



# **TECHNICAL SUPPORT DOCUMENT**

## **Changes to the Rules of the State Implementation Plan**

Division of Environmental Quality

Office of Air Quality

## **Executive Summary**

This technical support document demonstrates how proposed amendments to Arkansas Pollution Control and Ecology Commission (APC&EC) Rule 19 satisfy Clean Air Act requirements and requirements for state implementation plans under 40 CFR Part 50.

The Arkansas Pollution Control and Ecology Commission (APC&EC) is initiating a rulemaking to remove certain provisions from Rule 19 that have been approved into the federally enforceable Arkansas state implementation plan (SIP) that are outdated and not necessary to maintain clean air in the state. Specifically, the provisions to be repealed are provisions for the control of volatile organic compounds in Pulaski County in Chapter 10 of APC&EC Rule 19, and provisions for the Clean Air Interstate Rule in Chapter 14 of APC&EC Rule 19. This technical support document includes a Clean Air Act § 110(l) analysis that demonstrates that the EPA-approved SIP is sufficiently robust to protect the NAAQS statewide without the provisions to be repealed.

The proposed Rule 19 amendments will also address one EPA-identified deficiency within the Arkansas SIP related to the 2015 Startup, Shutdown, and Malfunction SIP Call<sup>1</sup> for Reg. 19.1004(H). With EPA-approval of the proposed removal of Rule 19 Chapter 10 from the Arkansas SIP, which is included in this submittal, deficiencies identified by EPA in Reg. 19.1004(H) will be addressed.

This technical support document also describes the basis for other changes made to Rule 19 that are part of the SIP.

Upon adoption of the amendments to Rule 19, DEQ will submit a SIP revision to EPA requesting that EPA update the SIP to reflect these amendments.

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<sup>1</sup> 80 FR 33840: June 12, 2015

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## **I. Introduction**

### **A. Arkansas State Implementation Plan**

The Arkansas state implementation plan (SIP) is the air quality protection strategy implemented by the Department of Energy and Environment's Division of Environmental Quality (DEQ) pursuant to the Clean Air Act. The SIP consists of laws and rules, nonregulatory and quasi-regulatory measures, and other state enforceable requirements codified at 40 CFR § 52 Subpart E. The Arkansas SIP is federally enforceable. The SIP was first approved by the United States Environmental Protection Agency (EPA) in 1972 (37 CFR 10841). All subsequent revisions to the SIP require EPA approval.

Certain provisions in Arkansas Pollution Control and Ecology Commission (APC&EC) rules have been submitted by DEQ and approved by EPA into the Arkansas SIP. When rules that have been approved into the Arkansas SIP change, DEQ must submit a SIP revision for approval to EPA to update the SIP to reflect the changes. Until EPA approves the SIP revision, the older version of the rule that has been approved by EPA continues to be federally enforceable.

### **B. Proposed Amendments to SIP-Approved Rule 19 Provisions**

APC&EC proposes to repeal the following chapters from Rule 19:

- APC&EC Rule 19, Chapter 10—*Rules for the Control of Volatile Organic Compounds in Pulaski County*
- APC&EC Rule 19, Chapter 14—*CAIR NO<sub>x</sub> Ozone Season Trading Program General Provisions*

This technical support document demonstrates that these provisions are not necessary to fulfill Arkansas's Clean Air Act requirements and removal will cause no harm to air quality.

The repeal of Chapter 10 of Rule 19 affects area sources in Pulaski County; however, these sources are generally also regulated by equivalent or more stringent new source performance standards (NSPS) and national emissions standards for hazardous air pollutants (NESHAP). This action also addresses one provision identified in EPA's 2015 SSM SIP Call, Reg. 19.1004(H).

The repeal of Chapter 14 of Rule 19 will not affect any sources. The CAIR program that was implanted through provisions in Chapter 14 is vacated and no longer in effect. Emissions addressed by the CAIR program are now addressed by CSAPR.

APC&EC also proposes the following amendments to Rule 19:

- Revisions to the following definitions in Rule 19, Chapter 2:

- CO<sub>2</sub> equivalent emissions – updated the reference date to federal citation Table A-1 to Subpart A of 40 C.F.R. Part 98 to the most recent version. (79 FR 73750)
- Volatile organic compounds – updated the definition of this term based on recent federal exemptions to the list of compounds. (83 FR 61127)
- Addition of section 19.105 Incorporation by Reference, to clarify what Rule 8.817(C) already requires of referenced law in other APC&EC Rules. This change clarifies that those federal requirements that are incorporated into Rule 19 with no explicit “as of” date will auto-update to the effective date of Rule 19 with each subsequent revision of the Rule.
- Inclusion verbatim the provisions of Rule 8.204(B) related to Disclosure Statements, where it was previously incorporated by reference in Rule 19 at 19.407(B), Administrative Procedures-Changes in Ownership. This rolls back changes made in 2010 that were not approvable into the Arkansas state implementation plan because Rule 8.204(B) is not part of the state implementation plan.
- Removal of the effective date associated with Appendix W of 40 C.F.R. Part 51 (Guideline on Air Quality Models) in Rule 19.412(A). Striking this language has the effect of ensuring that updates to Rule 19 capture the most recent reference to Appendix W as of the effective date of the Rule 19 amendment. This change is necessary because DEQ is required under the Clean Air Act to use the most recent version of Appendix W when performing air quality modeling. This is done in practice pursuant to DEQ’s authority to approve alternative models with concurrence of EPA. For the purposes of this rulemaking, removal of the date would explicitly require the use of the most recent update to Appendix W, which was effective on February 16, 2017 (82 FR 5182).
- Updates Rule 19, Chapter 8 111(d) Designated Facilities, to include facility closures, name changes, and other minor corrections. Substantive changes include proposed revisions to 19.804(B), so that Rule 19 compliance testing provisions for designated facilities are no more stringent on existing sources than EPA’s regulation of new sources. Removing the effective date cited for 40 C.F.R. § 60.8 has the effect of referring to the federal provision as it exists on the effective date of Rule 19. 40 C.F.R. § 60.8 was last updated on August 30, 2016 with an effective date of October 3, 2016 (81 FR 59809).
- Addition of section 19.904(H) to clarify air quality modeling requirements for the Prevention of Significant Deterioration. This section is taken verbatim from Rule 19.412, applicable to Minor Sources, to make explicit the requirement to use the latest EPA-approved models, which was not clear from the incorporation by reference of 40 C.F.R. 52.21(l) as of November 29, 2005. Appendix W, the modeling guidelines, have been updated since that time. (82 FR 5182)
- Revision of Rule 19, Chapter 15 Regional Haze, to remove informational language related to Subject-to-BART sources and BART-eligible sources and to remove emission limits that were disapproved by EPA. EPA-approved requirements pertaining to Planning Period 1 of the Regional Haze program are retained.

Additional non-substantive changes were proposed throughout Rule 19.

## **II. Anti-Backsliding Demonstrations**

Section 110(l) of the Clean Air Act (CAA) indicates that EPA cannot approve a SIP revision if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (RFP), or any other applicable requirement of the CAA. EPA will approve a SIP revision that removes or modifies a control measure in the SIP only after the State has demonstrated that the removal or modification will not interfere (“noninterference”) with attainment of the NAAQS, rate of progress, RFP, or any other applicable requirement of the CAA.

In this technical support document, DEQ demonstrates that the provisions requested for removal from the SIP are not necessary to protect air quality in the state. DEQ further explains that preexisting federal and state regulatory provisions for air quality protection are equivalent in their degree of protectiveness to those to be removed from Rule 19, and that applicable requirements of the CAA will be legally adequate in the absence of the vacated provisions.

### **A. APC&EC Rule 19, Chapter 10**

Chapter 10 of Rule 19, *Rules for the Control of Volatile Organic Compounds in Pulaski County*, was approved into the Arkansas SIP on January 29, 1980 (45 FR 06569).

A Federal Register action published on March 3, 1978 (43 FR 08962) determined that Pulaski County, Arkansas, did not meet the primary ambient ozone standard and classified the county as being in nonattainment for ozone. The provisions currently contained in Rule 19, Chapter 10, were developed as part of the SIP to reduce ozone levels in Pulaski County. The APC&EC adopted the provisions on March 23, 1979, and EPA conditionally approved them on January 29, 1980. Pulaski County was redesignated to attainment status in 1984 (49 FR 37753, Sept. 26, 1984), and it has remained in attainment of the ozone NAAQS for over three decades, as the stringency of the ozone NAAQS has increased over time.

Appendix A to this technical support document provides a robust demonstration showing that removal of Rule 19, Chapter 10, will not have adverse air quality impacts. Appendix A examines the primary driver(s) for ozone formation in Pulaski County, the inventory of volatile organic compounds (VOC) emissions in Pulaski County over time, and other regulations that address ozone precursors that will remain in place after Rule 19, Chapter 10, is removed.

Evidence suggests that VOC emissions are not the primary driver of ozone formation in Pulaski County. VOC emissions have increased in Pulaski County since 1984 while ozone levels have continued to decline. The majority (approximately fifty-four percent of VOC emissions in Pulaski County are biogenic in nature and not controllable. In addition, modeling by EPA and

others demonstrates that in most parts of the United States, including all of Arkansas, the chemical reaction driving ozone formation is limited by nitrogen oxides (NO<sub>x</sub>) concentrations rather than VOC concentrations.

Many federal regulations that control NO<sub>x</sub> and VOC emissions have been enacted since Pulaski County's redesignation to attainment status. These regulations serve to control VOC emissions from specific source categories and are at least as effective in reducing emissions in Pulaski County as the Pulaski County-specific VOC provisions contained in Chapter 10 of Rule 19.

Removal of Chapter 10 of Rule 19 will also address one component of the 2015 SSM SIP Call for Arkansas, in which EPA determined Reg. 10.1004(H) was inadequate to meet CAA requirements. By removing the chapter, the provision at Reg. 10.1004(H) will no longer be relevant to the 2015 SSM SIP Call.

#### **B. APC&EC Rule 19, Chapter 14**

Repeal of Chapter 14 of Rule 19 will remove provisions that are no longer implemented by the DEQ because they rely upon a federal program that no longer exists.

On August 10, 2007, DEQ submitted a SIP revision to meet CAIR NO<sub>x</sub> ozone season requirements by requiring certain electric generating units (EGUs) to participate in the EPA-administered CAIR program. To demonstrate compliance with CAIR NO<sub>x</sub> ozone season requirements, the 2007 SIP revision included provisions Reg. 19.1401–19.1404 which were adopted by APC&EC into Rule 19 on June 22, 2007. EPA approved this SIP revision on September 26, 2007 (72 FR 54556).

On September 16, 2009, DEQ submitted to EPA a SIP revision including amendments to Rule 19, Chapter 14, which were adopted by APC&EC on December 5, 2008 and June 26, 2009. These amendments corrected typographical errors and incorporated changes made by EPA to CAIR on October 19, 2007. EPA approved this SIP revision on April 17, 2014 (79 FR 21631).

