE OF CONTROL EQUIPMENT – CATALYTIC OR THERMAL OXIDATION FORM (APCV.14)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - CYCLONES/SETTLING CHAMBERS**

1. FACILITY NAME: Example 1			
2. EMISSION UNIT ID: MR-1		3. EMISSION PROCESS ID: 2	
4. STACK ID: Fug3		5. CONTROL DEVICE TYPE: CENTRIFUGAL COLLECTOR (CYCLONE) - HIGH EFFICIENCY	
6. CONTROL DEVICE DESCRIPTION: Cyclone			
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE. (e.g., PRESSURE DROP, GAS FLOW RATE, TEMPERATURE): A knock out chamber and a cyclone is installed in series with baghouse on the vent line from the rotary kiln dryer			
8. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT.			
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA
PRIMARY PM, FILTERABLE PORTION ONLY	50	50	Estimate
9. DISCUSS HOW COLLECTED MATERIAL IS HANDLED FOR REUSE OR DISPOSAL: Collected dust is recycled into the arc furnace			
10. GAS FLOW RATE (ACFM): 14200			
11. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT). ☒ YES ☐ NO			
12. IF ANSWER IS YES IN ITEM #11 STATE THE OVERALL CONTROL EFFICIENCY: 50 (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : 2 WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.):? 1			
13. PAGE NUMBER: 12		REVISION NUMBER: 1	
		DATE OF REVISION: 6 /4 /2004	

**Figure A.25 EXAMPLE OF CONTROL EQUIPMENT –
CYCLONES/SETTLING CHAMBERS FORM (APCV.15)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - ELECTROSTATIC PRECIPITATOR**

1. FACILITY NAME: Example 1			
2. EMISSION UNIT ID: RST- 1		3. EMISSION PROCESS ID: T-2	
4. STACK ID: Fug 2		5. CONTROL DEVICE TYPE: ELECTROSTATIC PRECIPITATOR - HIGH EFFICIENCY	
6. CONTROL DEVICE DESCRIPTION: ESP			
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE (e.g., PRESSURE DROP, GAS FLOWRATE ...) The cold-side electrostatic precipitator for each furnace in the boiler#1. The design parameters were gas flow of 24,000,000 acfm at 270 F for the ESP, with inlet PM loading of 7 grains per acf. The boiler's ESP consists of two chambers containing 5 fields each, with total plate area of 1,300,000 square feet. The design specific collector area is about 556 square feet per thousand acfm.			
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): Carbon System Inc.		9. YEAR OF INSTALLATION: 1978	
10. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT.			
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA
PRIMARY PM, FILTERABLE PORTION ONLY	99.68	99.68	stack test data
11. DISCUSS HOW COLLECTED MATERIAL IS HANDLED FOR REUSE OR DISPOSAL. The fly ash collected by the ESP is sent dry to the fly ash storage silo. Some fly ash is recovered and sold for use offsite, but most of the fly ash is conditioned with water and landfilled either offsite or onsite. The silo's bin vent filter controls ash emissions from the pneumatic transfer of dry ash from the telescoping chute to tanker truck			
12. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT). ☐ YES ☒ NO			
13. IF ANSWER IS YES IN ITEM #12 STATE THE OVERALL CONTROL EFFICIENCY: _____ (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : _____ WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.): <u> 1 </u>			
14. PAGE NUMBER: 12		REVISION NUMBER: 1 DATE OF REVISION: 6 /7 /2004	

Figure A.26 EXAMPLE OF CONTROL EQUIPMENT –ELECTROSTATIC PRECIPITATOR FORM (APCV.16)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - WET COLLECTION SYSTEMS**

1. FACILITY NAME: Example 1			
2. EMISSION UNIT ID: CE110		3. EMISSION PROCESS ID: 1	
4. STACK ID: 1A		5. CONTROL DEVICE TYPE: CAUSTIC SCRUBBER	
6. CONTROL DEVICE DESCRIPTION: A Caustic Scrubbers			
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE (e.g., PRESSURE DROP, GAS FLOWRATE ...) It is designed to remove chlorine form the electrolytic cell process before exhaust to the atmosphere. The key operating parameters and normal operating range: 1. Excess caustic solution concentration - 1% - 2% 2. Pressure drop - 1-3 inches of H2O 3. Chloride concentration - 1 - 25 ppm			
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): Lee Wu Company		9. YEAR OF INSTALLATION: 1979	
10. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT.			
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA
CHLORINE	97	97	Manufacturer Supplied
11. DISCUSS HOW COLLECTED MATERIAL AND EFFLUENT IS HANDLED FOR REUSE OR DISPOSAL. The scrubber effluent is sampled at least once per shift. Sodium hypochlorite solution is generated in the caustic scrubbers form the reaction of 14 percent caustic and chloride gas. This solution is sent to the special site for treatment and disposal			
12. SCRUBBING MEDIUM (WATER, SODIUM HYDROXIDE SLURRY, etc): Caustic and Water			
13. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT) ☐ YES ☒ NO			
14. IF ANSWER IS YES IN ITEM #13 STATE THE OVERALL CONTROL EFFICIENCY: _____ (%) HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : _____ WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.): <u> 1 </u>			
15. PAGE NUMBER: A12		REVISION NUMBER: 1	
		DATE OF REVISION: 6 /4 /2004	

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Figure A.27 EXAMPLE OF CONTROL EQUIPMENT –WET COLLECTION SYSTEMS FORM (APCV.17)



MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - BAGHOUSES/FABRIC FILTERS

1. FACILITY NAME: Example 1											
2. EMISSION UNIT ID: MR-1		3. EMISSION PROCESS ID: 1									
4. STACK ID MRS1		5. CONTROL DEVICE TYPE: HIGH-EFFICIENCY PARTICULATE AIR FILTER (HEPA)									
6. CONTROL DEVICE DESCRIPTION: HEPA filter											
7. LIST THE KEY OPERATING PARAMETERS OF THIS DEVICE AND THEIR NORMAL OPERATING RANGE (e.g., PRESSURE DROP, GAS FLOWRATE ...) This devices in use are bag-in/bag-out HEPA filters. Some HEPA filters are installed at each drybox. The HEPA filter is used for removal of PM which are approximately 0.7 microns in size											
8. MANUFACTURER AND MODEL NUMBER (IF AVAILABLE): Dust Corporation		9. YEAR OF INSTALLATION 1996									
10. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT (SEE INSTRUCTIONS)											
<table border="1"><thead><tr><th>POLLUTANT</th><th>POLLUTANT CAPTURE EFFICIENCY (%)</th><th>TOTAL CAPTURE CONTROL EFFICIENCY (%)</th><th>SOURCE OF DATA</th></tr></thead><tbody><tr><td>PRIMARY PM, FILTERABLE PORTION ONLY</td><td>99.98</td><td>99.98</td><td>Manufacturer supplied</td></tr></tbody></table>				POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA	PRIMARY PM, FILTERABLE PORTION ONLY	99.98	99.98	Manufacturer supplied
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA								
PRIMARY PM, FILTERABLE PORTION ONLY	99.98	99.98	Manufacturer supplied								
11. DISCUSS HOW COLLECTED MATERIAL IS HANDLED FOR REUSE OR DISPOSAL. The filters are placed in plastic bags, along with any residual material in the filter house, and shipped to wet Chem where the material on the filter are recovered. After recovering, the filters are finally disposed at an industrial waste landfill											
12. IF THE BAGS ARE COATED, SPECIFY THE MATERIAL USED FOR COATING AND FREQUENCY OF COATING. N/A											
13. DOES THE BAGHOUSE COLLECT ASBESTOS CONTAINING MATERIAL? ☐ YES ☒ NO IF "YES", PROVIDE DATA AS OUTLINED IN ITEM 13, INSTRUCTIONS FOR THIS FORM.											
14. IS THIS CONTROL EQUIPMENT IN SERIES WITH SOME OTHER CONTROL EQUIPMENT? (PLEASE COMPLETE AN APPROPRIATE CONTROL EQUIPMENT FORM FOR EACH ADDITIONAL PIECE OF CONTROL EQUIPMENT). ☐ YES ☒ NO											
15. IF ANSWER IS YES IN ITEM #14 STATE THE OVERALL CONTROL EFFICIENCY: HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? : WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC.): 1											
16. PAGE NUMBER: 22A		REVISION NUMBER: 1 DATE OF REVISION: 6 /4 /2004									

**Figure A.28 EXAMPLE OF CONTROL EQUIPMENT –
BAGHOUSES/FIBRIC FILTERS FORM (APCV.18)**



**COMPLIANCE CERTIFICATION - MONITORING AND REPORTING
DESCRIPTION OF METHODS USED FOR DETERMINING COMPLIANCE**

ALL SOURCES THAT ARE SUBJECT TO 1200-3-9-.02(11) OF TENNESSEE AIR POLLUTION CONTROL REGULATIONS ARE REQUIRED TO CERTIFY COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS BY INCLUDING A STATEMENT WITHIN THE PERMIT APPLICATION OF THE METHODS USED FOR DETERMINING COMPLIANCE. THIS STATEMENT MUST INCLUDE A DESCRIPTION OF THE MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS AND TEST METHODS. IN ADDITION, THE APPLICATION MUST INCLUDE A SCHEDULE FOR COMPLIANCE CERTIFICATION SUBMITTALS DURING THE PERMIT TERM. THESE SUBMITTALS MUST BE NO LESS FREQUENT THAN ANNUALLY AND MAY NEED TO BE MORE FREQUENT IF SPECIFIED BY THE UNDERLYING APPLICABLE REQUIREMENT OR THE TECHNICAL SECRETARY.		
1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): MR-1	3. EMISSION PROCESS ID (IDENTIFY): 1	
4. STACK ID/FUGITIVE ID (IDENTIFY): MRS1		
5. THIS SOURCE AS DESCRIBED UNDER ITEM #2 OF THIS APPLICATION WILL USE THE FOLLOWING METHOD(S) FOR DETERMINING COMPLIANCE WITH APPLICABLE REQUIREMENTS (AND SPECIAL OPERATING CONDITIONS FROM AN EXISTING PERMIT). CHECK ALL THAT APPLY AND ATTACH THE APPROPRIATE FORM(S). ☐ CONTINUOUS EMISSIONS MONITORING (CEM) - APC FORM V.20 POLLUTANT(S): ☐ EMISSION MONITORING USING PORTABLE MONITORS - APC FORM V.21 POLLUTANT(S): ☐ MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS - APC FORM V.22 POLLUTANT(S): ☐ MONITORING MAINTENANCE PROCEDURES - APC FORM V.23 POLLUTANT(S): ☒ STACK TESTING - APC FORM V.24 POLLUTANT(S): OPACITY ☐ FUEL SAMPLING & ANALYSIS (FSA) - APC FORM V.25 POLLUTANT(S): ☒ RECORDKEEPING - APC FORM V.26 POLLUTANT(S): VOCs, HAPs ☐ OTHER (PLEASE DESCRIBE) - APC FORM V.27 POLLUTANT(S):		
6. COMPLIANCE CERTIFICATION REPORTS WILL BE SUBMITTED TO THE DIVISION ACCORDING TO THE FOLLOWING SCHEDULE. START DATE: ANNUALLY AND EVERY 365 DAYS THEREAFTER.		
7. COMPLIANCE MONITORING REPORTS WILL BE SUBMITTED TO THE DIVISION ACCORDING TO THE FOLLOWING SCHEDULE. START DATE: 90 DAYS FROM ISSUANCE OF PERMIT AND EVERY 182 DAYS THEREAFTER.		
8. PAGE NUMBER: A25	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

