

AIR POLLUTION CONTROL

Shelby County Health Department

PERMIT TO OPERATE TITLE V - MAJOR SOURCE

PERMIT NUMBER: 00101-01TV(R)

COMPANY NAME: VALERO REFINING COMPANY – TENNESSEE, L.L.C.

COMPANY ADDRESS: 543 WEST MALLORY AVE. MODIFICATION DATE: DRAFT

ISSUANCE DATE: 03/07/23

EXPIRATION DATE: 03/07/28

This permit fulfills the requirements of Title V of the Federal Clean Air Act (42 U.S.C. 7661a-7661e) and the federal regulations promulgated in 40 CFR Part 70. This permit is issued in accordance with Chapter 16-77 of the Memphis City Code, which adopts by reference Rule 1200-3-9.02(11) of the Tennessee Air Pollution Control Regulations. The permittee has been granted permission to operate an air contaminant source in accordance with the emission limitations, monitoring, record-keeping, reporting, and all other requirements set forth herein.

A permit condition may be appealed by filing a petition for reconsideration within thirty (30) days after the mailing date of the permit.

This permit may be subject to revocation, suspension, modification or amendment by the Director for cause including the evidence of non-compliance with any of the above, or for any misrepresentation made in the application(s), supporting data entered therein or attached thereto, or any subsequent submittal or supporting data, or for any alterations affecting the emissions from this source.

**WASIM KHOKHAR
TECHNICAL MANAGER, POLLUTION CONTROL**

Issuance of this permit shall not relieve any owner or operator of the responsibility to comply fully with any other requirements of local, State, or Federal law.

NON-TRANSFERABLE

POST OR FILE AT INSTALLATION ADDRESS

**Valero Refining Company – Tennessee L.L.C.
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FACILITY INFORMATION

Facility Name:	Valero Refining Company – Tennessee, L.L.C.
Facility Address:	543 West Mallory Ave. Memphis, Tennessee 38109
Mailing Address:	2385 Riverport Road Memphis, Tennessee 38109
Facility Owner:	same
Owner Address:	same
Responsible Official, Title:	Mr. Eric Brown VP & General Manager
Mailing Address:	same
Telephone:	(901) 775-5702
Facility's Primary Activity:	Petroleum Refinery
NAICS Code(s):	324110
Environmental Contact:	Mr. Greg Swearingen Manager, Environmental Engineering
Contact Telephone Number:	(901) 947-8348
Owner's Registered Agent:	C. T. Corporation Systems Suite 2021, 800 S Gay Street Knoxville, Tennessee 37929-9710

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PERMIT INFORMATION

Initial Title V

Application received:

August 27, 1997; On or about June 11, 1999; August 8, 2000 (05PC); On or about April 2, 2001; On or about May 26, 2003; November 12, 2004 (08PC); November 14, 2005 (09PC); May 9, 2007 (03T); July 23, 2007 (10PC); April 3, 2008 (11PC); December 18, 2007 (12PC); December 28, 2009 (15TC); December 2, 2010 (14PC/Boiler 11); On or about December 28, 2010 (13PC); February 23, 2011 (14PC/Ref Splitter); November 1, 2012 (16PC); March 28, 2016 (04TC); March 30, 2017 (05TC); December 27, 2017 (18PC); March 4, 2019 (19PC); March 22, 2019 (06TC); June 24, 2021 (20BC)

Application dated:

August 25, 1997; June 9, 1999; August 8, 2000 (05PC); March 30, 2001; May 23, 2003; November 8, 2004 (08PC); November 11, 2005 (09PC); May 1, 2007 (03T); July 19, 2007 (10PC); March 31, 2008 (11PC); December 17, 2007 (12PC); December 21, 2009 (15TC); December 1, 2010 (14PC/Boiler 11); December 22, 2010 (13PC); February 18, 2011 (14PC/Ref Splitter); October 29, 2012 (16PC); March 24, 2016 (04TC); March 29, 2017 (05TC); December 19, 2017 (18PC); March 1, 2019 (19PC); March 20, 2019 (06TC); June 28, 2021 (20BC)

Table 1 lists the previous permits (and associated emission units) considered in the issuance of this facility's initial Major Source Permit to Operate.

Table 1. Previous Air Permits Considered in Major Source Permit To Operate.