On August 8, 2011, EPA promulgated the CSAPR federal implementation plan (FIP), which was intended to replace CAIR. However, CSAPR was stayed prior to implementation and later vacated by the U.S. Court of Appeals for the D.C. Circuit. On April 29, 2014, the Supreme Court reversed the D.C. Circuit's decision vacating CSAPR. In response, EPA published a rule on December 3, 2014, in which the compliance deadlines with CSAPR were revised in response to the D.C. Circuit Court decision. CAIR remained in effect until the CSAPR FIP became effective on January 1, 2015 (79 FR 71663).

On September 7, 2016, the EPA finalized an update to CSAPR for the 2008 ozone NAAQS by issuing the final CSAPR Update (80 FR 75706). This rule finalized CSAPR FIPs to reduce summertime NO<sub>x</sub> emissions from power plants in twenty-two states, including affected units in Arkansas.

Because CAIR is no longer in effect, the provisions in Rule 19, Chapter 14, is no longer necessary. Interstate transport obligations for the 1997 and 2008 ozone NAAQS are satisfied by participation of Arkansas EGUs in the CSAPR FIP NO<sub>x</sub> ozone season trading program.





## **Appendix A:**

# **Clean Air Act 110(I) Anti-Backsliding Demonstration for Repeal of VOC Regulations of Pulaski County**

Division of Environmental Quality

Office of Air Quality

**Appendix A: Clean Air Act 110(l) Anti-Backsliding Demonstration for Repeal of VOC  
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## **I. Introduction**

This demonstration examines modeling data, VOC emission trends in the state, including Pulaski County, and outlines the effects of VOC and other emissions on ozone formation. Also discussed are additional provisions for the control of ozone precursors that will remain in place after Rule 19 Chapter 10, is removed from the SIP. Evidence herein demonstrates that removal of outdated provisions related to the control of VOC in Pulaski County will not adversely impact air quality in the state, and Arkansas's air program will continue to be protective of the ozone national ambient air quality standard (NAAQS).

Rule 19, Chapter 10, *Regulations for the Control of Volatile Organic Compounds in Pulaski County*, has been identified for removal because the control measures therein do not provide meaningful air quality benefits for Pulaski County. Specifically, the required controls are not necessary to ensure attainment and maintenance of the ozone NAAQS in Pulaski County. The decision to remove Rule 19, Chapter 10, from the SIP is based on several factors:

- (a) Pulaski County has remained in attainment of the ozone NAAQS for more than three decades despite continued increases in stringency of the ozone standard over time;
- (b) The largest contributor (fifty-four percent) to VOC emissions in Pulaski County is biogenic (natural) sources;
- (c) There are many federal rules in place to regulate VOC emissions from anthropogenic sources; and
- (d) The evidence suggests that VOC control is not an effective strategy for controlling ozone formation in Pulaski County.

This demonstration details the rationale and provides supporting evidence that the repeal of Rule 19, Chapter 10, and the subsequent withdrawal of the chapter from the EPA-approved SIP, meets requirements for removal under Clean Air Act § 110(l).<sup>1</sup>

## **II. Background**

Ozone forms in the lower atmosphere through a series of photochemical reactions involving oxides of nitrogen (NO<sub>x</sub>) and VOC. Therefore, strategies to reduce ground-level ozone typically focus on reducing emissions of one or both of these precursors. For Pulaski County, a VOC emission reduction strategy was implemented in the late 1970s and early 1980s, based on EPA guidance, to reduce ozone. The following paragraphs detail the timing and original rationale for adoption of the VOC strategy.

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<sup>1</sup> “Each revision to an implementation plan submitted by a State under this chapter shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 7501 of this title), or any other applicable requirement of this chapter.”

In 1978, EPA designated Pulaski County in Arkansas, which includes Little Rock, as a nonattainment area for ozone in accordance with Section 107 of the Clean Air Act (43 FR 8969, March 3, 1978). This designation was based on an ozone design value for Little Rock of 0.16 parts per million (ppm), which was 0.04 ppm higher than the NAAQS (0.12 ppm) at the time. The State of Arkansas opted to use the modified rollback model to determine the amount of additional VOC reductions required to bring the area back into attainment of NAAQS for ozone. Based on this model, the State found that, in order to produce a local reduction of ozone concentrations of 0.02 ppm, a presumed VOC reduction necessary for Pulaski County to meet NAAQS to be twenty percent. This reduction, in addition to 0.02 ppm reduction in transported ozone from upwind areas, was anticipated to result in attainment of the ozone NAAQS.

In 1979, the state developed a VOC control strategy. The use of standards, such as reasonably available control technology (RACT) and the Federal Motor Vehicle Control Program (FMVCP), defined the state's plan to achieve emission reductions through application of the aforementioned standards to existing major stationary sources, consistent with Control Technique Guidelines (CTG) promulgated by EPA. The State committed to adopt VOC control measures consistent with CTGs for major sources and adopted additional regulations for source categories not included on the CTG lists.<sup>2</sup> These control strategies were estimated in modeling analyses to reduce VOC by 26.5% overall, with 4.7% due to CTGs and 21.9% due to FMVCP. VOC reductions greater than the estimated twenty percent presumed to be necessary to attain the NAAQS were used to include a margin of safety and to allow for industrial growth in the area.

In 1979, the State amended a provision in the SIP that reduced the number of gasoline marketing facilities, including service stations, subject to Arkansas VOC rules by creating an exemption for low volume gasoline storage and marketing facilities.<sup>3</sup> The EPA approved this amended provision in 1982.

In October 1980, the State submitted a SIP revision to reflect use of RACT covered by CTGs for gasoline tank trucks and vapor collection systems, and surface coating of miscellaneous metal parts and products. The SIP revision included new definitions and established compliance dates, testing, and reporting. The EPA approved the changes August 1981.<sup>4</sup>

In 1981, the State adopted revisions to the VOC regulation for storage tanks with external floating roofs. The revision applied exemptions to storage tanks with vapor pressure exceeding 10.5 kilopascals. Criteria for exemptions included fitting the tank with a secondary seal, having

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<sup>2</sup>: EPA (1980). "Approval and Promulgation of State Implementation Plans; Arkansas Plan for Nonattainment Areas." 45 FR 6569-6572

<sup>3</sup> Governor's December 1979 letter to Adlene Harrison of EPA. Pg 8.

<sup>4</sup> EPA (1981). "Approval and Promulgation of State Implementation Plans: Arkansas Submission of Volatile Organic Compound (VOC) regulations for Set Control Technique Guideline Sources." 46 FR 43146.

no visible damage to the seals or fabric, and limiting the size of the gap area between the secondary seal and tank.<sup>5</sup>

In May 1984, the State requested a redesignation of attainment status for Pulaski County. Pulaski County had only four exceedances of the ozone NAAQS in 1980 and none in 1981 or 1982. EPA reviewed and approved the request to redesignate Pulaski County to attainment status for ozone in 1984 (49 FR 37753, Sept. 26, 1984).

### **III. Modeling to Support Removal of VOC Regulations for Pulaski County**

In 2017, EPA’s Office of Air Quality Planning and Standards, Air Modeling Group released modeling results of ozone sensitivity to NO<sub>x</sub> and VOC reductions as part of its Ozone Advance program guidance.<sup>6</sup> CMAQv5.1 modeling was conducted using 2011 as a base year over a forty-eight-state domain at a grid resolution of twelve kilometers to examine the effect on peak eight-hour ozone concentrations of fifty percent VOC reductions and fifty percent NO<sub>x</sub> reductions nationwide. Results also suggest that reductions in anthropogenic VOC emissions may be ineffective due to the overwhelming contribution to local VOC emissions by biogenic sources. Section IV of this technical support document demonstrates that this observation is true for Pulaski County.

The modeling results suggest that most of Arkansas sees no reduction in peak eight-hour ozone values with a nationwide reduction of VOC emissions. The exception is a very small part of northwest Arkansas that could see a modest (one to three parts per billion [ppb]) reduction. By contrast, most of Arkansas would see a seven to nine ppb reduction in peak ozone concentrations with a fifty percent nationwide reduction in NO<sub>x</sub> emissions, with the exception of a small part of eastern Arkansas near the Memphis metropolitan area for which a five to seven ppb reduction was modeled. The modeling results suggest a reduction in NO<sub>x</sub> emissions is four to five times more effective at reducing ozone than an equivalent reduction in VOC emissions.

### **IV. Emissions Inventory and Monitoring Data for Pulaski County**

#### **A. Pulaski County Volatile Organic Compound Emission Inventory**

The largest contributor of VOC emissions in Arkansas is natural (biogenic) sources.<sup>7</sup> Like the rest of Arkansas, the largest contributor to the VOC emission inventory in Pulaski County is biogenics.<sup>8</sup> Biogenics comprise fifty-four percent of the VOC emission inventory in Pulaski

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<sup>5</sup> Governor’s April 1981 letter to Fran Phillips of EPA

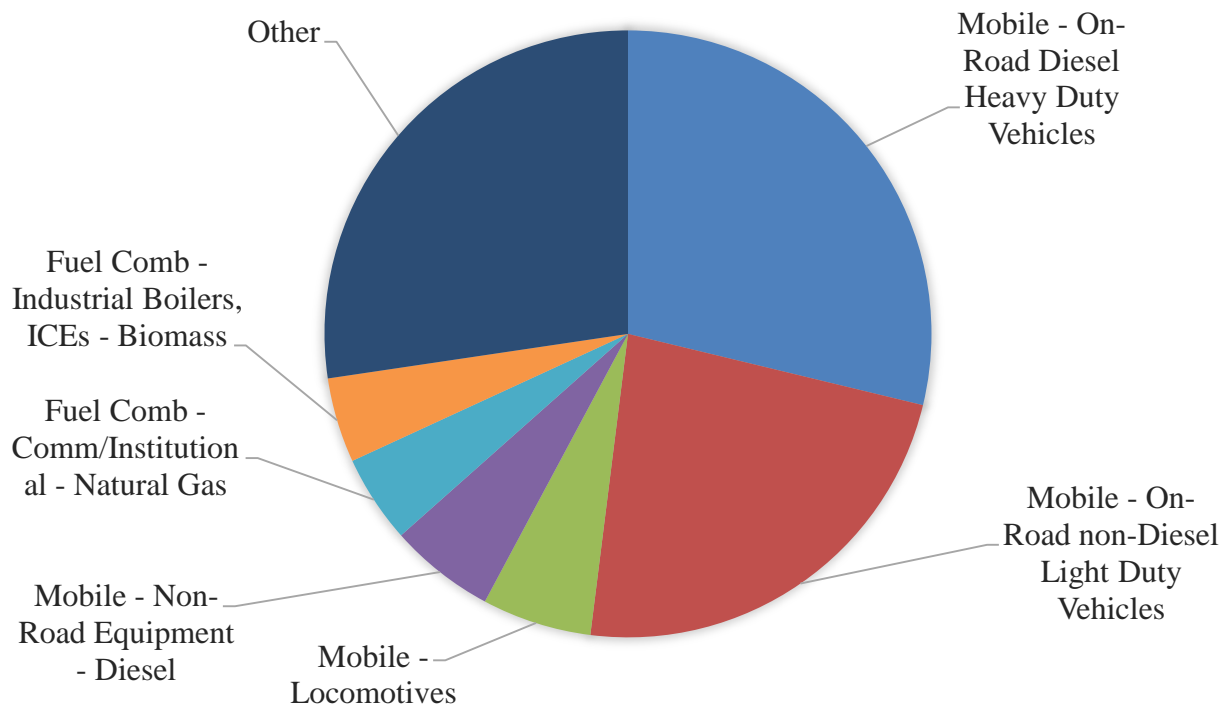
<sup>6</sup> EPA Office of Air Quality Planning and Standards, Air Quality Modeling Group (May 2017) “Supplemental Information for Ozone Advance Areas Based On Pre-Existing National Modeling Analyses”

<sup>7</sup> 2017 National Emissions Inventory Apr 2020 data set for Nonpoint, Onroad, Nonroad, and Event Sources Jun2020\_Pt dataset for Point sources

<sup>8</sup> Id.