**Figure A.29 EXAMPLE OF COMPLIANCE CERTIFICATION –
MONITORING AND REPORTING FORM (APCV.19)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY CONTINUOUS EMISSIONS MONITORING**

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): P80		3. EMISSION PROCESS ID (IDENTIFY): 01
4. STACK ID (IDENTIFY): S01-1		
5. DESCRIPTION OF EQUIPMENT MONITORING POLLUTANT: POLLUTANT (S) BEING MONITORED: 1 RADON AND ITS DECAY PRODUCTS 2 3) 4) 5) 6)		
5A. NAME OF MANUFACTURER: Nuclear Corporation		5B. MODEL NUMBER: N/A
5C. INSTALLATION YEAR: 1977	5D. TYPE: ☐ IN SITU ☒ EXTRACTIVE ☐ DILUTION ☐ OTHER (SPECIFY):	
5E. DESCRIBE HOW THE MONITOR WORKS: Automatic particulate sampler designed to collect samples isokinetically on 30 mm diameter filters using a sample flow rate of 2 CFM with a pressure differential of 0 to 0.5 atm		
6. DESCRIPTION OF EQUIPMENT MONITORING DILUENT: DILUENT BEING MONITORED:		
6A. NAME OF MANUFACTURER:		6B. MODEL NUMBER:
6C. INSTALLATION YEAR:	6D. TYPE: ☐ IN SITU ☐ EXTRACTIVE ☐ O ₂ ☐ CO ₂ ☐ OTHER (SPECIFY):	
6E. DESCRIBE HOW THE MONITOR WORKS:		
7. DESCRIPTION OF EQUIPMENT MONITORING FLOW: AMOUNT OF FLOW (DSCFM):		
7A. NAME OF MANUFACTURER:		7B. MODEL NUMBER:
7C. INSTALLATION YEAR:	7D. TYPE: ☐ DIFFERENTIAL PRESSURE ☐ THERMAL ☐ OTHER (SPECIFY):	
8. OPACITY (OR USE OF VISIBLE EMISSION EVALUATIONS IN LIEU OF OPACITY MONITORING):		
8A. INDICATE WHICH IS USED: ☐ MONITOR ☐ VISIBLE EMISSION EVALUATIONS*		* FOR "VISIBLE EMISSION EVALUATIONS" CHOICE, PROCEDURES WILL BE SPECIFIED AS A CONDITION IN THE SOURCE'S OPERATING PERMIT.
8B. OPACITY MONITOR (STATE THE NAME OF MANUFACTURER, MODEL NUMBER, AND YEAR OF INSTALLATION):		
9. PAGE NUMBER: 11A	REVISION NUMBER: 1	DATE OF REVISION: 6/4/2004

**Figure A.30 EXAMPLE OF COMPLIANCE DEMONSTRATION BY
CONTINUOUS EMISSIONS MONITORING FORM
(APCV.20)**

APC V.21

MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY PORTABLE MONITORS

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): P80		3. EMISSION PROCESS ID (IDENTIFY): 01
4. STACK ID (IDENTIFY): S01-1		
5. POLLUTANT (S) BEING MONITORED: 1 PRIMARY PM, FILTERABLE PORTION ONLY 2 3) 4) 5) 6)		
6. NAME OF MANUFACTURER (IF AVAILABLE): N/A		7. MODEL NUMBER (IF AVAILABLE): N/A
8. TYPE: ☒ IN SITU ☐ EXTRACTIVE ☐ DILUTION ☐ OTHER (SPECIFY)		
9. DESCRIBE HOW MONITOR WORKS 		
10. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED): 		
11. PAGE NUMBER: 12	REVISION NUMBER: 1	DATE OF REVISION: 6/12/2004

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Figure A.31 EXAMPLE OF COMPLIANCE DEMONSTRATION BY PORTABLE MONITORS FORM (APCV.21)



**MAJOR SOURCE OPERATING PERMIT APPLICATION - COMPLIANCE DEMONSTRATION BY
MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS**

THE MONITORING OF A CONTROL SYSTEM PARAMETER OR A PROCESS PARAMETER SHALL BE ACCEPTABLE AS A COMPLIANCE DEMONSTRATION METHOD PROVIDED THAT A CORRELATION BETWEEN THE PARAMETER VALUE AND THE EMISSION RATE OF A PARTICULAR POLLUTANT IS ESTABLISHED.		
1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): P80	3. EMISSION PROCESS ID (IDENTIFY): 01	
4. STACK ID (IDENTIFY): S01-1		
5. POLLUTANT (S) BEING MONITORED:		
1) VOLATILE ORGANIC COMPOUNDS	3)	2)
4)	5)	6)
6. DESCRIPTION OF THE METHOD OF MONITORING AND ESTABLISHMENT OF CORRELATION BETWEEN THE PARAMETER VALUE AND THE EMISSION RATE OF A PARTICULAR POLLUTANT: Temperature of the catalytic oxidizer is monitored to ensure that hydrocarbon destruction is in the desired range		
7. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED): Continuous compliance demonstration by means of a circular chart recorder		
8. PAGE NUMBER: A40	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

**Figure A.32 EXAMPLE OF COMPLIANCE DEMONSTRATION BY
MONITORING CONTROL SYSTEM PARAMETERS OR
OPERATING PARAMETERS OF A PROCESS FORM
(APCV.22)**



MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY MONITORING MAINTENANCE PROCEDURES

THE MONITORING OF A MAINTENANCE PROCEDURE SHALL BE ACCEPTABLE AS A COMPLIANCE DEMONSTRATION METHOD PROVIDED THAT A CORRELATION BETWEEN THE PROCEDURE AND THE EMISSION RATE OF A PARTICULAR POLLUTANT IS ESTABLISHED.

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): P80	3. EMISSION PROCESS ID (IDENTIFY): 01	
4. STACK ID (IDENTIFY): S01-1		
5. POLLUTANT (S) BEING MONITORED:		
1) PRIMARY PM, FILTERABLE PORTION ONLY	2)	3)
4)	5)	6)
6. PROCEDURE BEING MONITORED: Routine maintenance of the baghouse control system		
7. DESCRIPTION OF THE METHOD OF MONITORING AND ESTABLISHMENT OF CORRELATION BETWEEN THE PROCEDURE AND THE EMISSION RATE OF A PARTICULAR POLLUTANT: Monitoring of routine maintenance of the baghouse control system shall be performed sufficient to maintain the emission control rate at the 1 lb/hr permit limit. The facility will inspect the operation of this baghouse on a monthly basis and will correct any problems found within 7 business days.		
8. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED): Monthly maintenance checks of the baghouse will be performed		
9. PAGE NUMBER: 31A	REVISION NUMBER: 1	DATE OF REVISION: 6/4/2004

**Figure A.33 EXAMPLE OF COMPLIANCE DEMONSTRATION BY
MONITORING MAINTENANCE PROCEDURES FORM
(APCV.23)**

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DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L&C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531



APC V.24

**MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY STACK TESTING**

THE PERFORMANCE OF AN APPROPRIATE EPA STACK TEST METHOD FOR DEMONSTRATING COMPLIANCE WITH AN EMISSION LIMITATION HAS ALWAYS BEEN ACCEPTABLE. EPA TEST METHODS CONTAIN QUALITY ASSURANCE PROCEDURES THAT SHALL BE STRICTLY ADHERED TO BY THE SOURCE.

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): MR-1	3. EMISSION PROCESS ID (IDENTIFY): 1	
4. STACK ID (IDENTIFY): MRS1		
5. POLLUTANT (S) BEING MONITORED:		
1) OPACITY	2)	3)
4)	5)	6)
6. TEST METHOD: VISIBLE EMISSIONS PER TVEE METHOD 2 AS REQUIRED BY RULE 1200-3-5-01		
7. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED): AS INDICATED BY METHOD		
8. PAGE NUMBER: A26	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

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**Figure A.34 EXAMPLE OF COMPLIANCE DEMONSTRATION BY
STACK TESTING FORM (APCV.24)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY FUEL SAMPLING AND ANALYSIS**

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): CE110	3. EMISSION PROCESS ID (IDENTIFY): 1	
4. STACK ID (IDENTIFY): 1A		
5. POLLUTANT (S) BEING MONITORED:		
1) SULFUR DIOXIDE	2)	3)
4)	5)	6)
6. FUEL BEING SAMPLED: Natural Gas		
7. LIST THE FUEL SAMPLE COLLECTING AND ANALYZING METHOD USED (IF AN ASTM METHOD IS NOT APPLICABLE, PROPOSE A METHOD ACCEPTABLE TO THE TECHNICAL SECRETARY) We has an approved fuel sampling plan in place for compliance with 40 CFR 60, Subpart GG.		
8. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED): N/A		
9. PAGE NUMBER: A17	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

Figure A.35 EXAMPLE OF COMPLIANCE DEMONSTRATION BY FUEL SAMPLING AND ANALYSIS FORM (APCV.25)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY RECORDKEEPING**