Permit No.	Date Issued / Last Revised	Associated Emission Unit IDs*
0101-01T(R)	2/15/2018	Tank Nos. 25013 , 25016, 25107 , 40060, 80058, 80059, 10043, 10053, 10054, 10051, 10052, 125062, 125063, 15001 , 15002 , 27057 , 3070 , 3541 , 3542 , 476 , 5033 , 5034 , 53056, 55067 , 69068 , 80065, 64071, 80072, 64071, 110076, 125001, 125002, 125073, 125074, 125075, 10046, 10047, 40115, 60101, 80066 , 85102, 55114 , 50080, 80081, 80003, 150082
0101-02P	10/27/2017	P024
0101-02TC	4/3/2002	Tank Nos. 50083, 75084
0101-03T	11/1/2019	Tank 150085
0101-04TC	5/21/2015	Tank 100068
0101-05P(R2)	8/24/2018	FUG-01, FUG-02, FUG-04, FUG-06, FUG-11, FUG-12, FUG-13, FUG-15, FUG-17, FUG-20, FUG-22, FUG-23, FUG-24, FUG-26, FUG-28, P003, P005, P006, P010A, P010B, P011, P012, P013a, P013b, P015, P017, P019, P020, P021e, P026, P029, P030, P033, P058, P059, P060, P061a/b

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Permit No.	Date Issued / Last Revised	Associated Emission Unit IDs*
0101-05TC	7/14/2016	Tank 83067
0101-06PC	3/29/1999	VACATED (Truck Loading VCU)
0101-06TC	9/8/2017	Tank 100066
0101-07PC	7/13/2001	VACATED (Backup Turbine and Distillate Tank)
0101-08P	4/27/2016	P037, P038
0101-09P(R)	4/22/2016	P042
0101-10P(R)	2/25/2016	P043, P044, Tank 80022, FUG-13, FUG-18
0101-11PC	3/14/2005	24-09-045, FUG-BWON
0101-12PC	5/8/2018	P045, P055, WWT-BOX
0101-13P	2/25/2016	P001, P048, P049, P052, T087, T088, T089, Benzene Stripper, Sour Water Stripper, FUG-02/03 (New Cryo Unit Fugitives)
0101-14P	4/1/2016	P049, 24-09-086, FUG 30 (MSAT II Fugitives)
0101-15T	3/1/2010	Tank 10105
0101-16P(R)	3/15/2016	P031, P071, FUG-29
0101-17P	2/15/2016	ENG-PE1, ENG-PE2
0101-18P	1/24/2018	FUG-01-JET
0101-19PC	11/29/2018	P024 (Crude Export)
0101-20BC(R)	11/05/2021	021f (No. 12 Boiler)

* Strikethrough font indicates equipment that was permitted but never constructed, equipment that has since been demolished or equipment otherwise removed from service.

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Initial Title V (March, 2023)

Completeness determination:	September 24, 1997; August 23, 2000; June 6, 2003; January 28, 2016 (letter to source not sent)
Public notice:	December 15, 2022
Public hearing:	Not requested
Comments received:	None Received
Draft permit issued:	December 15, 2022
Proposed permit issued:	January 18, 2023
To EPA for review:	January 18, 2023
EPA comments:	February 17, 2023
Final permit issue date:	March 7, 2023
Evaluation completed:	December 1, 2022
Permit engineer:	Mark A. Landry

Title V Minor Modification (DRAFT)

Initial Title V

Application received:	July 26, 2023
Application dated:	July 21, 2023
Completeness determination:	October 5, 2023
Public notice:	DRAFT
Public hearing:	DRAFT
Comments received:	DRAFT
Draft permit issued:	??????
Proposed permit issued:	DRAFT
EPA Minor Modification Notice:	October 5, 2023
To EPA for review:	DRAFT
EPA comments:	DRAFT
Final permit issue date:	DRAFT
Evaluation completed:	DRAFT
Permit engineer:	Mark A. Landry

Pages modified: i, v, E-1, F-3, F-4, G-8, H-27 through H-36, and L-5

**Valero Refining Company – Tennessee L.L.C.
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Attachment 1 – Process Description and Process Flow Diagrams

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Section A - General Permit Conditions