County. Pulaski County, which is more urban than Arkansas in general, has a larger non-biogenic emission inventory than other areas of the State (forty-six percent versus ten percent). The largest non-biogenic contributor to the Pulaski County VOC emission inventory,—consumer and commercial solvent use—comprises approximately seven percent of the VOC inventory. Point sources contribute two percent to the VOC inventory in Pulaski County. Figure 1 breaks down the relative contribution of various sectors to the VOC inventory in Pulaski County.

Figure 1: Pulaski County 2017 VOC Emission Inventory



Rule 19, Chapter 10, *Regulations for the Control of Volatile Organic Compounds in Pulaski County*, included requirements for new major sources, RACT, emission offsets, and controls for the following processes:

- Gasoline storage and marketing
- Petroleum storage
- Cutback asphalt
- Gasoline tank trucks and vapor collection systems
- Surface coating of metal parts and products
- External floating roofs

The source classification codes (SCC) associated with the processes listed above and their relative contribution to the Pulaski County VOC inventory are included in Table 1.<sup>9</sup> The sum of emissions from all of these SCC codes was 1,309 tons in 2017—approximately five percent of the Pulaski County VOC emission inventory.

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<sup>9</sup> Note: These are total emissions by SCC that may be associated with the processes that were regulated under Rule 19.1005 and includes emissions from other processes associated with each SCC code that were not specifically regulated under Rule 19.1005.



Table 1: Relative Contribution to Total Pulaski County VOC inventory of Rule 19.1005 Regulated Processes by SCC Code

SCC	SCC Level-1	SCC Level-2	SCC Level-3	SCC Level-4	VOC Emissions (tons)	Percent of VOC inventory <sup>10</sup>
30500206*	Industrial Processes	Mineral Products	Asphalt Concrete	Asphalt Heater: Natural Gas	0	0%
40400113	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Gasoline RVP 13: Breathing Loss (250000 Bbl Cap.) - Floating Roof Tank	25.619	0%
40400123	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Other Liquids: Breathing Loss (Diam Independent) - Fixed Roof Tank	0.04	0%
40400130*	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Other Liquids: Breathing Loss - External Floating Roof w/ Primary Seal	0	0%
40400150	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Miscellaneous Losses/Leaks: Loading Racks	21.06	0%
40400151	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Valves, Flanges, and Pumps	1.07	0%
40400160	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Other Liquids: Breathing Loss - Internal Floating Roof w/ Primary Seal	0.872	0%
40400199	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Bulk Terminals	Other Not Classified	0.0307	0%
40400302*	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Oil and Gas Field Storage and Working Tanks	Fixed Roof Tank: Working Loss	0	0%

<sup>10</sup> Rounded to nearest whole percent.

SCC	SCC Level-1	SCC Level-2	SCC Level-3	SCC Level-4	VOC Emissions (tons)	Percent of VOC inventory <sup>10</sup>
40400412	Chemical Evaporation	Petroleum Liquids Storage (non-Refinery)	Petroleum Products- Underground Tanks	Jet Kerosene: Working Loss	0.17	0%
40688801	Chemical Evaporation	Transportation and Marketing of Petroleum Products	Fugitive Emissions	General	0.01	0%
2401001000	Solvent Utilization	Surface Coating	Architectural Coatings	Total: All Solvent Types	464.9702	0%
2401005000	Solvent Utilization	Surface Coating	Auto Refinishing: SIC 7532	Total: All Solvent Types	125.4708	0%
2401055000	Solvent Utilization	Surface Coating	Machinery and Equipment: SIC 35	Total: All Solvent Types	16.47377	0%
2401065000	Solvent Utilization	Surface Coating	Electronic and Other Electrical: SIC 36 - 363	Total: All Solvent Types	0.033109	0%
2401070000	Solvent Utilization	Surface Coating	Motor Vehicles: SIC 371	Total: All Solvent Types	5.274391	0%
2401075000	Solvent Utilization	Surface Coating	Aircraft: SIC 372	Total: All Solvent Types	14.43396	0%
2401080000	Solvent Utilization	Surface Coating	Marine: SIC 373	Total: All Solvent Types	3.696275	0%
2401090000	Solvent Utilization	Surface Coating	Miscellaneous Manufacturing	Total: All Solvent Types	12.02509	0%
2401100000	Solvent Utilization	Surface Coating	Industrial Maintenance Coatings	Total: All Solvent Types	71.8059	0%
2401200000	Solvent Utilization	Surface Coating	Other Special Purpose Coatings	Total: All Solvent Types	1.158182	0%
2501050120	Storage and Transport	Petroleum and Petroleum Product Storage	Bulk Terminals: All Evaporative Losses	Gasoline	179.7929	1%

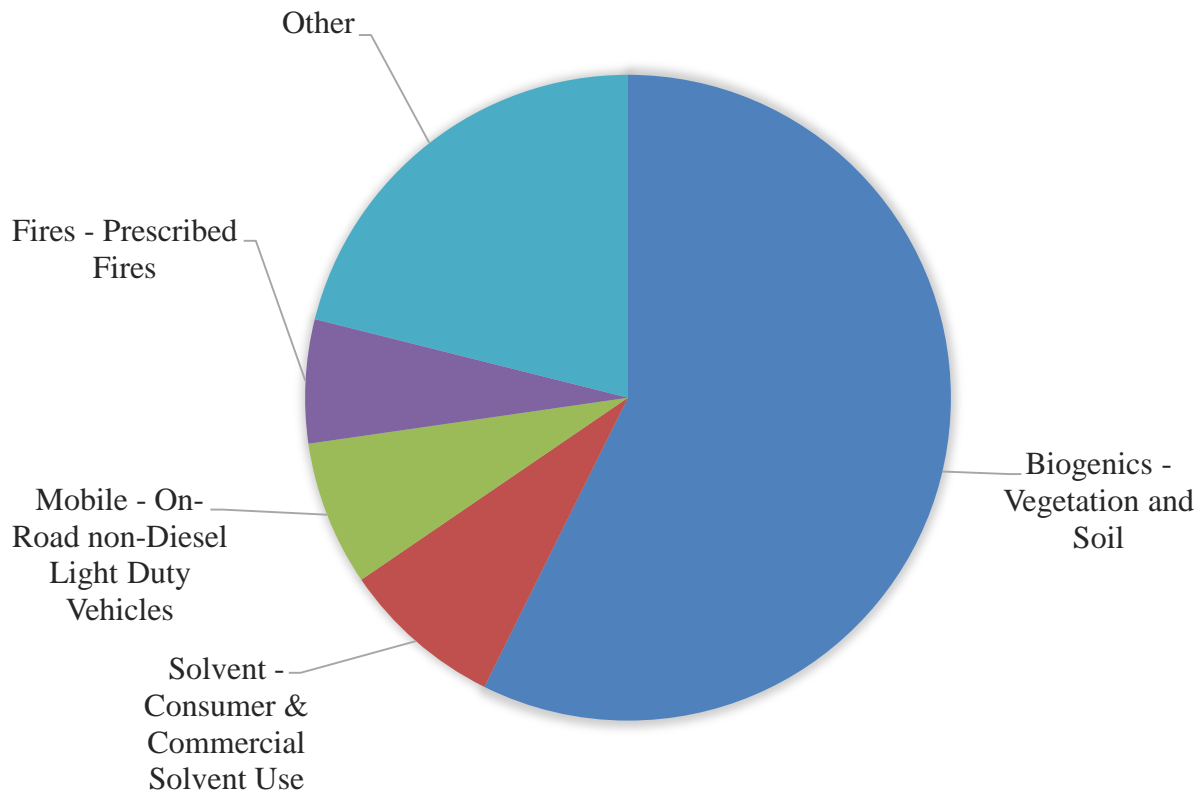
SCC	SCC Level-1	SCC Level-2	SCC Level-3	SCC Level-4	VOC Emissions (tons)	Percent of VOC inventory <sup>10</sup>
2501055120	Storage and Transport	Petroleum and Petroleum Product Storage	Bulk Plants: All Evaporative Losses	Gasoline	0.092299	0%
2501060051	Storage and Transport	Petroleum and Petroleum Product Storage	Gasoline Service Stations	Stage 1: Submerged Filling	80.53246	0%
2501060052	Storage and Transport	Petroleum and Petroleum Product Storage	Gasoline Service Stations	Stage 1: Splash Filling	0	0%
2501060053	Storage and Transport	Petroleum and Petroleum Product Storage	Gasoline Service Stations	Stage 1: Balanced Submerged Filling	139.1015	0%
2501060201	Storage and Transport	Petroleum and Petroleum Product Storage	Gasoline Service Stations	Underground Tank: Breathing and Emptying	135.9375	0%
2505030120	Storage and Transport	Petroleum and Petroleum Product Transport	Truck	Gasoline	8.890311	0%

\*VOC emissions were not reported for this source category in Pulaski County in the 2017 Emissions Inventory.

## B. Pulaski County Nitrogen Oxides Emission Inventory

Seventy-six percent of NOx emissions in Pulaski County come from mobile sources, including both on-road and non-road sources.<sup>11</sup> Point sources contribute approximately nine percent of emissions to the total Pulaski County NOx emission inventory. The largest contributing sectors to the Pulaski County NOx emission inventory are on-road diesel heavy duty vehicles—which contribute approximately twenty-nine percent of Pulaski County’s NOx emissions—and on-road non-diesel light duty vehicles—which contribute approximately twenty-three percent of Pulaski County’s NOx emissions. Figure 2 breaks down the relative contribution of various sectors to the NOx inventory in Pulaski County.