RECORDKEEPING SHALL BE ACCEPTABLE AS A COMPLIANCE DEMONSTRATION METHOD PROVIDED THAT A CORRELATION BETWEEN THE PARAMETER VALUE RECORDED AND THE APPLICABLE REQUIREMENT IS ESTABLISHED		
1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): P80	3. EMISSION PROCESS ID (IDENTIFY): 01	
4. STACK ID (IDENTIFY): S01-1		
5. POLLUTANT (S) OR PARAMETER BEING MONITORED:		
1) ink	2) fountain solution	3) blanket wash usage
4)	5)	6)
6. MATERIAL OR PARAMETER BEING MONITORED AND RECORDED: Ink, fountain solution, and blanket wash usage		
7. METHOD OF MONITORING AND RECORDING: See "Supplement to APCV.28 for sample calculations used to demonstrate compliance with the VOC emission cap.		
8. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED): Annually, we will calculate emissions and compare with the 12-month rolling cap for this source.		
9. PAGE NUMBER: A41	REVISION NUMBER: 1	DATE OF REVISION 6/7/2004

**Figure A.36 EXAMPLE OF COMPLIANCE DEMONSTRATION BY
RECORDKEEPING FORM (APCV.26)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE DEMONSTRATION BY OTHER METHOD(S)**

1. FACILITY NAME: Example 1		
2. EMISSION UNIT ID (IDENTIFY): P80	3. EMISSION PROCESS ID (IDENTIFY): 01	
4. STACK ID (IDENTIFY): S01-1		
5. POLLUTANT(S) OR PARAMETER BEING MONITORED:		
1) SULFUR DIOXIDE	2)	3)
4)	5)	6)
6. DESCRIPTION OF THE METHOD OF MONITORING:		
The following calculations demonstrate compliance with the 2000 ppm SO₂ limit found in Rule 1200-3-1... Maximum SO₂ Emissions (based on Process Emission Standard) 2000 ppm SO₂ (Class V Area) Potential SO₂ Emissions (based on AP-42 Emission Factor) $(0.6 \text{ lb SO}_2/\text{mmcf}) / (1000000 \text{ cf/mmcf}) = 0.0000006 \text{ lb SO}_2/\text{cf}$ $(0.0000006 \text{ lb/cf}) / (M/385.1 \times 10^6) = \text{ppm SO}_2$ $(0.0000006 \text{ lb/cf}) / (0.0000002) = 3 \text{ ppm SO}_2$ Compliance Demonstration 3 ppm SO₂ < 2000 ppm SO₂		
7. COMPLIANCE DEMONSTRATION FREQUENCY (SPECIFY THE FREQUENCY WITH WHICH COMPLIANCE WILL BE DEMONSTRATED):		
One time (see above calculation)		
8. PAGE NUMBER: A42	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

Figure A.37 EXAMPLE OF COMPLIANCE DEMONSTRATION BY OTHER METHOD (S) FORM (APCV.27)

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DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L&C ANNEX
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NASHVILLE, TN 37243-1531



APC V.28

MAJOR SOURCE OPERATING PERMIT APPLICATION
EMISSIONS FROM EMISSION PROCESS

1. FACILITY NAME: Example 1										
2. EMISSION UNIT ID: MR-1			3. PROCESS EMISSION ID: 1			4. STACK ID OR FUGITIVE ID: MRS1				
5. EMISSION TYPE: ☒ STACK EMISSIONS ☐ FUGITIVE EMISSIONS										
6. COMPLETE THE FOLLOWING EMISSIONS SUMMARY FOR REGULATED AIR POLLUTANTS THAT ARE HAZARDOUS AIR POLLUTANT (S). ATTACH CALCULATIONS AND EMISSION FACTOR REFERENCES.										
AIR POLLUTANT	MAXIMUM ALLOWABLE EMISSIONS		ACTUAL EMISSIONS		EMISSION CALCULATION METHOD	EMISSION FACTOR (EF)	EF NUMER-ATOR	EF DENOMI-NATOR	EF RELIABILITY INDICATOR	CONTROL EMISSION (Y/N)
	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR)	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR)						
CUMENE	-9.99		0.01		02					N
METHYL METHACRYLATE	-9.99		0.21		02					N
STYRENE	-9.99		3.24		02					N
7. PAGE NUMBER: A23 REVISION NUMBER: 1 DATE OF REVISION: 6/7/2004										

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Figure A.38 EXAMPLE OF EMISSIONS FROM EMISSION PROCESS FORM (APCV.28)

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L&C ANNEX
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NASHVILLE, TN 37243-1531



APC V.28

MAJOR SOURCE OPERATING PERMIT APPLICATION
EMISSIONS FROM EMISSION PROCESS (continued)

8. COMPLETE THE FOLLOWING EMISSIONS SUMMARY FOR REGULATED AIR POLLUTANTS.
ATTACH CALCULATIONS AND EMISSION FACTOR REFERENCES

AIR POLLUTANT	MAXIMUM ALLOWABLE EMISSIONS		ACTUAL EMISSIONS		EMISSION CALCULATION METHOD	EMISSION FACTOR (EF)	EF NUMERATOR	EF DENOMINATOR	EF RELIABILITY INDICATOR	CONTROL EMISSION (Y/N)
	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR)	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR)						
VOLATILE ORGANIC COMPOUNDS	15.6		3.24		02					N

9. PAGE NUMBER: A24 REVISION NUMBER: 1 DATE OF REVISION: 6/7/2004

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Figure A.39 EXAMPLE OF EMISSIONS FROM EMISSION PROCESS (CONTINUED) FORM (APCV.28)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
EMISSION SUMMARY FOR THE FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION**

1. FACILITY NAME: Example 1				
2. COMPLETE THE FOLLOWING EMISSIONS SUMMARY FOR REGULATED AIR POLLUTANTS THAT ARE HAZARDOUS AIR POLLUTANT (S) AT THIS FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION.				
AIR POLLUTANT	MAXIMUM ALLOWABLE EMISSIONS		ACTUAL EMISSIONS	
	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR) ITEM 7, APC V.30	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR) ITEM 8, APC V.30
CUMENE	-9.99		0.01	
METHYL METHACRYLATE	-9.99		0.21	
STYRENE	-9.99		3.24	
HYDROGEN chloride	1.93		1.13	
MERCURY	-9.99		0.01	
VOLATILE ORGANIC COMPOUNDS	2.2		2.2	
3. PAGE NUMBER: A71 REVISION NUMBER: 1 DATE OF REVISION: 6/7/2004				

Figure A.40 EXAMPLE OF SUMMARY FOR THE FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION FORM (APCV.29)



MAJOR SOURCE OPERATING PERMIT APPLICATION
EMISSION SUMMARY FOR THE FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION (continued)

4. COMPLETE THE FOLLOWING EMISSIONS SUMMARY FOR REGULATED AIR POLLUTANTS AT THIS FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION.

AIR POLLUTANT	MAXIMUM ALLOWABLE EMISSIONS		ACTUAL EMISSIONS	
	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR) ITEM 7,	TON PER YEAR	RESERVED FOR STATE USE (POUNDS PER HOUR) ITEM 8,
CARBON MONOXIDE	-9.99		297.65	
NITROGEN OXIDES	-9.99		815.11	
PRIMARY PM, FILTERABLE PORTION ONLY	-9.99		13.365	
PRIMARY PM10, FILTERABLE PORTION ONLY	-9.99		1.49	
PRIMARY PM2.5, FILTERABLE PORTION ONLY	-9.99		1.2	
SULFUR DIOXIDE	7.4		1.61	
LEAD	-9.99		0.01	
MERCURY	-9.99		0.01	
BERYLLIUM	-9.99		0.000000587	
VOLATILE ORGANIC COMPOUNDS	-9.99		58.57	

5. PAGE NUMBER: **A72** REVISION NUMBER: **1** DATE OF REVISION: **6/7/2004**

Figure A.41 EXAMPLE OF SUMMARY FOR THE FACILITY OR FOR THE SOURCES CONTAINED IN THIS APPLICATION (CONTINUED) FORM (APCV.29)

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L&C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531



APC V.30

**MAJOR SOURCE OPERATING PERMIT APPLICATION
CURRENT EMISSIONS REQUIREMENTS AND STATUS**

1. FACILITY NAME: Example 1					
2. EMISSION UNIT ID: MR-1		3. PROCESS EMISSION ID: 1		4. STACK ID OR FUGITIVE ID MRS1	
5. DESCRIBE THE PROCESS: MIXING ROOM					
6. IDENTIFY IF ONLY A PART OF THE SOURCE IS SUBJECT TO THIS REQUIREMENT	7. POLLUTANT	8. APPLICABLE REQUIREMENT (S) : TN AIR POLLUTION CONTROL REGULATIONS, 40 CFR, PERMIT RESTRICTIONS, AIR QUALITY BASED STANDARDS	9. LIMITATION (SPECIFY UNIT)	10. MAXIMUM ACTUAL EMISSIONS (SPECIFY UNIT)	11. COMPLI- ANCE STATUS (IN/OUT)
N/A	OPACITY	TCA 1200-3-5-.01	20%	N/A	IN
N/A	TSP	TCA 1200-3-7-.04	0.25 GR/SCF	N/A	IN
12. OTHER APPLICABLE REQUIREMENTS (NEW REQUIREMENTS THAT APPLY TO THIS SOURCE DURING THE TERM OF THIS PERMIT)					
N/A	HAPS	MACT STD FOR REINFORCED PLASTIC COMPOSITES - CONTINUOUS LAMINATION 40 CFR 63 SUBPART WWWV	N/A	N/A	IN
13. PAGE NUMBER: A28		REVISION NUMBER: 1		DATE OF REVISION: 6/7/2004	

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**Figure A.42 EXAMPLE OF CURRENT EMISSIONS REQUIREMENTS AND STATUS FORM
(APCV.30)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION**