1. Terms not otherwise defined in the permit shall have the meaning assigned to such terms in the referenced regulation [TAPCR 1200-03]
2. All terms and conditions in this permit, including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Federal Act in accordance with Shelby County Air Code Section 3-5 [TAPCR 1200-03-09-.02(11)].
3. The requirements of a permit issued pursuant to paragraph 1200-03-09-.02(11) are severable. A dispute regarding one or more permit requirements in such a permit does not invalidate or otherwise excuse a permittee from their duty to comply with the remaining portion of the permit. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(v)]
4. The permittee shall comply with all conditions of its permit. Except for requirements specifically designated herein as not being federally enforceable, non-compliance with the permit requirements is a violation of the Federal Act and the Tennessee Air Quality Act and is grounds for enforcement action; for a permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Non-compliance with permit conditions specifically designated herein as not being federally enforceable is a violation of the Tennessee Air Quality Act and may be grounds for these actions. [TAPCR 1200-03-09-.02(11)(e)1(vi)(I)]
5. The need to halt or reduce activity is not a defense for noncompliance. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this item shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(vi)(II)]
6. The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [TAPCR 1200-03-09-.02(11)(e)1(vi)(III)]
7. The permit does not convey any property rights of any sort, or any exclusive privilege. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(vi)(IV)]
8. The permittee shall furnish to the Technical Manager, within a reasonable time, any information that the Technical Manager may request in writing to determine whether cause exists for modifying, revoking and reissuing, or termination of the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Technical Manager copies of records required to be kept by the permit. If the permittee claims that such information is confidential, the Technical Manager may review that claim and hold the information in protected status until such time that the Board can hear any contested proceedings regarding confidentiality disputes. If the information is desired by EPA, the permittee may mail the information directly to EPA. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(iv)(V)]

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9. The permittee shall pay fees in accordance with Shelby County Air Code Sections 16-27 and 16-28.
10. A permit revision will not be required under any approved economic incentives, marketable permits, emissions trading and other similar programs or process for changes that are provided for in the permit. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(viii)]
11. Inspection and entry requirements that require that, upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Technical Manager or his authorized representative to perform the following for the purposes of determining compliance with the permit applicable requirements:
- a. Enter upon the permittee's at reasonable times premises where a source subject to paragraph 1200-03-09-.02(11) is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
 - d. As authorized by chapter 1200-03-10, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
 - e. "Reasonable times" shall be considered to be customary business hours unless reasonable cause exists to suspect noncompliance with the Act, Division 1200-03 or any permit issued pursuant thereto and the Technical Manager specifically authorizes an inspector to inspect a facility at any other time.
[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)3(ii)]
12. Permit shield
- a. Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date of permit issuance, provided that:
 - i. Such applicable requirements are included and are specifically identified in the permit; or
 - ii. The Technical Manager, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof; and
 - iii. The permit shield does not extend to minor permit modifications made pursuant to [Shelby County Air Code Section 3-5 (TAPCR 1200-03-09-.02(11)(f)(5(ii)(VI))]
 - b. Nothing in this permit shall alter or affect the following:
 - i. The provisions of section 303 of the Federal Act (emergency orders), including the authority of the Administrator under that section. Similarly, the provisions of T.C.A. §68-201-109 (emergency orders) including the authority of the Governor under the section;
 - ii. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
 - iii. The applicable requirements of the acid rain program, consistent with section 408(a) of the Federal Act; or
 - iv. The ability of EPA to obtain information from a source pursuant Section 114 of the Federal Act.
 - c. A permit shield is granted to the permittee.
[Shelby County Air Code Section 3-5, TAPCR 1200-03-09-.02(11)(e)6]

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13. Permit renewal and expiration

- a. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted at least 180 days, but no more than 270 days prior to the expiration of this permit.
- b. Provided that the permittee submits a timely and complete application for permit renewal the source will not be considered in violation of paragraph 1200-03-09-.02(11) until the Technical Manager takes final action on the permit application, except as otherwise noted in paragraph 1200-03-09-.02(11).
- c. This permit, its shield provided in Condition A.12, and its conditions will be extended and effective after its expiration date provided that the source has submitted a timely, complete renewal application to the Technical Manager.
- d. Permits that are being renewed are subject to the same procedural requirements, including those for public participation, affected State and EPA review, that apply to initial permit issuance.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(f)3 and 2, 1200-03-09-.02(11)(d)1(i)(III), and 1200-03-09-.02(11)(a)2]

14. The permittee has a duty to supplement or correct their application upon discovery that their application was incorrect or failed otherwise to address any facts relevant to permitting at the source. The permittee must also provide additional information as necessary to address any requirements that become applicable to the source after the date that it has filed a complete application but prior to the release of a draft permit. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(d)2]