Figure 2: Pulaski County 2017 NOx Emission Inventory



Rule 19, Chapter 10, *Regulations for the Control of Volatile Organic Compounds in Pulaski County*, does not include requirements associated with the control of NOx emissions in Pulaski County

<sup>11</sup> 2017 National Emissions Inventory

### **C. Trends in Ozone Precursor Emissions and Monitored Ozone Concentrations in Pulaski County**

An examination of emissions of ozone precursors and monitored ozone concentrations in Pulaski County indicate that ozone concentrations in Pulaski County are not dependent upon VOC emissions. Ozone concentrations in Pulaski County have decreased markedly from 1980. A comparison of recent emission inventory data and ozone concentrations in Pulaski County indicate that ozone concentrations have decreased even as VOC concentrations in the county have increased.

Between 1980 and 2017, the ozone NAAQS was revised three times. In 1979, EPA promulgated a one-hour standard of 0.12 ppm with attainment defined as the expected number of calendar days per calendar year, with the maximum hourly average concentration greater than 0.12 ppm, equal to or less than one. In 1997, EPA revised both the level and form of the standard to 0.08 ppm based on the annual fourth highest daily eight-hour maximum concentration averaged over three years. EPA subsequently revised the level, but retained the form of the standard, in 2008 and 2015. The level of the current standard is 0.07 ppm. To determine attainment status, a design value is computed based on time-weighted averages of the criteria pollutant in the air and the form of the standard. This design value is then compared to the standard.

Because the standard has been revised multiple times, including the form and averaging period, over the period between the initial nonattainment designation for Pulaski County and the present, the figures below illustrate annual trends in time-weighted average concentrations rather than design values. Figure 3 illustrates the number of daily one-hour exceedances of the 1980 0.12 ppm standard per year. Figure 4 illustrates the trend in the fourth highest daily maximum eight-hour concentration.

Figure 3: Pulaski County Monitored Daily One-Hour Exceedances of 0.12 ppm

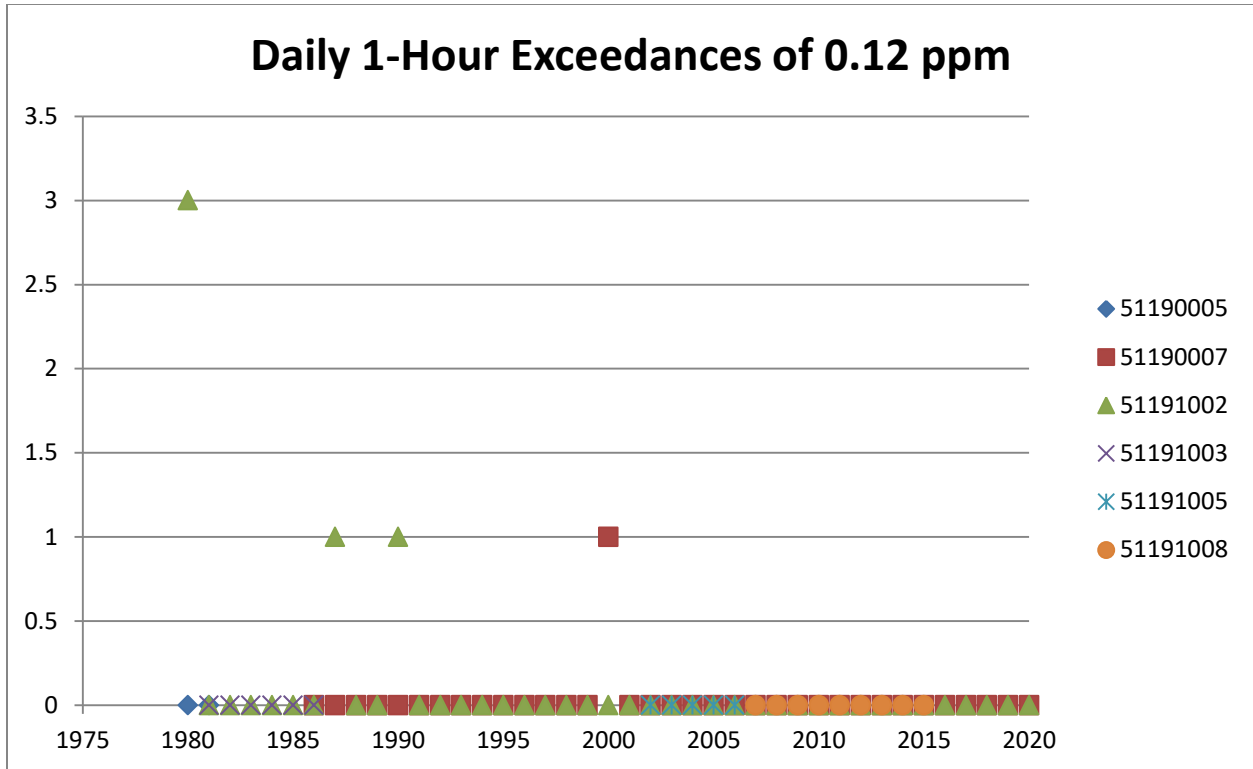
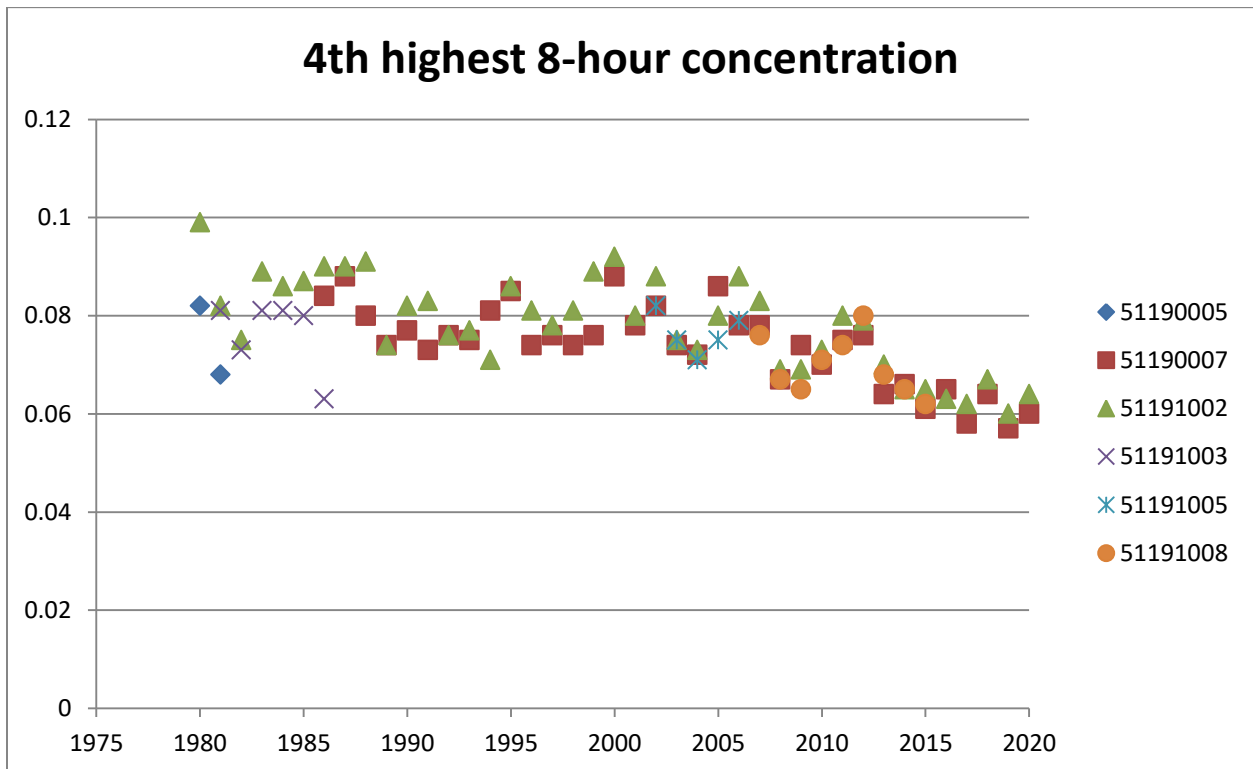


Figure 4: Pulaski County Monitored Fourth Highest Daily Maximum Eight-Hour Concentration



#### D. Comparison of Ozone Precursor Trends and Ozone Concentration Trends

Although DEQ does not have comprehensive emission inventory data spanning back to the 1980s, DEQ has compared recent trends in emission inventory with recent trends in ozone concentrations. Between 2002 and 2017, the eight-hour ozone design value for Pulaski County decreased by twenty-seven percent. During this same period, VOC emissions in Pulaski County increased by fourteen percent through 2017 and NOx emissions decreased by forty-four percent. This evidence suggests that ozone concentrations in Pulaski County have not been influenced by the changes in VOC emissions. Table 2 compares Pulaski County NOx and VOC emissions for each National Emission Inventory year from 2002–2017 to the three-year eight-hour ozone design value for Pulaski County for each corresponding year.

Table 2: Comparison of 2002–2017 VOC and NOx Emissions to Ozone Eight-hour Design Values

	<b>NOx Emissions (Tons)</b>	<b>VOC Emissions (Tons)</b>	<b>Ozone Design Value (Parts Per Million)</b>
<b>2002</b>	20,074	23,471.3	0.086
<b>2005</b>	18,337.46	21,712.18	0.077
<b>2008</b>	18,737.1	36,401.16	0.080
<b>2011</b>	17,998.51	37,895.49	0.074
<b>2014</b>	14,451.2	36,410.76	0.071
<b>2017</b>	11,247.23	27,374.51	0.063

#### V. Specific Provisions of VOC Control Regulations for Pulaski County and Applicable Federal Standards

Specific provisions of the Pulaski County VOC control regulations were based on CTGs developed by EPA to define RACT for specific source categories in nonattainment areas. Most of the sources covered by the Pulaski County VOC regulation provisions are now covered by updated federal emissions standards. Therefore, removal of the VOC regulations for Pulaski County from the SIP is not anticipated to result in significant increases of VOC emissions.

##### A. Gasoline Storage and Marketing

Provisions in Rule 19.1005(A) call for specific gasoline emission control measures for gasoline storage and marketing facilities. These requirements are not necessary because more recent federal requirements for gasoline storage and dispensing have been promulgated: National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subparts CCCCCC (last revised January 24, 2011, 76 FR 4181), BBBBBB (last revised January 24, 2011, 76 FR 4176), and R (last revised December 22, 2008, 73 FR 78213).