1.	FACILITY NAME:	Example 1						
2.	LIST ALL THE PROCESSES THAT ARE PART OF THIS APPLICATION.	SS						
3.	INDICATE THAT SOURCE (S) WHICH ARE CONTAINED IN THIS APPLICATION ARE PRESENTLY IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS, BY CHECKING THE FOLLOWING:	☒ A. ATTACHED IS A STATEMENT OF IDENTIFICATION OF THE SOURCE (S) CURRENTLY IN COMPLIANCE. WE WILL CONTINUE TO OPERATE AND MAINTAIN THE SOURCE (S) TO ASSURE COMPLIANCE WITH ALL THE APPLICABLE REQUIREMENTS FOR THE DURATION OF THE PERMIT. ☒ B. APC V 30 FORM (S) INCLUDES NEW REQUIREMENTS THAT APPLY OR WILL APPLY TO THE SOURCE (S) DURING THE TERM OF THE PERMIT. WE WILL MEET SUCH REQUIREMENTS ON A TIMELY BASIS.						
4.	INDICATE THAT THERE ARE SOURCE (S) THAT ARE CONTAINED IN THIS APPLICATION WHICH ARE NOT PRESENTLY IN FULL COMPLIANCE, BY CHECKING BOTH OF THE FOLLOWING:	☒ A. ATTACHED IS A STATEMENT OF IDENTIFICATION OF THE SOURCE (S) NOT IN COMPLIANCE, NON - COMPLYING REQUIREMENT (S), BRIEF DESCRIPTION OF THE PROBLEM, AND THE PROPOSED SOLUTION. ☐ B. WE WILL ACHIEVE COMPLIANCE ACCORDING TO THE FOLLOWING SCHEDULE: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 65%;">ACTION</th> <th style="width: 35%;">DEADLINE</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">Compliance with MACT standards for reinforcement Plastic composites continuous lamination</td> <td style="padding: 2px;">In accordance with promulgated MACT Standard</td> </tr> </tbody> </table>			ACTION	DEADLINE	Compliance with MACT standards for reinforcement Plastic composites continuous lamination	In accordance with promulgated MACT Standard
ACTION	DEADLINE							
Compliance with MACT standards for reinforcement Plastic composites continuous lamination	In accordance with promulgated MACT Standard							
PROGRESS REPORTS WILL BE SUBMITTED: START DATE: 11/11/1111 AND EVERY 180 DAYS THEREAFTER UNTIL COMPLIANCE IS ACHIEVED.								
5.	STATE THE COMPLIANCE STATUS WITH ANY APPLICABLE ENHANCED MONITORING AND COMPLIANCE CERTIFICATION REQUIREMENTS THAT HAVE BEEN PROMULGATED UNDER SECTION 114 (a) (3) OF THE CLEAN AIR ACT AS OF THE DATE OF SUBMITTAL OF THIS APC FORM V.31.	N/A						
6.	PAGE NUMBER:	REVISION NUMBER:	DATE OF REVISION:					
	A73	1	6/7/2004					

**Figure A.43 EXAMPLE OF COMPLIANCE PLAN AND COMPLIANCE
CERTIFICATION FORM (APCV.31)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
MAJOR SOURCE AIR MONITORING NETWORK**

1. FACILITY NAME: Example 1		
2. FACILITY STREET ADDRESS: 233 Kings Road	CITY: Middleton	ZIP CODE: 38052-
3. AIR MONITORING CONTACT NAME: Tammy Lee	TITLE: Environmental Engineer	TELEPHONE NUMBER WITH AREA CODE: (423) 123-2345
4. FOR EXISTING NETWORKS, INDICATE THE TYPE OF AIR MONITORING NETWORK. (i.e. indicate all of the pollutants which are currently being monitored for) N/A		
5. FOR PROPOSED NEW NETWORKS, INDICATE THE TYPE OF AIR MONITORING NETWORK. (i.e. indicate all of the pollutants which will be monitored) N/A		
6. IF CONDUCTING PSD PRE CONSTRUCTION MONITORING, BRIEFLY DESCRIBE THE REASON FOR MONITORING. IF CONDUCTING PSD POST CONSTRUCTION MONITORING, BRIEFLY DESCRIBE THE REASON FOR MONITORING. N/A		
7. WILL A QUALITY ASSURANCE / QUALITY CONTROL PLAN BE SUBMITTED WITH THE PERMIT APPLICATION? ☐ YES ☒ NO IF NO, PROVIDE THE PLAN WITHIN 30 DAYS OF PERMIT APPLICATION DATE.		
8. IF A PLAN HAS ALREADY BEEN SUBMITTED AND PREVIOUSLY APPROVED (i.e. the network is an existing network), PROVIDE A COPY OF THE MOST RECENTLY UPDATED PLAN WITH ANY REVISIONS OR CHANGES AS AN ATTACHMENT TO THE PERMIT APPLICATION. PROVIDE THE DATE OF THE PREVIOUS APPROVAL BY THE TECHNICAL SECRETARY. PREVIOUS APPROVAL DATE: 3 / 6 / 2000		
9. THE QUALITY ASSURANCE / QUALITY CONTROL PLAN WHICH IS SUBMITTED MUST AT LEAST CONTAIN SECTIONS THAT SPECIFICALLY ADDRESS EACH OF THE FOLLOWING AREAS IDENTIFIED BELOW IN ORDER TO BE CONSIDERED ACCEPTABLE. A. SELECTION OF ANALYZERS, SAMPLERS OR SAMPLING METHODS INCLUDING INSTALLATION OF EQUIPMENT, PREVENTIVE AND REMEDIAL MAINTENANCE. B. TRAINING OF STAFF ON EQUIPMENT OR METHODS. C. CALIBRATION PROCEDURES, FREQUENCY OF CALIBRATION, CONTROL OF CALIBRATION STANDARDS, RECERTIFICATION OF STANDARDS. D. ZERO AND SPAN CHECK FREQUENCY, ADJUSTMENT OF INSTRUMENT RESPONSE. E. CONTROL CHECK FREQUENCY, CONTROL LIMITS FOR ZERO AND SPAN RESPONSE, INCLUDING CORRECTIVE ACTION PROCEDURES. F. RECORDING, VALIDATING, AND REPORTING PROCEDURES FOR DATA, INCLUDING ASSESSMENT AND REPORTING OF PRECISION AND ACCURACY DATA. G. PROCEDURES TO DOCUMENT IMPLEMENTATION OF PLAN AND ANY SUBSEQUENT CHANGES TO THE PLAN. H. PROCEDURES TO DOCUMENT AND REPORT CAUSES OF ANY MISSED DATA, VIOLATIONS ON AMBIENT AIR QUALITY STANDARDS, INCLUDING UPSET CONDITIONS OR MALFUNCTIONS THAT AFFECT OR IMPACT ANALYZERS OR SAMPLERS. I. SITING OF ANALYZERS OR SAMPLERS INCLUDING TOPOGRAPHIC MAP COORDINATES, PHOTOGRAPHS OF SITES, MAPS WITH MAJOR TERRAIN FEATURES, ROADS, BUILDINGS, RIVERS AND PROPOSED OR EXISTING AIR CONTAMINANT SOURCES.		
10. PAGE NUMBER: A74	REVISION NUMBER: 1	DATE OF REVISION: 6/7/2004

Figure A.44 EXAMPLE OF MAJOR SOURCE AIR MONITORING NETWORK FORM (APCV.32)



**MAJOR SOURCE OPERATING PERMIT APPLICATION
CONTROL EQUIPMENT - STAGE I AND STAGE II VAPOR RECOVERY**

1. FACILITY NAME: Example 1			FOR APC	APC COMPANY NO.
2. EMISSION UNIT ID: WI-1	3. EMISSION PROCESS ID: Inc-1	4. STACK ID/FUGITIVE ID: Inc-S1	USE ONLY	LOG / PERMIT NO.
5. NUMBER, GAS TYPE, CAPACITY, TYPE OF TANK [ABOVEGROUND (AG), UNDERGROUND (UG)], INSTALLATION DATE				
TANK ID	GAS TYPE	SIZE (GALLON)	TANK TYPE (UG OR AG)	DATE OF INSTALLATION
#1	Gasonline	1000	Above Ground	3/6/1998
6. TOTAL NUMBER OF GASOLINE NOZZLES: 4 NOZZLE MODEL NUMBER: N/A				
7. GASOLINE DISPENSER MFR.: Tone Inc. DISPENSER MODEL NUMBER: N/A				
8. TYPE OF STAGE I SYSTEM: N/A TYPE OF STAGE II SYSTEM: N/A				
9. MAXIMUM MONTHLY THROUGHPUT: 120000 GAL. AVERAGE YEARLY THROUGHPUT: GAL				
10. LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT (SEE INSTRUCTIONS).				
POLLUTANT	POLLUTANT CAPTURE EFFICIENCY (%)	TOTAL CAPTURE CONTROL EFFICIENCY (%)	SOURCE OF DATA	
VOLATILE ORGANIC COMPOUNDS	20	20	Manufacturer data	
11. SUPPLIER OF GASOLINE:				
COMPANY NAME: Example 1		CONTACT NAME: N/A		
ADDRESS: P.O 1221, Knoxville, TN 37916		ADDRESS: N/A		
TELEPHONE NUMBER WITH AREA CODE: (865) 342-1234		TELEPHONE NUMBER WITH AREA CODE:		
12. PAGE NUMBER : 12		REVISION NUMBER: 1		DATE OF REVISION: 5/12/2004