15. Reopening for cause

- a. A permit shall be reopened and revised prior to the expiration of the permit under any of the circumstances listed below:
 - i. Additional applicable requirements under the Federal Act become applicable to the sources contained in this permit provided the permit has a remaining term of 3 or more years. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the permit expiration date of this permit, unless the original has been extended pursuant to 1200-03-09-.02(11)(a)2.
 - ii. Additional requirements become applicable to an affected source under the acid rain program.
 - iii. The Technical Manager or EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 - iv. The Technical Manager or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
- b. Proceedings to reopen and issue a permit shall follow the same proceedings as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists, and not the entire permit. Such reopening shall be made as expeditiously as practicable.
- c. Reopenings for cause shall not be initiated before a notice of such intent is provided to the permittee by the Technical Manager at least 30 days in advance of the date that the permit is to be reopened except that the Technical Manager may provide a shorter time period in the case of an emergency. An emergency shall be established by the criteria of T.C.A. 68-201-109 or other compelling reasons that public welfare is being adversely affected by the operation of a source that is in compliance with its permit requirements.
- d. If the Administrator finds that cause exists to terminate, modify, or revoke and reissue a permit as identified in A.15.a, he is required under federal rules to notify the Technical Manager and the permittee of such findings in writing. Upon receipt of such notification, the Technical Manager shall investigate the matter in order to determine if he agrees or disagrees with the Administrator's findings. If he agrees with the Administrator's findings, the Technical Manager shall conduct the reopening in the following manner:

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- i. The Technical Manager shall, within 90 days after receipt of such notification, forward to EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate. If the Administrator grants additional time to secure permit applications or additional information from the permittee, the Technical Manager shall have the additional time period added to the standard 90 day time period.
- ii. EPA will evaluate the Technical Manager's proposed revisions and respond as to their evaluation.
- iii. If EPA agrees with the proposed revisions, the Technical Manager shall proceed with the reopening in the same manner prescribed under Condition A.15 (b) and Condition A.15(c).
- iv. If the Technical Manager disagrees with either the findings or the Administrator that a permit should be reopened or an objection of the Administrator to a proposed revision to a permit submitted pursuant to Condition A13(d), he shall bring the matter to the Board at its next regularly scheduled meeting for instructions as to how he should proceed. The permittee shall be required to file a written brief expressing their position relative to the Administrator's objection and have a responsible official present at the meeting to answer questions for the Board. If the Board agrees that EPA is wrong in their demand for a permit revision, they shall instruct the Technical Manager to conform to EPA's demand, but to issue the permit under protest preserving all rights available for litigation against EPA.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(f)6 and 7]

16. Permit transference. An administrative permit amendment allows for a change of ownership or operational control of a source where the Technical Manager determines that no other change in the permit is necessary, provided that the following requirements are met:
 - a. Transfer of ownership permit application is filed consistent with the provisions of 1200-03-09-.03(6), and
 - b. Written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Technical Manager.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(f)4(i)(IV) and 1200-03-09-.03(6)]

17. The owner or operator of any air contaminant source to which any of the following changes are made, but would not be a modification requiring a construction permit, must notify the Technical Manager thirty (30) days before the change is commenced. These changes are:
 - a. Change in air pollution control equipment,
 - b. Change in stack height or diameter,
 - c. Change in exit velocity (of more than twenty five percent (25%) or exit temperature of more than fifteen percent (15%) (absolute temperature basis)

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(7)]

18. The permittee shall not use any plan, activity, device, or contrivance which the Technical Manager determines will, without resulting in an actual reduction of air contaminants, conceal or appear to minimize the effects of an emission which would otherwise constitute a violation of these regulations. Methods considered circumvention of the regulations include but are not limited to the following:
 - a. Air (or other gases) introduced for dilution purposes only.
 - b. The staggered installation and operation of a facility to avoid coverage by a standard that applies only to operations larger than a specified size.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.03(2)]

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19. The permittee shall not discharge from any source whatsoever such quantities of air contaminant, uncombined water, or other materials which cause a traffic hazard. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.03(3)]
20. The permittee shall maintain said operating permit readily available for inspection by the Technical Manager or his designated representative on the operating premises. A person required by these regulations to have one or more operating permits shall keep at least one operating permit prominently and conspicuously displayed on the operating premises. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(5)]

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Section B – General Conditions for Monitoring, Recordkeeping, Reporting and Enforcement