Rule 19.1005(A) regulates the loading of gasoline into a storage tanks or delivery vessels at gasoline storage or marketing facilities in Pulaski County. NESHAP Subpart BBBBBB regulates the loading of gasoline into storage tanks and cargo tanks (delivery vessels) at area source gasoline bulk terminals, bulk plants, pipeline breakout stations and pipeline pumping stations nationwide. NESHAP Subpart BBBBBB also includes requirements for gasoline storage tanks and leak inspection for subject sources. NESHAP Subpart CCCCCC regulates loading of gasoline at area source gasoline dispensing facilities nationwide. NESHAP Subpart R regulates loading and storage of gasoline at bulk gasoline terminals and pipeline breakout stations that are at a major source.

Rule 19.1005(A)(1), requires that loading of gasoline into a storage tank of a gasoline storage or marketing facility with a monthly throughput in excess of 10,000 gallons may only occur through a submerged fill pipe or by bottom loading. Rule 19.1005(A)(1) includes an exception for storage tanks with less than 4,000 liters (1,000 gallons) capacity. NESHAP Subpart BBBBBB contains similar provisions for loading gasoline into storage tanks and cargo tanks at area source gasoline bulk plants; however, the requirement in NESHAP Subpart BBBBBB is not limited to facilities with a monthly throughput in excess of 10,000 gallons. In addition, tanks smaller than 250 gallons in capacity are not required to use a submerged fill pipe for loading. For those sources to which NESHAP Subpart BBBBBB requirements for gasoline loading are applicable, the requirements are at least as stringent as Rule 19.1005(A)(1).

Similar to Rule 19.1005(A)(1), NESHAP Subpart CCCCCC also requires loading of gasoline through a submerged fill pipe for gasoline dispensing facilities with a throughput of 10,000 gallons per month or greater, except for tanks with a capacity less than 250 gallons. In addition, NESHAP Subpart CCCCCC requires measures to prevent spills and vapor releases for facilities with a throughput less than 10,000 gallons monthly throughput and a vapor balance system for facilities with a monthly throughput of 100,000 gallons or more. For those sources subject to NESHAP Subpart CCCCCC, the requirements are at least as stringent as Rule 19.1005(A)(1).

Rule 19.1005(A)(2) and (A)(3) establish requirements for loading of gasoline into delivery vessels at bulk plants based on daily throughput. Rule 19.1005(A)(2) requires submerged fill pipe or bottom loading for loading of gasoline delivery vessels for facilities with a daily throughput less than 87,000 liters (23,000 gallons) at gasoline bulk facilities. Rule 19.1005(A)(3) requires a vapor control system to prevent emissions of gasoline vapors at a rate in excess of eighty milligrams per liter for facilities with daily throughput of 87,000 liters (23,000 gallons) or more.

NESHAP Subpart BBBBBB also establishes requirements based on daily throughput for gasoline racks at area source gasoline distribution bulk terminals, pipeline breakout stations, and pipeline pumping stations. Gasoline loading racks at these facility types with daily throughput less than 250,000 gallons are required to use submerged pipe for loading gasoline. Gasoline loading racks with a daily throughput of more than 250,000 gallons are required to equip a vapor



collection system that limits emissions of total organic compounds to eighty milligrams per liter of gasoline loaded. For sources with a daily throughput between 23,000 gallons and 250,000 gallons, the requirements of Rule 19.1005(A)(3) may be more stringent. With this exception, NESHAP Subpart BBBBBB is just as stringent as Rule 19.1005(A)(2) and (3) for subject facilities. A submerged fill pipe is also required for loading at area source gasoline bulk plants regardless of daily throughput if the tank capacity is 250 gallons or greater.

NESHAP Subpart R also includes emission control requirements for the loading of gasoline delivery vessels (cargo tanks) at major source bulk gasoline terminals that have a screening factor greater than one due to the terminal's operational parameters. Gasoline loading at facilities that do not screen out must have a vapor collection and processing system restricting emissions to less than ten milligrams of total organic compounds per liter of gasoline loaded, which is more stringent than required under Rule 19.1005(A)(3) for sources to which the requirement is applicable.

All three Subparts address recordkeeping requirements; however, Rule 19.1005(A) does not include specific recordkeeping requirements. Recordkeeping requirements generally applicable under Rule 19 are contained in Chapter 7. The NESHAP Subparts also discuss facility performance testing and the prevention and minimization of leaks and vapor releases.

## **B. Petroleum Liquid Storage**

Regulation 19.1005(B) calls for specific requirements for storage of petroleum liquids. Federal standards that have been promulgated for this source type include New Source Performance Standards (NSPS) 40 CFR Part 60 Subparts K, Ka, and Kb.

Rule 19.1005(B)(1) requires owners of facilities storing volatile organic compounds with a true vapor pressure more than 10.5 kilopascals (1.52 psia) in tanks with a capacity greater than or equal to 150,000 liters (approximately 39,000 gallons) to:

- (a) Meet equipment specifications and maintenance requirements of 40 CFR 60.110;
- (b) Be retrofitted with a floating roof or internal floating cover using a non-metallic resilient seal as primary seal meeting specifications referred to in Rule 19.1005(B)(1)(a) or its equivalent; or
- (c) Have a covered floating roof or internal floating cover that is maintained in effective working order and meets the manufacturer's equipment specifications in effect at the time it was installed.

NSPS Subpart K at 40 CFR § 60.110 applies to vessels with a tank capacity greater than 151,412 liters. Applicable requirements under 40 CFR § 60.110 differ based on vessel size classes: to vessels with capacities greater than 151,416 liters and less than or equal to 246,052 liters and constructed after March 8, 1974 and before May 19, 1978 and vessels with capacities greater than 246,052 liters that were constructed after June 11, 1973 and before May 19, 1978. NSPS

Subpart Ka at 40 CFR § 60.110a applies to storage vessels having a capacity greater than 151,416 liters but less than 1,589,873 liters. The Subpart further delineates vessel applicability with a commencement date starting after May 18, 1978 and a true vapor pressure that measures greater than or equal to 10.3 and less than or equal to 76.6 kPa. NSPS Subpart Kb at 40 CFR § 60.110b applies to storage vessels having a capacity greater than or equal to seventy-five cubic meters (75,000 liters) with a true vapor pressure greater than fifteen kPa or a capacity greater than or equal to 151,000 liters with a true vapor pressure greater than 3.5 kPa where construction or reconstruction started after July 23, 1984. DEQ finds that for NSPS Subpart K and Subpart Ka, the vessel capacity size to which the NSPS requirements apply is similar to, but less inclusive than in Rule 19.501(B)(1). However, the vessel capacity size described in the applicability for NSPS Subpart Kb is approximately half that in Rule 19.1501(B)(1) and, therefore, more inclusive for those vessels constructed after July 23, 1984.

Similar to Rule 19.1005(B)(1), each of the NSPS Subparts provide compliance options including use of a floating roof, covered floating roof, or internal floating roof. A vapor collection system or equivalent to any of the equipment options is also permissible under the NSPS Subparts. For higher vapor pressures the NSPS Subparts require a vapor recovery system or its equivalent. Rule 19.1005(B)(1)(a) also provides that compliance with the equipment and maintenance requirements at 40 CFR § 60.110 satisfies the requirements of Rule 19.1005(B)(1). DEQ finds that the control equipment requirements of NSPS Subparts K, Ka, and Kb are at least equivalent to and in some cases more stringent than Rule 19.1005(B).

Rule 19.1005(B)(2) requires all seals necessary to meet the requirements of Rule 19.1005(B)(1)(b) and (c) are maintained in good operating condition. All three NSPS Subparts provide in greater detail how control equipment is to be maintained and tested.

Rule 19.1005(B)(3) requires all openings, except stub drains and those related to safety, are to be sealed with suitable closures when not in use. NSPS Subparts Ka and Kb provide more detailed requirements regarding seals and closures.

Based on DEQ's review of NSPS Subparts K, Ka, and Kb, DEQ has determined that petroleum liquid storage vessels regulated under Rule 19.1005(B) are also regulated by NSPS requirements that are at least as stringent as Rule 19.1005(B).

### **C. Cutback Asphalt**

Rule 19, Chapter 10 restricts the application of cutback asphalt, except when used as a penetrating prime coat only, to general application only when the ambient temperature is below fifteen degrees Celsius (fifty-nine degrees Fahrenheit). This restriction has historically created a conflict with practices of the Arkansas Department of Transportation. CTGs do not specify a temperature range at which cutback asphalt may or may not be used. Decisions about the use of

cutback asphalt are left to the states and are made on a case-by-case basis. VOC emissions from asphalt application in Pulaski County account for far less than one percent of the VOC emission inventory. Repealing the temperature requirement for cutback asphalt application in Pulaski County is not expected to lead to a significant increase in VOC emissions.

The EPA publication, Control of Volatile Organic Compounds From Use of Cutback Asphalt, EPA-450/2-77-037, December 1977 (OAQPS NO. 1.2-090), describes RACT for the use of cutback asphalt in ozone nonattainment areas.

#### **D. Gasoline Tank Trucks and Vapor Collection Systems**

Gasoline Tank Truck and Vapor Collection System provisions included in Rule 19, Chapter 10 were based on the CTG “Control of Volatile Organic Compound Leaks Gasoline Tank Trucks and Vapor Collection Systems.”

Regulation 19.1005(D) specifies requirements for gasoline tank trucks and vapor collection systems. Federal standards that have been promulgated for this source type include NESHAP 40 CFR Part 63 Subparts R, BBBB, and CCCCC. Rule 19.1005(D) is applicable to all gasoline tank trucks and vapor recovery systems in Pulaski County. The referenced NESHAPs are applicable nationwide, but each cover a subset of sources covered under Rule 19.1005(D).

Rule 19.1005(D)(1) includes requirements applicable to all gasoline tank trucks in Pulaski County. NESHAP Subpart R applies to bulk gasoline terminals, but also includes vapor tightness requirements for gasoline cargo tanks, including gasoline tank trucks and railcars loading gasoline at subject bulk gasoline terminals. NESHAP Subpart BBBB applies to area source bulk gasoline terminals and pipeline breakout stations not subject to NESHAP Subpart R, as well as area source pipeline pumping stations and area source bulk gasoline plants. NESHAP Subpart BBBB includes requirements for gasoline cargo tanks, including gasoline tank trucks and railcar cargo tanks, loading gasoline at subject area sources. NESHAP CCCCC includes requirements for gasoline dispensing facilities (GDF), but also includes requirements for gasoline cargo tanks, including gasoline tank trucks and rail cars, unloading at GDFs with a monthly throughput of 100,000 gallons of gasoline or more.

Rule 19.1005(D)(1) requires that each subject gasoline tank truck is tested for leak tightness based on procedures approved by the Director that are consistent with the procedures described in “Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems,” EPA-450/2-78-051. This method is a pressure and vacuum test that must be performed annually. NESHAP Subparts BBBB and CCCCC require an annual certification test using a pressure-based test or bubble leak test for gasoline cargo tanks at subject facilities. NESHAP Subpart R requires an annual certification of gasoline cargo tanks at subject facilities using a pressure and vacuum test.