**Figure A.45 EXAMPLE OF CONTROL EQUIPMENT – STAGE I AND
STAGE II VAPOR RECOVERY FORM (APCV.33)**



**MAJOR SOURCE OPERATING PERMIT APPLICATION
OPEN BURNING**

1. COMPANY NAME: Example 1			
2. EMISSION UNIT ID: MR-1		3. EMISSION PROCESS ID: 2	
4. FUGITIVE ID: Fug3			
5. MAILING ADDRESS (ST/RD/P.O. BOX): PO Box 12345		CITY: KINGSPORT	STATE: ZIP CODE: TN 37662
6. ADDRESS OF BURNING SITE: 233 Kings Road		CITY: MIDDLETOWN	COUNTY WHERE BURN WILL BE CONDUCTED: Hardeman County, Tennessee
7. NAME OF OFFICIAL TO CONTACT: Tammy Lee		OFFICIAL'S TITLE: Environmental Engineer	TELEPHONE NUMBER (WITH AREA CODE): (423) 123-2345
8. MATERIAL TO BE BURNED:			
POUNDS PER DAY			
TREES, LIMBS, BRUSH:	0	TOTAL WEIGHT OF MATERIAL TO BE BURNED:	6 TONS/YEAR
WOOD PRODUCTS:	0	ON WHAT DATE IS IT DESIRED TO BEGIN SUCH OPEN BURNING?	3/12/1998
HOUSEHOLD WASTE, EXCEPT GARBAGE:	0	HOW LONG WILL SUCH OPEN BURNING CONTINUE?	N/A
PETROLEUM WASTE:	0	DURING WHAT HOURS OF THE DAY WILL BURNING BE CONDUCTED?	9:00 TO 17:50
OTHER (DESCRIBE):	230	FREQUENCY OF BURNING:	1 DAYS/WEEK
Explosive Materials			
9. GIVE REASONS WHICH IN YOUR OPINION JUSTIFY DISPOSAL BY BURNING RATHER THAN OTHER METHODS CREATING LESS AIR POLLUTION. It is explosive materials			
10. WILL AN AIR CURTAIN DESTRUCTOR BE USED TO CONDUCT THIS BURNING (YES/NO)? ☐ YES ☒ NO			
11. WHAT PLANS HAVE BEEN MADE TO REDUCE OR ELIMINATE OPEN BURNING AT THIS SITE? We have conducted a feasibility study of other disposal methods. The result shows that open burning is the most safety way to dispose such materials/wastes.			
12. ON A MAP WITH A SCALE OF NOT LESS THAN 1:24,000, SHOW THE LOCATION OF THE FOLLOWING: A. THE BURNING SITE. B. A ROAD OR HIGHWAY WITHIN ONE MILE OF THE SITE. C. AIRPORTS, HOSPITALS, SCHOOLS, OR NURSING HOMES WITHIN ONE MILE OF THE SITE. D. NEAREST INCORPORATED TOWN. E. SANITARY LANDFILL OR SIMILAR FACILITY, WITHIN 1000 FT. OF THE SITE. F. NEAREST RESIDENCE NOT ON THE SAME PROPERTY AS THE BURNING SITE. G. NATIONAL RESERVATION, WILDLIFE AREA, STATE PARK OR FOREST WITHIN 1/2 MILE OF THE BURNING SITE.			
13. PAGE NUMBER: A29		REVISION NUMBER: 1	DATE OF REVISION: 6 / 7 / 2004

Figure A.46 EXAMPLE OF OPEN BURNING FORM (APCV.34)

Table A.1 THE DIFFERENCE BETWEEN THE ORIGINAL TITLE V PERMIT APPLICATION FORMS AND THE MODIFIED TITLE V PERMIT APPLICATION FORM

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
APC V.1	3	3	C	FACILITY'S PRIMARY ACTIVITY AND THE FIRST TWO DIGITS OF THE FACILITY SIC CODES (S)	Added the NAICS Code (s) to the field
	-	4	A	THE FACILITY REGISTRY ID, FACILITY CATEGORY, NTI SITE ID, TRI ID, ORIS FACILITY CODE AND DUN & BRADSTREET NUMBER	Added
APC V.2	-	1	A	FACILITY NAME AND OWNER'S NAME IF DIFFERENT FROM THE FACILITY NAME	Added
	1	2	C	PLEASE LIST, IDENTIFY AND DESCRIBE BRIEFLY PROCESS EMISSION SOURCES, FUEL BURNING INSTALLATIONS, AND INCINERATORS THAT ARE CONTAINED IN THIS APPLICATION. PLEASE ATTACH A FLOW DIAGRAM FOR THIS APPLICATION	Rephrased the question to "PLEASE LIST, IDENTIFY AND DESCRIBE BRIEFLY EACH EMISSION UNIT THAT IS CONTAINED IN THIS APPLICATION. INCLUDE ALL FUGITIVE EMISSIONS. PLEASE ATTACH A FLOW DIAGRAM FOR THIS APPLICATION AND LABEL ALL EMISSION UNIT ID (S), EMISSION PROCESS ID (S) AND STACK ID/ FUGITIVE ID (S) ON THE FLOW DIAGRAM. NOTE: EACH PIECE OF FUEL-BURNING NON-PROCESS EQUIPMENT (APC V.4) SHOULD BE CONSIDERED AS AN INDIVIDUAL EMISSION UNIT"
	-	3	A	PLEASE LIST, IDENTIFY AND DESCRIBE BRIEFLY ALL EMISSION PROCESSES (e.g. FUEL BURNING EQUIPMENT, INCINERATOR AND MISCELLANEOUS PROCESS) THAT CONTAINED IN THIS APPLICATION. ALSO INCLUDE ALL FUGITIVE EMISSION PROCESSES **NOT APPLICABLE FOR THE FIRST APPLICATION SUBMITTALS	Added
APC V.3	-	3	A	EMISSION RELEASE POINT TYPE	Added
	-	5	A	LOCATION OF THE STACK/FUGITIVE EMISSION IN LATITUDE/LONGITUDE COORDINATES	Added
	-	6	A	STACK TYPE (MAIN/BYPASS)	Added
	-	18	A	FUGITIVE SOURCE DIMENSIONS	Added
APC V.4	-	3	A	EMISSION UNIT ID	Added
	3	4	C	FUEL BURNING EQUIPMENT IDENTIFICATION	Changed the description to "EMISSION UNIT ID"
	11	14	D	BACKUP FUEL #3 AND ACTUAL YEARLY CONSUMPTION	Deleted
	-	15	A	FUEL-BURNING EQUIPMENT SCC VALUE (THE UNIT OF MEASURE OF THE SCC MUST MATCH THE UNIT OF THE PRIMARY FUEL (e.g. TONS BURNED))	Added
	-	16	A	PRIMARY FUEL INFORMATION	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

Table A.1 CONTINUED

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
APC V.4	-	17	A	PAGE NUMBER	Added
	-	20	A	SEASONAL VARIATION OF OPERATION IN PERCENT	Added
	14	22	C	LOCATION OF THIS FUEL-BURNING INSTALLATION IN UTM COORDINATES	Changed UTM coordinates to Latitude/Longitude coordinates
	15	21	C	NORMAL OPERATING SCHEDULE	Added number of weeks per year into the question
APC V.5	-	3	A	EMISSION UNIT ID	Added
	-	4	A	EMISSION PROCESS ID	Added
	-	6	A	EQUIPMENT TYPE	Added
	-	13	A	PAGE NUMBER	Added
	9	14	D	BACKUP FUEL #3 AND ACTUAL YEARLY CONSUMPTION	Deleted
	-	15	A	EQUIPMENT SCC VALUE (THE UNIT OF MEASURE OF THE SCC MUST MATCH THE UNIT OF THE PRIMARY FUEL	Added
	-	16	A	PRIMARY FUEL INFORMATION	Added
	11	19	C	LOCATION OF THIS FUEL BURNING INSTALLATION IN UTM COORDINATES	Changed UTM coordinates to Latitude/Longitude coordinates
	12	18	C	NORMAL OPERATING SCHEDULE	Added number of weeks per year into the question
APC V.6	2	3	C	STORAGE TANK IDENTIFICATION	Changed the description to "EMISSION PROCESS ID"
	3	2	C	PROCESS EMISSION SOURCE	Changed the description to "EMISSION UNIT ID"
	-	4	A	STACK/FUGITIVE ID	Added
	-	5	A	DESCRIPTION OF TANK	Added
	4	22	C	LOCATION OF THIS STORAGE TANK OR TANK FARM (UTM VERTICAL AND HORIZONTAL COORDINATES)	Changed UTM coordinates to Latitude/Longitude coordinates
	-	17	A	STORAGE TANK SCC CODE	Added
	-	18	A	ANNUAL THROUGHPUT OF THE TANK (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE	Added
	-	21	A	SEASONAL VARIATION OF MATERIAL STORED IN TANK IN PERCENT	Added
APC V.7	-	2	A	EMISSION UNIT ID	Added
	2	3	C	INCINERATOR IDENTIFICATION	Changed the description to "EMISSION PROCESS ID"
	-	9	A	INCINERATOR SCC	Added
	-	10	A	ANNUAL THROUGHPUT OF THE INCINERATOR (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

Table A.1 CONTINUED

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
APC V.7	-	15	A	SEASONAL VARIATION OF OPERATION IN PERCENT	Added
	12	16	C	NORMAL OPERATING SCHEDULE	Added number of weeks per year into the question
	13	18	C	LOCATION OF THIS INCINERATOR IN UTM COORDINATES	Changed UTM coordinates to Latitude/Longitude coordinates
APC V.8	-	2	A	EMISSION UNIT ID	Added
	-	3	A	EMISSION PROCESS ID	Added
	-	8	A	SEASONAL VARIATION OF OPERATION IN PERCENT	Added
	5	9	C	NORMAL OPERATING SCHEDULE	Added number of weeks per year into the question
	-	10	A	PRINTING SCC	Added
	-	11	A	ANNUAL PRINTING OPERATION THROUGHPUT (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE	Added
	-	12	A	PAGE NUMBER	Added
	8	15	C	LOCATION OF THIS OPERATION IN UTM COORDINATES	Changed UTM coordinates to Latitude/Longitude coordinates
APC V.9	-	2	A	EMISSION UNIT ID	Added
	-	3	A	EMISSION PROCESS ID	Added
	-	10	A	SEASONAL VARIATION OF OPERATION IN PERCENT	Added
	5	11	C	NORMAL OPERATING SCHEDULE	Added number of weeks per year into the question
	-	12	A	PAINTING AND COATING SCC	Added
	-	13	A	ANNUAL PAINTING AND COATING OPERATION THROUGHPUT (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE	Added
	-	14	A	PAGE NUMBER	Added
	9	16	C	LOCATION OF THIS OPERATION IN UTM COORDINATES	Changed UTM coordinates to Latitude/Longitude coordinates
APC V.10	-	2	A	EMISSION UNIT ID	Added
	2	3	C	PROCESS IDENTIFICATION	Changed the description to "EMISSION PROCESS ID"
	4	17	C	NORMAL OPERATING SCHEDULE	Added number of weeks per year into the question
	-	10	A	MISCELLANEOUS PROCESS SCC	Added
	-	11	A	ANNUAL THROUGHPUT (MUST USE THE MATERIAL AND THE UNITS IN THE SCC TABLE	Added
	-	12	A	PAGE NUMBER	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

Table A.1 CONTINUED

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
APC V.10	-	16	A	SEASONAL VARIATION OF OPERATION IN PERCENT	Added
	12	18	C	LOCATION OF THIS PROCESS EMISSION SOURCE IN UTM COORDINATES	Changed UTM coordinates to Latitude/Longitude coordinates and changed the description to "LOCATION OF THIS MISCELLANEOUS PROCESS IN LATITUDE/LONGITUDE COORDINATES"
APC V.11	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added
	-	13	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.12	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added
	-	13	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.13	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added
	-	15	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.14	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

Table A.1 CONTINUED

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
	-	19	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.15	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added
	-	12	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.16	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added
	-	13	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.17	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added
	-	14	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.18	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
	-	6	A	CONTROL DEVICE DESCRIPTION	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

Table A.1 CONTINUED

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
APC V.18	-	15	A	IF ANSWER IS YES IN ITEM#18, STATE THE OVERALL CONTROL EFFICIENCY, HOW MANY PIECES OF CONTROL EQUIPMENT ARE IN SERIES? AND WHAT ORDER IS THIS CONTROL EQUIPMENT IN (FIRST CONTROL EQUIPMENT DOWNSTREAM OF PROCESS IS ONE, ETC)?	Added
APC V.19	-	2	A	EMISSION UNIT ID	Added
	2	3	C	PROCESS EMISSION SOURCE, FUEL INSTALLATION, OR INCINERATOR	Changed the description to "EMISSION PROCESS ID"
APC V.20	-	2	A	EMISSION UNIT ID	Added
	3	3	C	PROCESS EMISSION SOURCE OR FUEL BURNING INSTALLATION OR INCINERATOR	Changed the description to "EMISSION PROCESS ID"
APC V.21	-	2	A	EMISSION UNIT ID	Added
	3	3	C	PROCESS EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
APC V.22	-	2	A	EMISSION UNIT ID	Added
	3	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
APC V.23	-	2	A	EMISSION UNIT ID	Added
	3	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
APC V.24	-	2	A	EMISSION UNIT ID	Added
	3	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
APC V.25	-	2	A	EMISSION UNIT ID	Added
	3	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
APC V.26	-	2	A	EMISSION UNIT ID	Added
	3	3	C	EMISSION SOURCE	Changed the description to "EMISSION PROCESS ID"
APC V.27	-	2	A	EMISSION UNIT ID	Added
	2	3	C	PROCESS EMISSION SOURCE, FUEL INSTALLATION, OR INCINERATOR	Changed the description to "EMISSION PROCESS ID"
	-	4	A	STACK ID	Added
APC V.28	-	2	A	EMISSION UNIT ID	Added
	3	3	C	PROCESS IDENTIFICATION	Changed the description to "EMISSION PROCESS ID"
	-	5	A	EMISSION TYPE	Added
APC V.29	-	3	A	PAGE NUMBER	Added
APC V.30	-	2	A	EMISSION UNIT ID	Added
	2	3	C	EMISSION SOURCE NUMBER	Changed the description to "EMISSION PROCESS ID"
	-	4	A	STACK ID	Added
	3	5	C	DESCRIBE THE PROCESS EMISSION SOURCE/ FUEL INSTALLATION/ INCINERATOR	Changed the description to "DESCRIBE THE PROCESS"
APC V.33	-	2	A	EMISSION UNIT ID	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

Table A.1 CONTINUED

Permit Form Number	Original Title V Item No.	New Title V Item No.	Action*	Field Name	Description of Change
APC V.33	-	3	A	EMISSION PROCESS ID	Added
	-	4	A	FUGITIVE ID	Added
	-	10	A	LIST OF POLLUTANT (S) TO BE CONTROLLED AND THE EXPECTED CONTROL EFFICIENCY FOR EACH POLLUTANT (SEE INSTRUCTIOS)	Added
APC V.34	-	2	A	EMISSION UNIT ID	Added
	-	3	A	EMISSION PROCESS ID	Added
	-	4	A	FUGITIVE ID	Added

Revision Codes: A = Add new field; D = Delete field; C = Change from existing field;

APPENDIX B

**SCREEN CAPTURES OF MSPIRS USER INTERFACE
FORMS**

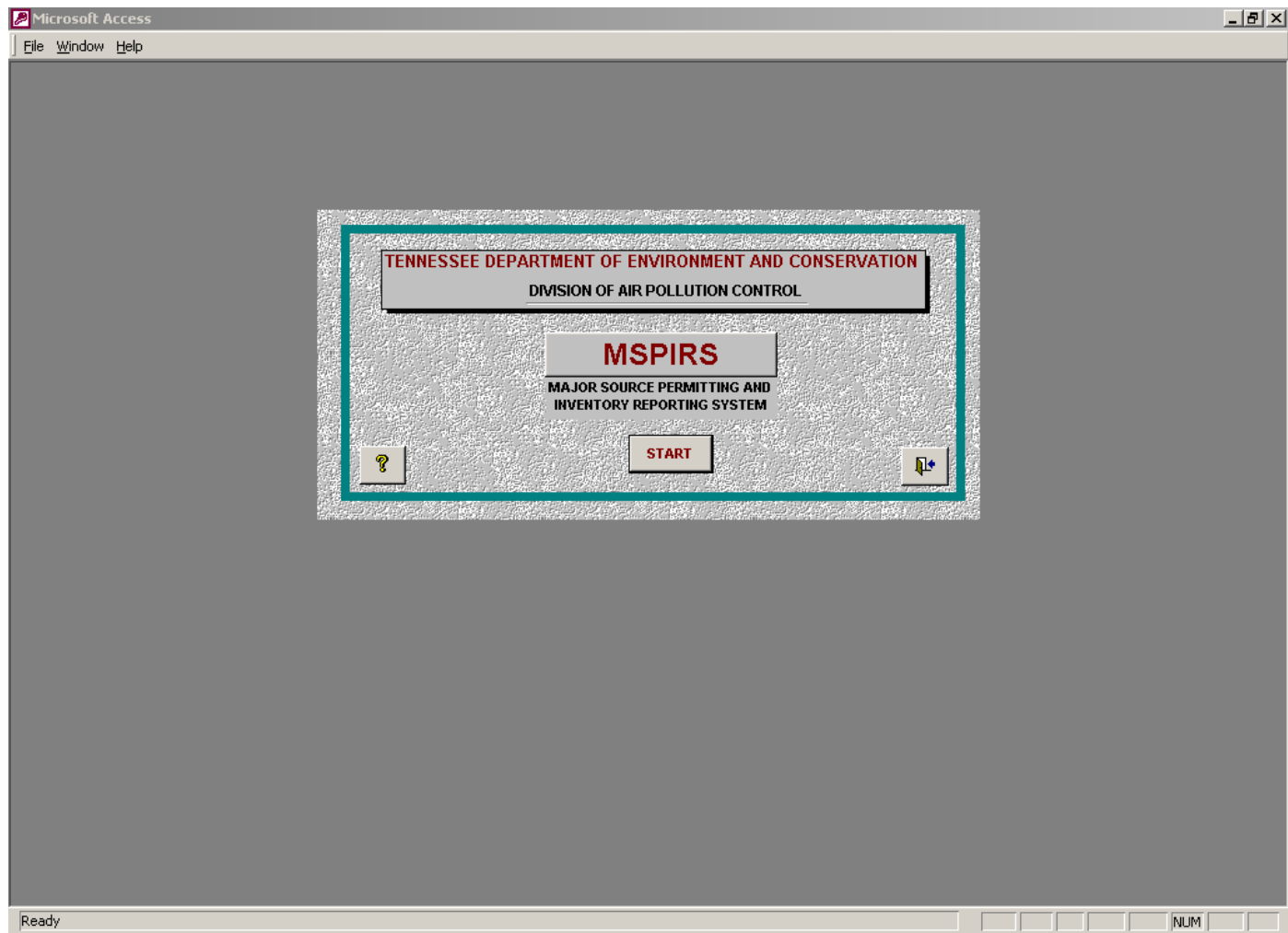


Figure B.1 MAIN COVER FORM

Microsoft Access

CoverForm

**MAJOR SOURCE PERMITTING AND
INVENTORY REPORTING SYSTEM**

FACILITY NAME Example 1

FEDERAL STATE AND COUNTY ID 47069

LOCAL COUNTY ID 035 **LOCAL FACILITY ID** 0001

Go NEXT

Facility name and owner's name if different from the facility name.

NUM

Figure B.2 EXAMPLE OF COVER FORM

Microsoft Access

SiteSummaryQuery

GO BACK GO NEXT QA/QC Summary

SUMMARY OF SITE INFORMATION

FACILITY NAME	Example 1
PHYSICAL ADDRESS	233 Kings Road
CITY	MIDDLETON
ZIP CODE	38052-
COUNTY	Hardeman County, Tennessee
PRIMARY ACTIVITY	Plastic Material Manufacturer
SIC PRIMARY	
NAICS PRIMARY	325211

QA/QC CHECK		
TV	INV	WRN
☐	☐	☐

TV - Title V Permit Quality Check
 INV - State Inventory Quality Check
 WRN - Warning Message Quality Check

Form View

NUM

Figure B.3 EXAMPLE OF SUMMARY OF SITE INFORMATION FORM

Microsoft Access - [Mainform]

GO BACK GO NEXT QA/QC Summary

OPERATIONS SWITCHBOARD

Facility Name Example 1

Stacks Rename Wizard

EMISSION UNIT INFORMATION				EMISSION PROCESS INFORMATION				STACK/FUGITIVE INFORMATION				RECORD INDICATOR						
EMISSION UNIT ID	FORM	QA/QC CHECK			PROCESS ID	DESCRIPTION OF EMISSION PROCESS	FORM	FORM NUMBER	QA/QC CHECK				Stack ID / Fugitive ID	FORM	HAVE FORM	QA/QC CHECK		
		TV	INV	WRN					TV	INV	WRN					TV	INV	WRN
B230-1	GO	☐	☐	☐	1		GO	APCV4	☐	☐	☐	230-1	GO	☐	☐	☐	☐	☐
CE110	GO	☒	☒	☒	1	Clark Brothers Compressor Engines 110	GO	APCV5	☐	☐	☐	1A	GO	☐	☒	☒	☒	☐
MR-1	GO	☒	☒	☒	1	Mixing Room	GO	APCV10	☒	☒	☐	MRS1	GO	☐	☒	☒	☒	☐
MR-1	GO	☒	☒	☒	2	Open Burning	GO	APCV34	☒	☒	☒	Fug3	GO	☐	☒	☒	☒	☐
P80	GO	☒	☒	☒	01	Source No. 01: Press 80 (Unit No. 01-101)	GO	APCV8	☐	☒	☐	S01-1	GO	☐	☒	☒	☒	☐
RST- 1	GO	☒	☒	☒	T-1	Resin Storage Tank (Building 231)	GO	APCV6	☐	☒	☐	Fug 1	GO	☐	☒	☒	☒	☐
RST- 1	GO	☒	☒	☒	T-2	Resin Storage Tank (Building 230)	GO	APCV6	☒	☒	☐	Fug 2	GO	☐	☒	☒	☒	☐
SB-1	GO	☒	☒	☒	SB-1	Spray Booths	GO	APCV9	☒	☒	☐	S11-1	GO	☐	☒	☒	☒	☐
VM-1	GO	☒	☒	☒	Inc-1	Waste Incinerator	GO	APCV7	☒	☒	☒	Inc-S1	GO	☐	☒	☒	☒	☐

A text description of a emission process.