Rule 19.1005(D)(2) specifies requirements for vapor collection systems for gasoline loading and unloading operations. Specifically, Rule 19.1005(D)(2) requires (a) that a vapor collection system and gasoline loading equipment (i) prevents gauge pressure from exceeding 4,500 pascals and vacuum from exceeding 1,500 pascals in the gasoline tank truck; (ii) prevents a reading greater than or equal to one hundred percent of the lower explosive limit at 2.5 centimeters from all points of a leak source; and (iii) prevents avoidable visible liquid leaks during loading or unloading operations at gasoline dispensing facilities, bulk plants, and bulk terminals. NESHAP Subpart R, BBBB, and CCCCC specify that vapor collection systems be operated so as not to exceed the applicable certification test limits—which are based on pressure and vacuum change—for gasoline cargo tanks. All three NESHAP Subparts include requirements to prevent spills and vapor release for subject facilities. While the NESHAP Subparts contain different metrics than Rule 19.1005(D)(2) for vapor collection system and gasoline loading equipment into gasoline tank trucks (gasoline cargo tanks), both Rule 19.1005(D)(2) and the NESHAP Subparts requirements are designed to prevent the release of vapors during gasoline loading and unloading operations.

#### **E. Surface Coating of Metal Parts and Products**

The metal surface coating VOC provisions in Rule 19 Chapter 10 were based on the CTG “Control of Volatile Organic Emissions from Stationary Sources - Volume VI: Surface Coating of Miscellaneous Metal Parts and Products.”<sup>12</sup>

Regulation 19.1005(E) specifies requirements for surface coating of metal parts and products. The following federal standards also regulate surface coating of metal parts and products: NESHAP Subparts KKKK, SSSS, MMMM, and RRRR, and NSPS Subparts TT and EE. Rule 19.1005(E) sets VOC emission limits based on the type of surface coating and specifies how these emission limits shall be met. NSPS Subparts TT and EE also set VOC emission limits and controls; whereas, NESHAP Subparts KKKK, SSSS, MMMM, and RRRR establish emission standards for hazardous air pollutants (HAP). These HAP are also VOC.

Rule 19.1005(E) is applicable to all metal surface coating operations in Pulaski County. NSPS Subpart TT is applicable nationwide to metal coil surface coating operations that commenced construction, modification, or reconstruction after January 5, 1981. NSPS Subpart EE is applicable nationwide to new, modified, or reconstructed metal furniture surface coating operations for which construction commenced after November 28, 1980. Facilities that use less than 3,842 liters of coating per year and keep purchase or inventory records may be exempted from requirements under NSPS Subpart EE. NESHAP Subpart KKKK is applicable nationwide to metal can surface coating operations that use 5,700 liters per year or more of coatings and that is a major source, is located at a major source, or is part of a major source of emissions of HAP. NESHAP Subpart SSSS is applicable nationwide to metal coil surface coating operations at a

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<sup>12</sup> “Control of Volatile Organic Emissions from Stationary Sources - Volume VI: Surface Coating of Miscellaneous Metal Parts and Products.” EPA-450/2-78-015 (OAQPS No. 1.2-101) June 1978.

facility that is a major source of HAP with some exceptions for coil coating line that is part of research or laboratory equipment and coil coating line on which at least eighty-five percent of the metal coil coated is less than 0.15 millimeter thick. NESHAP Subpart MMMM is applicable nationwide for surface coating of miscellaneous metal parts and products with certain exceptions. NESHAP Subpart RRRR is applicable nationwide for metal furniture surface coating operations located at major sources of HAP emissions with certain exceptions.

Rule 19.1005(E)(1) establishes the following VOC emission limits from application systems (excluding water) from coating and solvent washing unless solvent is routed into evaporation-preventing containers:

- (a) 0.52 kilograms/liter (kg/l) of coating through an applicator of clear coats;
- (b) 0.42 kg/l of coating through a system that uses air or forced air dryers;
- (c) 0.42 kg/l of coating through a system that applies extreme performance coating;  
and
- (d) 0.36 kg/l of coating for all other types of coating systems.

Rule 19.1005(E)(2) requires the compliance with the more stringent emission limitation if multiple emission limitations apply to a given operation.

The emission limits contained in NSPS Subpart TT at 40 CFR § 60.462 are more stringent than any of the emission limits contained Rule 19.1005(E)(1). EPA claims that NSPS Subpart TT would reduce VOC emissions from a typical plant by approximately seventy-two percent in states that had adopted the CTG level of control that is represented in Rule 19.1005(E)<sup>13</sup>. The emission limits contained in the relevant NESHAPs are not directly comparable to the emission limits in Rule 19.1005(E) because the emission limits are set for HAPs rather than total VOC.

Rule 19.1005(E)(3) requires compliance with the emission limits at Rule 19.1005(E)(1) to be achieved by use of:

- (a) A low solvent coating technology;
- (b) A system that, at minimum, oxidizes ninety percent of non-methane VOC; or
- (c) Director-approved equivalent means of VOC removal.

Rule 19.1005(E)(4) requires that, for those operations that choose to comply with Rule 19.1005(E)(3)(b) or (c), a capture system that provides an overall VOC emission reduction efficiency of at least eighty percent must also be used. NSPS Subparts TT and EE do not require use of a certain technology to achieve the emission standards, but they provide a more thorough description of monitoring, test methods, and procedures requirements than Rule 19.1005(E).

NESHAP Subpart KKKK offers four compliance options:

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<sup>13</sup> See Rule Summary at <https://www.epa.gov/stationary-sources-air-pollution/metal-coil-surface-coating-new-source-performance-standards-nsps>

- (a) Use of emission limit-compliant material for coating;
- (b) Meeting the emission rate without add-on control;
- (c) Meeting use of emission capture systems and add on controls; and
- (d) Demonstration that total hydrocarbon are reduced by ninety-five percent or greater by emission capture systems and add-on controls or that outlet total hydrocarbon emissions are less than or equal to twenty ppm by volume, dry basis.

NESHAP Subpart MMMM and RRRR provide three compliance options:

- (a) Use of emission limit-compliant material for coating;
- (b) Meeting the emission rate without add-on control; and
- (c) Meeting use of emission capture systems and add-on controls.

NESHAP Subpart SSSS provides four options for compliance:

- (a) Use of “as purchased” emission limit compliant coatings;
- (b) Use of “as applied” emission limit compliant coatings;
- (c) Use of a emission capture system and control device; and
- (d) Use of a combination of compliant coatings and control devices.

The control techniques discussed in the compliance options for NESHAP Subpart KKKK, SSSS, RRRR, and MMMM are similar to the control techniques provided for in Rule 19.1005(E)(3).

## **F. External Floating Roof**

The floating roof VOC provision in Rule 19, Chapter 10 was based on the CTG “Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks.”<sup>14</sup> The following federal standards pertaining to petroleum liquid storage also detail requirements for external floating roofs: NSPS Subparts Ka and Kb.

Rule 19.1005(F) is applicable to all storage vessels with an external floating roof with a capacity greater than 150,000 liters that store VOC with a true vapor pressure more than 10.5 kilopascals with the following exceptions: external floating roof tanks with capacities less than 1,600,000 liters used to store produced crude oil and condensate prior to custody transfer, metallic-type shoe seal in a welded tank that has a secondary seal from the top of the shoe to the tank wall, and external floating roof tanks storing waxy, heavy pour crudes.

NSPS Subpart Ka at 40 CFR § 60.110a applies to storage vessels having a capacity greater than 151,416 but less than 1,589,873 liters. The Subpart further delineates vessel applicability with a commencement date after May 18, 1978, and a true vapor pressure that measures greater than or equal to 10.3 and less than or equal to 76.6 kPa.

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<sup>14</sup> Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks” EPA-450/2-78-047 OAQPS No. 1.2-116 December 1978

NSPS Subpart Kb at 40 CFR § 60.110b applies to storage vessels that have a capacity greater than or equal to seventy-five cubic meters (75,000 liters) with a true vapor pressure greater than 15.kPa or a capacity equal to or greater than 151,000 with a true vapor pressure greater than 3.5 kPa where construction or reconstruction started after July 23, 1984.

DEQ finds that for Subpart Ka, the vessel capacity size to which the NSPS requirements apply is similar to, but less inclusive than the size specified in Rule 19.501(F)(1). However, the vessel capacity size described in the applicability for NSPS Subpart Kb is approximately half of that in Rule 19.1501(F)(1) and therefore more inclusive with respect to volume for those vessels constructed after July 23, 1984. In addition, both NSPS Subparts are somewhat less inclusive because they apply only to storage of petroleum liquids; whereas, Rule 19.1501(F) applies to storage vessels of VOC, a broader group of compounds than petroleum liquids.

For subject VOC storage tanks, Rule 19.1005 requires the following:

- (a) The storage tank has been fitted with a continuous secondary seal or a control device;
- (b) Seal closures have no visible holes, tears, or other openings, or gaps in vapor mounted seals do not exceed 21.2 square centimeters;
- (c) All openings in the external floating roof provide a projection below the liquid surface and are sealed when not in use;
- (d) Bleeder vents are closed at all times;
- (e) Rim vents are set to open when the roof is being floated off the leg supports; and
- (f) Emergency roof drains are provided with slotted membrane fabric covers or equivalent to cover ninety percent of the opening.

All of the requirements for external floating roofs contained in Rule 19.1005(F)(1)(a) through (f) are also included in NSPS Subpart Ka. NSPS Subpart Ka also includes additional specification for requirements for external floating roofs. NSPS Subpart Kb also includes all of the requirements for external floating roofs contained in Rule 19.1005(F)(1)(a) through (f).

## **VI. Federal Regulations to Reduce VOC and NO<sub>x</sub> Emissions Since 1979**

Table 3 lists specific federal regulations to reduce VOC and NO<sub>x</sub> emissions that have been promulgated or amended since 1979. Each of these rules has helped reduce emissions of VOC and/or NO<sub>x</sub> nationwide.