FLTR NUM

Figure B.4 EXAMPLE OF OPERATIONS SWITCHBOARD FORM

Microsoft Access

FACILITY SUMMARY

GO BACK TO APC V31 DATA EXTRACTION WIZARD

FACILITY SUMMARY

FACILITY NAME Example 1

Press Custom Page Number
Press Default Page Number

FORM NUMBER	NUMBER OF FORM	TITLE V PERMIT FORM QUALITY CHECK CRITERIA	EMISSION INVENTORY QAULTY CHECK CRITERIA	WARNING MESSAGE QAULTY CHECK CRITERIA	OPEN FORM FOR PRINTING
V1-APC	1	☐	☐	☐	OPEN
V2-APC	1	☐	☐	☒	OPEN
V2-APC(page2)	1	☒	☒	☐	OPEN
V3-APC	9	☐	☐	☐	OPEN
V3-APC (BYPASS)	1	☒	☒	☒	OPEN
V4-APC	1	☒	☒	☐	OPEN
V5-APC	1	☐	☐	☐	OPEN
V6-APC	2	☒	☒	☐	OPEN
V7-APC	1	☒	☒	☒	OPEN
V8-APC	1	☐	☒	☐	OPEN
V9-APC	1	☒	☒	☐	OPEN
V10-APC	1	☒	☒	☐	OPEN
V34-APC	1	☒	☒	☒	OPEN
V11-APC	1	☒	☒	☒	OPEN
V14-APC	1	☐	☐	☐	OPEN
V19-APC	6	☒	☒	☐	OPEN
V22-APC	1	☒	☒	☐	OPEN

Form View

NUM

Figure B.5 EXAMPLE OF FACILITY SUMMARY FORM

APPENDIX C

MISCELLANEOUS SCREEN CAPTURES OF MSPIRS

Microsoft Access

V1-APC

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L & C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531

APC V.1

GO BACK GO NEXT QC COMMENTS

MAJOR SOURCE OPERATING PERMIT APPLICATION FACILITY IDENTIFICATION

1. FACILITY NAME AND OWNER'S NAME IF DIFFERENT FROM THE FACILITY NAME
Example 1

MAILING ADDRESS (ST/RD/P.O. BOX)
PO box 12345

CITY KINGSPORT STATE TX ZIP CODE 37662

FOR APC USE ONLY

APC COMPANY NO.
LOG/PERMIT NO.

2. FACILITY LOCATION (ST/RD/HWY)
233 Kings Road

COUNTY NAME
Hardeman County, Tennessee

CITY OR DISTANCE TO NEAREST TOWN MIDDLETON ZIP CODE 38052 TELEPHONE NUMBER WITH AREA CODE (713) 777-1234

3. FACILITY'S PRIMARY ACTIVITY
Plastic Material Manufacturer

THE FACILITY SIC CODE (S)
325211

THE NAICS CODE (S)

4. THE FACILITY REGISTRY ID: TRI ID: DUN & BRADSTREET NUMBER:

FACILITY CATEGORY: 01

ORIS FACILITY CODE:

5. CONTACT PERSON'S NAME FOR THIS PERMIT
Tammy lee

TITLE
Environmental Engineer

TELEPHONE NUMBER WITH AREA CODE
(423) 123-2345

6. IF FACILITY IS LOCATED IN AN AREA DESIGNATED AS "NONATTAINMENT" OR "ADDITIONAL CONTROL", INDICATE THE POLLUTANT(S) FOR THE DESIGNATION.

7. LIST ALL VALID AIR POLLUTION PERMITS ISSUED TO THE SOURCES CONTAINED IN THIS APPLICATION (IDENTIFY ALL PERMITS WITH MOST RECENT PERMIT NUMBERS, EMISSION UNIT REFERENCE NUMBERS AND EXPIRATION DATES LISTED ON THE PERMIT(S)).

	DESCRIPTION	PERMIT NUMBER	EMISSION UNIT REFERENCE	EXPIRATION DATE
▶	Polyurethane Foam Product	12345	32-5525	12/12/2004
*				

*NOTE: NOT APPLICABLE FOR FIRST SUBMITTALS.

Ready FLTR NUM

Figure C.1 EXAMPLE OF APCV.1 FORM SCREEN

Microsoft Access

SiteSummaryQuery

GO BACK GO NEXT QA/QC Summary

SUMMARY OF SITE INFORMATION

QAQCCommentsTableForFacilityInf Visual

Form Number	Mandatory/ Warning	Item Number	Comment
V1-APC	M	Item#3 - The Facility SIC Code;	Missing Data;
V1-APC	W	Item#4 - The Facility Registry ID;	Missing Data;
V1-APC	W	Item#4 - NTI Site ID;	Missing Data;
V1-APC	W	Item#4 - TRI ID;	Missing Data;
V1-APC	W	Item#4 - ORIS Facility Code;	Missing Data;

Record: 1 of 23 (Filtered)

TV	INV	WRN
☐	☐	☐

INV - State Inventory Quality Check
WRN - Warning Message Quality Check

Ready FLTR NUM

Figure C.2 EXAMPLE OF QA/QC COMMENTS TABLE SCREEN

Microsoft Access

V1-APC

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
9TH FLOOR, L & C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1531

APC V.1

GO BACK GO NEXT QC COMMENTS

MAJOR SOURCE OPERATING PERMIT APPLICATION FACILITY IDENTIFICATION

1. FACILITY NAME AND OWNER'S NAME IF DIFFERENT FROM THE FACILITY NAME	FOR	APC COMPANY NO.
Example 1		
MAILING ADDRESS (ST/RD/P.O. BOX)	APC	LOG/PERMIT NO.

QAQCCommentsTableForFacilityInf Visual

Form Number	Mandatory/ Warning	Item Number	Comment
V1-APC	M	Item#3 - The Facility SIC Code;	Missing Data;
V1-APC	W	Item#4 - The Facility Registry ID;	Missing Data;
V1-APC	W	Item#4 - NTI Site ID;	Missing Data;
V1-APC	W	Item#4 - TRI ID;	Missing Data;
V1-APC	W	Item#4 - ORIS Facility Code;	Missing Data;

Record: 1 of 10 (Filtered)

7. LIST ALL VALID AIR POLLUTION PERMITS ISSUED TO THE SOURCES CONTAINED IN THIS APPLICATION (IDENTIFY ALL PERMITS WITH MOST RECENT PERMIT NUMBERS, EMISSION UNIT REFERENCE NUMBERS AND EXPIRATION DATES LISTED ON THE PERMIT(S)).*

DESCRIPTION	PERMIT NUMBER	EMISSION UNIT REFERENCE	EXPIRATION DATE
Polyurethane Foam Product	12345	32-5525	12/12/2004
*			

*NOTE: NOT APPLICABLE FOR FIRST SUBMITTALS.