Table 3: Existing Federal Regulations to Reduce VOC and NOx Emissions

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule”	40 CFR Part 60 Subpart F	1971	1974, 1977, 1988, 2010, 2013, 2015
“Nitric Acid Plants: New Source Performance Standards”	40 CFR Part 60 Subparts G & Ga	1971	1974, 2012, 2014
“Hot Mix Asphalt Facilities: New Source Performance Standards”	40 CFR Part 60 Subpart I	1974	1975, 1977, 1986
“Ferroalloy Production Facilities: New Source Performance Standards”	40 CFR Part 60 Subpart Z	1976	
“Electric Utility Steam Generating Units (Boilers): New Source Performance Standards”	40 CFR Part 60 Subpart Da	1979	1998, 2006, 2007, 2012
“Stationary Gas and Combustion Turbines: New Source Performance Standards”	40 CFR Part 60 Subparts GG & KKKK	1979	1982, 2003, 2004, 2006,
“Stationary Gas and Combustion Turbines: New Source Performance Standards”	40 CFR Part 60 Subparts GG & KKKK	1979	1982, 1987, 2003, 2004, 2006, 2009
“Glass Manufacturing Plants New Source Performance Standards”	40 CFR Part 60 Subpart CC	1980	1989
“Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978”	40 CFR Part 60 Subpart K	1980	--
“Automobile and Light-Duty Truck Surface Coating Operations: New Source Performance Standards”	40 CFR Part 60 Subpart MM	1980	1990, 1994
“Surface Coating of Metal Furniture: New Source Performance Standards”	40 CFR Part 60 Subpart EE	1982	1985, 1990, 2000



<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Publication Rotogravure Printing (Graphic Arts Industry): New Source Performance Standards”	40 CFR Part 60 Subpart QQ	1982	2000
“Large Appliances (Industrial Surface Coating): New Source Performance Standards”	40 CFR Part 60 Subpart SS	1982	
“Metal Coil Surface Coating: New Source Performance Standards”	40 CFR Part 60 Subpart TT	1982	1990, 2000, 2002, 2003
“Asphalt Processing and Asphalt Roofing Manufacture: New Source Performance Standards”	40 CFR Part 60 Subpart UU	1982	--
“Pressure Sensitive Tape and Label Surface Coating Industry: New Source Performance Standards”	40 CFR Part 60 Subpart RR	1983	1990, 2000
“Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006”	40 CFR Part 60 Subpart VV-Vva	1983	--
“Beverage Can Surface Coating Industry: New Source Performance Standards”	40 CFR Part 60 Subpart WW	1983	1990, 2000
“Flexible Vinyl and Urethane Coating and Printing: New Source Performance Standards”	40 CFR Part 60 Subpart FFF	1984	2000
“Equipment Leaks of Volatile Organic Compounds (VOC) in Petroleum Refineries: New Source Performance Standards”	40 CFR Part 60 Subparts GGG & GGGG	1984	2007, 2008
“Synthetic Fiber Production Facilities: New Source Performance Standards”	40 CFR Part 60 Subpart HHH	1984	2000
“Petroleum Dry Cleaners: New Source Performance Standards”	40 CFR Part 60 Subpart JJJ	1984	2000
“Equipment Leaks of Volatile Organic Compounds From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011: New Source Performance Standards”	40 CFR Part 60 Subpart KKK	1985	2000, 2012
“Wool Fiberglass Insulation Manufacturing Plants: New Source Performance Standards”	40 CFR Part 60 Subpart PPP	1985	--

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Standards of Performance for New Stationary Sources; Rubber Tire Manufacturing Industry”	40 CFR Part 60 Subpart BBB	1987	1989
“Industrial-Commercial-Institutional Steam Generating Units: New Source Standards of Performance”	40 CFR Part 60 Subparts Dd & Dc	1987	1989, 2006, 2009, 2012, 2014
“Volatile Organic Compounds (VOC) Emissions from Petroleum Refinery Wastewater Systems: New Source Performance Standards”	40 CFR Part 60 Subpart QQQ	1988	1995
“Magnetic Tape Manufacturing Industry: New Source Performance Standards”	40 CFR Part 60 Subpart SSS	1988	1988
“Surface Coating of Plastic Parts for Business Machines (Industrial Surface Coating): New Source Performance Standards”	40 CFR Part 60 Subpart TTT	1988	1989, 2000
“Polymeric Coating of Supporting Substrates Facilities: New Source Performance Standards”	40 CFR Part 60 Subpart VVV	1989	--
“Polymer Manufacturing Industry: Standards of Performance for Volatile Organic Compound (VOC) Emissions”	40 CFR Part 60 Subpart DDD	1990	--
“Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes”	40 CFR Part 60 Subpart III	1990	--
“Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations”	40 CFR Part 60 Subpart MMM	1990	--
“Benzene Transfer Operations: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart BB	1990	--
“Benzene Waste Operations: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart FF	1990	2003
“Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes”	40 CFR Part 60 Subpart RRR	1993	--
“Dry Cleaning Facilities: National Perchloroethylene Air Emission Standards”	40 CFR Part 63 Subpart M	1993	1996, 1999, 2003, 2006, 2008

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Halogenated Solvent Cleaning: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart I	1994	1998, 1999, 2000, 2007
“Synthetic Organic Chemical Manufacturing Industry: Organic National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subparts F, G, H, I	1994	1995, 1996, 1997, 1998, 2006
“Magnetic Tape Manufacturing Operations: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart EE	1994	1999, 2006
“Final Rule for Standards for Emissions From Natural Gas-Fueled, and Liquefied Petroleum Gas-Fueled Motor Vehicles and Motor Vehicle Engines, and Certification Procedures for Aftermarket Conversions”	40 CFR Parts 80, 85, 86, 88, 600	1994	--
“Marine Vessel Loading Operations: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart Y	1995	2011
“Shipbuilding and Ship Repair (Surface Coating): National Emission Standards for Hazardous Air Pollutant”	40 CFR Part 63 Subpart II	1995	1996, 2000, 2003, 2011
“Wood Furniture Manufacturing Operations: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart JJ	1995	1998, 2011
“Final Rule on Ozone Transport Commission; Low Emission Vehicle Program for the Northeast Ozone Transport Region”	40 CFR Parts 51, 52, and 85	1995	--
“Final Rule for Control of Air Pollution; Emission Standards for New Nonroad Spark-Ignition Engines At or Below 19 Kilowatts”	40 CFR Parts 9 & 90	1995	--
“Municipal Solid Waste Landfills: New Source Performance Standards (NSPS), Emission Guidelines (EG) and Compliance Times”	40 CFR Part 60 Subparts Cf, WWW, and XXX	1996	1998, 1999, 2000, 2016
“Off-Site Waste and Recovery Operations (OSWRO): National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart DD	1996	2001, 2015
“Group I Polymers and Resins: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart U	1996	1997, 2000, 2008, 2011
“The Printing and Publishing Industry: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart KK	1996	2006, 2011

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Final Rule for Gasoline Spark-Ignition Marine Engines; Exemptions for New Nonroad Compression-Ignition Engines at or Above 37 Kilowatts and New Nonroad Spark-Ignition Engines at or Below 19 Kilowatts”	40 CFR Parts 89, 90, & 91	1996	--
“Final Rule for Revised Carbon Monoxide (CO) Standard for Class I and II Nonhandheld New Nonroad Phase 1 Small Spark-Ignition Engines”	40 CFR Part 90	1996	--
“Acid Rain Program”	40 CFR Part 72-78	1996	2000
“Final Rule for Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Voluntary Standards for Light-Duty Vehicles”	40 CFR Parts 85 & 86	1997	--
“Final Rule for Control of Emissions of Air Pollution From Highway Heavy-Duty Engines”	40 CFR Parts 9 & 86	1997	--
“Direct Final Rule for Control of Air Pollution From Aircraft and Aircraft Engines; Emission Standards and Test Procedures”	40 CFR Part 87	1997	2005, 2012
“Final Rule for Amendment to Emission Requirements Applicable to New Gasoline Spark-Ignition Marine Engines”	40 CFR Part 91	1997	--
“Flexible Polyurethane Foam Production: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart III	1998	2014
“Pharmaceuticals Production Industry: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart GGG	1998	2000, 2001, 2005, 2011
“Pulp and Paper Production (MACT I & III): National Emissions Standards for Hazardous Air Pollutants for Source Categories”	40 CFR Part 63 Subpart S	1998	1999, 2000, 2001, 2012
“Final Rule for Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: State Commitments to National Low Emission Vehicle Program”	40 CFR Parts 9, 85, & 86	1998	--
“Final Rule for Control of Air Pollution From Motor Vehicles and New Motor Vehicle Engines; Modification of Federal Onboard Diagnostic Regulations for Light-Duty Vehicles and Light-Duty Trucks; Extension of Acceptance of California OBD”	40 CFR Part 86	1998	--

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Final Rule for Control of Air Pollution From Motor Vehicles and New Motor Vehicle Engines; Increase of the Vehicle Mass for 3-Wheeled Motorcycles”	40 CFR Part 86	1998	--
“Final Rule for Emission Standards for Locomotives and Locomotive Engines”	40 CFR Parts 85, 89, & 92	1998	--
“Final Rule for Control of Emissions of Air Pollution From Nonroad Diesel Engines”	40 CFR Parts 9, 86, 89	1998	--
“Natural Gas Transmission and Storage Facilities: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart HHH	1999	2012
“Oil and Natural Gas Production Facilities: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart HH	1999	2007, 2012
“Pesticide Active Ingredient Production Industry: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart MMM	1999	2001, 2002,
“Polyether Polyols Production: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart PPP	1999	2014
“Publicly Owned Treatment Works (POTW): National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart VVV	1999	2001, 2002, 2017
“Final Rule for Control of Emissions of Air Pollution From New Marine Compression Ignition Engines at or Above 37 kW”	40 CFR Parts 89, 92, & 94	1999	--
“Final Rule for Phase 2 Emission Standards for New Nonroad Spark-Ignition Nonhandheld Engines At or Below 19 Kilowatts”	40 CFR Part 90	1999	--
“Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984”	40 CFR Part 60 Subpart Ka	2000	--
“Manufacture of Amino/Phenolic Resins: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart OOO	2000	2014
“Final Rule for Control of Air Pollution From New Motor Vehicles: Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements”	40 CFR Parts 80, 85, & 86	2000	--
“Final Rule for Control of Emissions of Air Pollution from 2004 and Later Model Year Heavy-Duty Highway Engines and Vehicles; Revision of Light-Duty On-Board Diagnostics Requirements”	40 CFR Part 85 & 86	2000	--

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Final Rule for Phase 2 Emission Standards for New Nonroad Spark-Ignition Handheld Engines At or Below 19 Kilowatts and Minor Amendments to Emission Requirements Applicable to Small Spark-Ignition Engines and Marine Spark-Ignition Engines”	40 CFR Parts 90 & 91	2000	--
“NOx Budget Trading Program”	40 CFR Part 97	2000	--
“Boat Manufacturing: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart VVVV	2001	--
“Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills (MACT ID): National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources”	40 CFR Part 63 Subpart MM	2001	2003, 2004, 2017
“Solvent Extraction for Vegetable Oil Production: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart GGGG	2001	2002, 2004
“Final Rule for Control of Emissions of Hazardous Air Pollutants From Mobile Sources”	40 CFR Parts 80 & 86	2001	--
“Surface Coating of Large Appliances: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart NNNN	2002	--
“Leather Finishing Operations: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart TTTT	2002	2005, 2019
“Surface Coating of Metal Coil: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart SSSS	2002	2003
“Paper and Other Web Coating: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart JJJJ	2002	2006
“Petroleum Refineries (Catalytic Cracking, Catalytic Reforming and Sulfur Recovery Units): National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart UUU	2002	2005
“Refractory Products Manufacturing: National Emissions Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart SSSSS	2002	--
“Rubber Tire Manufacturing: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart XXXX	2002	2003
“Final Rule for Control of Emissions From Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based)”	40 CFR Parts 1048, 1051, 1065, 1068	2002	--

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984”	40 CFR Part 60 Subpart Kb	2003	--
“Asphalt Processing and Asphalt Roofing Manufacturing: National Emission Standards for Hazardous Air Pollutants for Major Sources”	40 CFR Part 63 Subpart LLLLL	2003	2005
“Printing, Coating, and Dyeing of Fabrics and Other Textiles: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart OOOO	2003	2004
“Integrated Iron and Steel Manufacturing: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart FFFFF	2003	2006
“Surface Coating of Metal Cans: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart KKKK	2003	2006
“Surface Coating of Metal Furniture: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart RRRR	2003	--
“Miscellaneous Organic Chemical Manufacturing: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart FFFF	2003	2006
“Municipal Solid Waste Landfills: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart AAAA	2003	--
“Semiconductor Manufacturing: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart BBBBB	2003	2008
“Surface Coating of Wood Building Products: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart QQQQ	2003	2019
“Final Rule for Control of Emissions From New Marine Compression-Ignition Engines at or Above 2.5 Liters Per Cylinder”	40 CFR Parts 9 & 94	2003	--
“Surface Coating of Automobiles and Light-Duty Trucks: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart IIII	2004	2006, 2007
“Industrial, Commercial, and Institutional Boilers and Process Heaters: National Emission Standards for Hazardous Air Pollutants for Major Sources”	40 CFR Part 63 Subpart DDDDD	2004	2005, 2006, 2011, 2013, 2015

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Iron and Steel Foundries: National Emissions Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart EEEE	2004	2005, 2008
“Organic Liquids Distribution: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart EEEE	2004	2006, 2008
“Surface Coating of Plastic Parts and Products: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart PPPP	2004	2006, 2007
“Plywood and Composite Wood Products Manufacture: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart DDDD	2004	2006, 2007
“National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines”	40 CFR Part 63 Subpart <i>ZZZZ</i>	2004	2008, 2010, 2013, 2014
“Stationary Combustion Turbines: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart YYYY	2004	--
“Final Rule for Control of Emissions From Highway Motorcycles”	40 CFR Parts 9, 86, 90, 1051	2004	--
“Final Rule for Control of Emissions of Air Pollution From Nonroad Diesel Engines and Fuel”	40 CFR Parts 9, 69, 80, 86, 94, 1039, 1048, 1051, 1065, 1068	2004	--
“Direct Final Rule for Amendments to the Phase 2 Requirements for Spark-Ignition Nonroad Engines at or Below 19 Kilowatts”	40 CFR Part 90	2004	--
“Final Rule for Control of Emissions of Hazardous Air Pollutants From Mobile Sources: Default Baseline Revision”	40 CFR Part 80	2005	--
“Final Rule for Modification of Federal Onboard Diagnostic Regulations for: LD Vehicles, LD Trucks, MD Passenger Vehicles, Complete HD Vehicles and Engines Intended for Use in HD Vehicles Weighing 14,000 Pounds GVWR or Less”	40 CFR Part 85	2005	--
“Final Rule for Control of Emissions of Air Pollution From New Motor Vehicles: In-Use Testing for Heavy-Duty Diesel Engines and Vehicles”	40 CFR Part 9 & 86	2005	--



<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Direct Final Rule for Control of Air Pollution From New Motor Vehicles; Revisions to Motor Vehicle Diesel Fuel Sulfur Transition Provisions; and Technical Amendments to the Highway Diesel, Nonroad Diesel, and Tier 2 Gasoline Programs”	40 CFR Part 80	2005	--
“Final Rule for Procedures for Testing Highway and Nonroad Engines and Omnibus Technical Amendments”	40 CFR Parts 85, 86, 89, 90, 91, 92, 94, 1039, 1048, 1051, 1065, 1068	2005	--
“Clean Air Interstate Rule” (CAIR)	40 CFR Part 52	2005	Vacated and remanded 2008 Stayed 2009 Implementation ceased on December 31, 2014.
“New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines”	40 CFR Part 60 Subpart IIII	2006	2011
“Final Rule for Emission Durability Procedures for New Light-Duty Vehicles, Light-Duty Trucks and Heavy-Duty Vehicles”	40 CFR Part 86	2006	--
“Direct Final Rule for Amendments to Regulations for Heavy-Duty Diesel Engines”	40 CFR Parts 9 & 86	2006	--
“Carbon Black Production Area Sources: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart MMMMMM	2007	2008
“Final Rule for Control of Hazardous Air Pollutants From Mobile Sources”	40 CFR Parts 59, 80, 85, & 86	2007	--
“New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines”	40 CFR Part 60 Subpart JJJJ	2008	--
“Gasoline Distribution MACT and GACT: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subparts R, BBBBBB & CCCCCC	2008	2011

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Paint Stripping and Miscellaneous Surface Coating Operations: National Emission Standards for Hazardous Air Pollutants for Area Sources”	40 CFR Part 63 Subpart HHHHHH	2008	--
“Final Rule for Control of Emissions From Nonroad Spark-Ignition Engines and Equipment”	40 CFR Parts 9, 60, 80, 85, 86, 89, 90, 91, 92, 94, 1027, 1033, 1039, 1042, 1045, 1048, 1051, 1054, 1060, 1065, 1068, 1074	2008	--
“Final Rule for Control of Emissions of Air Pollution From Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder”	40 CFR Parts 9, 85, 86, 89, 92, 94, 1033, 1039, 1042, 1065, 1068	2008	--
“Direct Final Rule for Exhaust Emission Standards for 2012 and Later Model Year Snowmobiles”	40 CFR Part 1051	2008	--
“Asphalt Processing and Asphalt Roofing Manufacturing: National Emission Standards for Hazardous Air Pollutants for Area Sources”	40 CFR Part 63 Subpart AAAAAAA	2009	2010
“Chemical Manufacturing Area Sources: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart VVVVVV	2009	2011, 2012
“Paints and Allied Products Manufacturing: National Emission Standards for Hazardous Air Pollutants for Area Sources”	40 CFR Part 63 Subpart CCCCCC	2009	2010
“Final Rule for Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines; Regulations Requiring Onboard Diagnostic Systems on 2010 and Later Heavy-Duty Engines Used in Highway Applications Over 14,000 Pounds”	40 CFR Parts 86, 89, 90, 1027, 1033, 1042, 1048, 1054, 1060, 1065, & 1068	2009	--
“Direct Final Rule for Revisions to In-Use Testing for Heavy-Duty Diesel Engines and Vehicles; Emissions Measurement and Instrumentation; Not-to-Exceed Emission Standards; and Technical Amendments for Off-Highway Engines”	40 CFR Parts 89, 1033, 1039, 1042, 1045, 1054, 1065	2010	--
“Direct Final Rule for Technical Amendments for Marine Spark-Ignition Engines and Vessels”	40 CFR Part 1060	2010	--

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Final Rule for Control of Emissions From New Marine Compression-Ignition Engines at or Above 30 Liters per Cylinder”	40 CFR Parts 80, 85, 86, 94, 1027, 1033, 1039, 1042, 1043, 1045, 1048, 1051, 1054, 1060, 1065, 1068	2010	--
“Industrial, Commercial, and Institutional Area Source Boilers: National Emission Standards for Hazardous Air Pollutants”	40 CFR Part 63 Subpart JJJJJ	2011	2013, 2016
“Final Rule for Clean Alternative Fuel Vehicle and Engine Conversions”	40 CFR Parts 85 & 86	2011	--
“Cross-State Air Pollution Rule” (CSAPR)	40 CFR Parts 52 & 97	2011	2016
“Crude Oil and Natural Gas Production, Transmission and Distribution for Which Construction, Modification, or Reconstruction Commenced after August 23, 2011 and on or before September 18, 2015: New Source Performance Standards”	40 CFR Part 60 Subpart OOOO	2012	2013, 2014, 2015, 2016
“Direct Final Rule for Heavy-Duty Highway Program: Revisions for Emergency Vehicles”	40 CFR Parts 85, 86, & 1039	2012	--
“Direct Final Rule for Great Lakes Steamship Repower Incentive Program”	40 CFR Part 1043	2012	--
“Final Rule for Clean Alternative Fuel Vehicle and Engine Conversions”	40 CFR Parts 79, 80, 85, 86, 600, 1036, 1037, 1039, 1042, 1048, 1054, 1065, & 1066	2014	--
“Final Rule for Emergency Vehicle Rule - Selective Catalytic Reduction (SCR) Maintenance and Regulatory Flexibility for Nonroad Equipment”	40 CFR Part 86 & 1039	2014	--
“Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards”	40 CFR Part 60 Subparts J & Ja and 40 CFR Part 63 Subparts CC & UUU	2015	2016

<b>Rule</b>	<b>CFR Location</b>	<b>Promulgated</b>	<b>Amended</b>
“Amendments Related to Tier 3 Motor Vehicle Emission and Fuel Standards, Nonroad Engine and Equipment Programs, and MARPOL Annex VI Implementation”	40 CFR Parts 59, 80, 85, 86, 600, 1037, 1043, 1051, 1054, 1060, 1065, 1066	2015	--
“Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone” (NOx SIP Call)	40 CFR Parts 51, 72, 75, 95	1998	--

## **VII. Conclusion**

Provisions for the control of VOC in Pulaski County that are contained in Rule 19, Chapter 10 were enacted in response to Pulaski County being designated as nonattainment for the ozone NAAQS in 1978. The requirements adopted into Rule 19, Chapter 10 were meant to apply specifically in nonattainment areas, but remain in place to date, despite Pulaski County’s redesignation to attainment status in 1984, and being in attainment of the NAAQS since.

Several factors provide justification for removal of the VOC regulations for Pulaski County from the SIP. Pulaski County has remained in attainment of the ozone NAAQS for more than thirty years, even as the ozone NAAQS has become more stringent over time. In addition, VOC emissions in Pulaski County increased between 2002 and 2014, but ozone concentrations in Pulaski County continued to decrease during the same period. EPA modeling results indicate that reductions in VOC emissions are not effective in reducing ozone concentrations in most areas of the United States, including Arkansas, and that much greater benefits are realized through reductions of NO emissions. The vast majority of VOC emissions in Arkansas, including Pulaski County, are biogenic in nature and therefore not subject to control. Information contained in this technical support document demonstrates that no air quality benefit would be gained by retaining VOC regulations specific to Pulaski County, and that their removal from the SIP will not interfere with continued attainment and maintenance of the ozone NAAQS in Pulaski County.