Ready FLTR NUM

Figure C.3 EXAMPLE OF FORM SPECIFIC QA/QC COMMENTS TABLE SCREEN

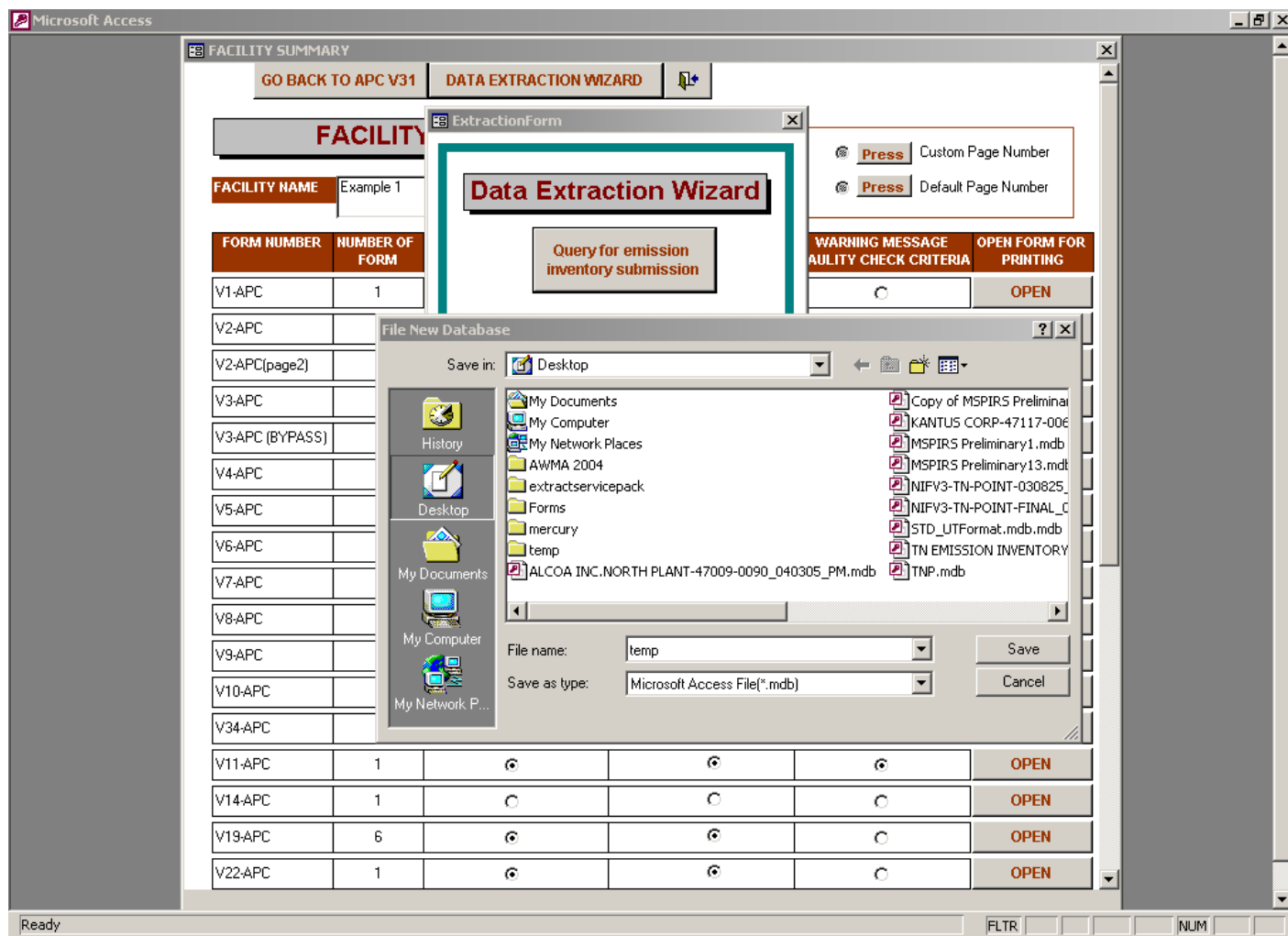


Figure C.4 EXAMPLE OF DATA EXTRACTION SCREEN

APPENDIX D

PRE-DEFINED VALUE TABLE FOR RANGE CHECK MOD

Table D.1 PREDEFINED VALUES FOR STACK PARAMETERS

Minimum Stack Height	Maximum Stack Height	Minimum Fugitive Height	Maximum Fugitive Height	Minimum Stack Diameter	Maximum Stack Diameter	Minimum Stack Temperature	Maximum Stack Temperature	Minimum Stack Velocity	Maximum Stack Velocity	Maximum Stack Flow Rate
0.01	1000	0.1	100	0.1	50	50	1800	0.1	560	1100000

Table D.2 PREDEFINED VALUES FOR MAXIMUM EMISSION

Pollutant	Limit
VOC	300
NOX	1500
CO	600
SO2	5000
SOX	5000
NH3	100
PM-PRI	200
PM10-PRI	200
PM25-PRI	150
PM-FIL	200
PM10-FIL	200
PM25-FIL	150
PM-CON	150

Table D.3 PREDEFINED VALUES FOR STATE LATITUDE AND LONGITUDE

Minimum State Longitude	Maximum State Longitude	Minimum State Latitude	Maximum State Latitude
-81.6523	-90.3054	34.9888	36.6797

Table D.4 PREDEFINED VALUES FOR COUNTY LATITUDE AND LONGITUDE

County Name	Minimum County Longitude	Maximum County Longitude	Minimum County Latitude	Maximum County Latitude
Anderson Co	-83.9447	-84.4474	35.9078	36.2915
Bedford Co	-86.2288	-86.6642	35.3277	35.7109
Benton Co	-87.9156	-88.2147	35.8138	36.363
Bledsoe Co	-84.8998	-85.4283	35.3633	35.7754
Blount Co	-83.6621	-84.181	35.4555	35.8849
Bradley Co	-84.6897	-85.0142	34.9908	35.3621
Campbell Co	-83.8995	-84.3748	36.1771	36.5955
Cannon Co	-85.8782	-86.2122	35.6498	35.9777
Carroll Co	-88.1732	-88.7067	35.7917	36.155
Carter Co	-81.9314	-82.342	36.0958	36.5034
Cheatham Co	-86.9014	-87.281	36.0491	36.461
Chester Co	-88.359	-88.8565	35.2511	35.5955
Claiborne Co	-83.3646	-84.0067	36.3284	36.5988
Clay Co	-85.2725	-85.8058	36.4115	36.6267
Cocke Co	-82.8958	-83.3112	35.7024	36.185
Coffee Co	-85.8705	-86.2783	35.2938	35.7119
Crockett Co	-88.9036	-89.3605	35.6752	35.9956
Cumberland Co	-84.6787	-85.2716	35.7537	36.1721
Davidson Co	-86.5048	-87.0474	35.9775	36.3977
Decatur Co	-87.9666	-88.242	35.383	35.8583
De Kalb Co	-85.6329	-86.0538	35.829	36.1362
Dickson Co	-87.1285	-87.5647	35.9681	36.3397
Dyer Co	-89.1563	-89.7218	35.8776	36.217
Fayette Co	-89.187	-89.6466	34.9998	35.4062
Fentress Co	-84.6536	-85.1171	36.1413	36.5837
Franklin Co	-85.8679	-86.3212	34.9923	35.3694
Gibson Co	-88.6919	-89.2009	35.7965	36.2266
Giles Co	-86.8095	-87.2374	34.9982	35.4634
Grainger Co	-83.259	-83.733	36.0822	36.4231
Greene Co	-82.5793	-83.162	35.921	36.4165
Grundy Co	-85.489	-85.9205	35.2207	35.5454
Hamblen Co	-83.0831	-83.4695	36.1159	36.3487

Table D.4 CONTINUED

County Name	Minimum County Longitude	Maximum County Longitude	Minimum County Latitude	Maximum County Latitude
Hamilton Co	-84.9337	-85.4674	34.9892	35.4686
Hancock Co	-82.8498	-83.4642	36.3875	36.6005
Hardeman Co	-88.785	-89.1981	35.0002	35.4357
Hardin Co	-87.9843	-88.3831	35.0038	35.4299
Hawkins Co	-82.6042	-83.2823	36.2389	36.5915
Haywood Co	-89.0663	-89.512	35.3999	35.82
Henderson Co	-88.1754	-88.6069	35.4217	35.8277
Henry Co	-87.9916	-88.5274	36.1315	36.4995
Hickman Co	-87.1963	-87.7456	35.6156	36.0021
Houston Co	-87.5128	-87.9844	36.1863	36.3705
Humphreys Co	-87.5327	-88.0051	35.8117	36.2511
Jackson Co	-85.4882	-85.8467	36.2182	36.5216
Jefferson Co	-83.2296	-83.7015	35.8993	36.1873
Johnson Co	-81.6523	-82.0477	36.2647	36.6116
Knox Co	-83.6474	-84.2662	35.7979	36.1894
Lake Co	-89.3404	-89.6975	36.1838	36.5027
Lauderdale Co	-89.3417	-89.9604	35.5461	35.953
Lawrence Co	-87.1987	-87.6081	35.0073	35.4673
Lewis Co	-87.2572	-87.7301	35.4059	35.662
Lincoln Co	-86.3098	-86.8334	34.9953	35.3794
Loudon Co	-84.1297	-84.5747	35.6121	35.9078
Mc Minn Co	-84.3994	-84.8539	35.2464	35.6535
Mc Nairy Co	-88.3641	-88.7861	35.0032	35.39
Macon Co	-85.7833	-86.2224	36.4163	36.6433
Madison Co	-88.597	-89.0768	35.4345	35.7996
Marion Co	-85.3606	-85.8696	34.9901	35.3258
Marshall Co	-86.5918	-86.9533	35.2671	35.7179
Maury Co	-86.783	-87.3472	35.4231	35.8552
Meigs Co	-84.613	-85.0335	35.296	35.7446
Monroe Co	-83.933	-84.5361	35.2085	35.6744
Montgomery Co	-87.1122	-87.6407	36.3217	36.6513
Moore Co	-86.2372	-86.5263	35.1287	35.4216
Morgan Co	-84.3409	-84.9052	35.9143	36.371
Obion Co	-88.81	-89.4688	36.2017	36.5032
Overton Co	-85.0769	-85.4908	36.1528	36.5412
Perry Co	-87.6454	-88.0471	35.4301	35.8466
Pickett Co	-84.73	-85.2847	36.4123	36.6256
Polk Co	-84.291	-84.7711	34.9888	35.2909
Putnam Co	-85.0946	-85.8091	35.9852	36.3095
Rhea Co	-84.7033	-85.1397	35.4132	35.8307
Roane Co	-84.2644	-84.7832	35.6501	36.0564

Table D.4 CONTINUED

County Name	Minimum County Longitude	Maximum County Longitude	Minimum County Latitude	Maximum County Latitude
Robertson Co	-86.5107	-87.1384	36.347	36.6551
Rutherford Co	-86.1323	-86.6959	35.6213	36.0977
Scott Co	-84.2459	-84.7819	36.1689	36.6051
Sequatchie Co	-85.2261	-85.6192	35.1591	35.5703
Sevier Co	-83.2494	-83.7889	35.5543	36.0456
Shelby Co	-89.633	-90.3054	34.9993	35.4792
Smith Co	-85.7764	-86.134	36.0928	36.4268
Stewart Co	-87.5897	-88.072	36.331	36.6797
Sullivan Co	-81.8289	-82.7032	36.3934	36.6136
Sumner Co	-86.199	-86.7513	36.2429	36.6551
Tipton Co	-89.4662	-90.0464	35.3802	35.6474
Trousdale Co	-85.9737	-86.279	36.2975	36.4945
Unicoi Co	-82.2076	-82.6057	35.9556	36.261
Union Co	-83.6732	-84.0151	36.1666	36.4348
Van Buren Co	-85.2485	-85.6105	35.5521	35.8302
Warren Co	-85.5465	-85.9985	35.5089	35.8587
Washington Co	-82.2991	-82.689	36.0989	36.4432
Wayne Co	-87.5714	-88.0269	35.0105	35.5053
Weakley Co	-88.5127	-88.9566	36.0677	36.4999
White Co	-85.2114	-85.6672	35.7971	36.0891
Williamson Co	-86.603	-87.2138	35.7039	36.0561
Wilson Co	-86.0058	-86.5817	35.9563	36.3504

VITA

Yun Fat Lam was born in Hong Kong, China on March 10, 1979. He was raised there and graduated from Lingnan Secondary School in 1996. From there, he went to United States as an exchange student for a year. After that, he entered to the University of Tennessee-Knoxville and received a B.S. in civil engineering with a minor in environmental engineering in 2001. After graduation, he was accepted to the environmental engineering graduate school at the University of Tennessee-Knoxville. Mr. Lam shall receive a M.S. in the fall of 2004 in environmental engineering with concentrations in air quality and solid/hazardous waste management.