1. Monitoring and related recordkeeping shall be performed in accordance with the requirements specified in the permit conditions for each individual emission unit, emission group or regulatory group. Where applicable, records of required monitoring information shall include the following:
 - a. The date, place as defined in the permit, and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analysis;
 - d. The analytical techniques or methods used;
 - e. The results of such analyses; and
 - f. The operating conditions as existing at the time of sampling or measurement.[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(iii)(II)I.]
2. Retention of records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(iii)(II)II.]
3. The owner/operator shall submit, semiannually, a monitoring report. All instances of deviations from permit requirements must be clearly identified in the report. Each report shall be certified by the responsible official consistent with the requirements of City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.02(11)(d)4]. Reports shall cover the semi-annual periods from January 1st to June 30th, or from July 1st through December 31st of each year. Reports must be postmarked no later than February 28th and August 31st, whichever is the first date following the end of the semi-annual reporting period. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(iii)(III)I.]
4. Digital data accumulation which utilizes valid data compression techniques shall be acceptable for compliance determination as long as such compression does not violate an applicable requirement and its use has been approved in advance by the Technical Manager. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(iii)(III)III.]
5. The owner/operator shall promptly report deviations from permit requirements, including those attributable to startup, shutdown or malfunction or emergency conditions as defined in this permit and/or City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20]. The provisions of City of Memphis Code Section 16-87, [Reference Rules and Regulations of Tennessee, Rule 1200-3-20] shall define prompt reporting for periods in between the semiannual monitoring reports in condition 1 of this section. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(e)1(iii)(III)II.]
6. The responsible official shall certify compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. Specifically, the compliance certification shall include the following:
 - a. The identification of each term or condition of the permit that is the basis of the certification;
 - b. The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period, and whether such methods or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the methods and means required under subpart 1200-03-09-.02(11)(e)1.(iii). If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act (see sub-item V), which prohibits knowingly making a false certification or omitting material information;
 - c. The status of compliance with the terms and conditions of the permit for the period covered by the certification, based on the method or means designated in sub-item 1200-03-09-.02(11)(e)3.(v)(III)II. The certification shall

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identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance as defined under subparagraph 1200-03-09-.02(11)(b) occurred;

- d. Such other facts as the Technical Manager may require for determination of the compliance status of the source; and
- e. A statement that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

This certification shall be submitted annually to the Department and to the US EPA at the following addresses:

Attn: Chief
Air and EPCRA Enforcement Branch
US EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-3104

Technical Manager
Shelby County Health Department
Air Pollution Control
1826 Sycamore View Road
Memphis, TN 38134

Annual certification reports for this facility shall be postmarked no later than August 31st of each year and address the period from July 1st to June 30th. [Shelby County Air Code Section 3-9; TAPCR 1200-03-09-.02(11)(e)3(v)(I) and (IV)]

- 7. Any application form, report, or compliance certification submitted pursuant to the requirements of this permit shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete. [Shelby County Air Code 3-5; TAPCR 1200-03-09-.02(11)(d)4]
- 8. Each compliance certification required by this permit shall contain such additional requirements as may be specified pursuant to sections 114(a)(3) and 504(b) of the Federal Act, and any other compliance requirement deemed necessary by the Technical Manager. [Shelby County Air Code Section 3-5; TACPR 1200-03-09-.02(11)(e)3(v)(V)]
- 9. An emergency constitutes an affirmative defense to an enforcement action brought against this source for noncompliance with a technology based emission limitation due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
 - a. The affirmative defense of the emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An emergency occurred and that the permittee can identify the probable cause(s) of the emergency. "Probable" must be supported by a credible investigation into the incident that seeks to identify the causes and results in an explanation supported by generally accepted engineering or scientific principles.
 - ii. The permitted facility was at the time being properly operated. In determining whether or not a facility was being properly operated, the Technical Secretary shall examine the source's written standard operating procedures which were in effect at the time of the noncompliance and any other code as detailed below that would be relevant to preventing the noncompliance. Adherence to the source's standard operating procedures will be the test of adequate preventative maintenance, careless operation, improper operation or operator error to the extent that such adherence would prevent noncompliance. The source's failure to follow recognized standards of practice to the extent that adherence to such a standard would have prevented noncompliance will disqualify the source from any claim of an emergency and an affirmative defense. The Board will specifically recognize the National Fire Protection Association codes, the codes of the

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American National Standards Institute, the codes of the American Society of Testing Materials, the codes of the United States Department of Transportation, the codes of the United States Occupational Safety and Health Administration and any State of Tennessee statute or regulation if applicable. Recognition of these codes, statutes, regulations and standards of practice is limited to the test of determining whether or not a facility was operated properly for the purposes of preventing actual (not potential) noncompliance and in no way should it be viewed as the Board's imposition of the standards administered by other agencies, Boards, or organizations.

- iii. During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.
- iv. The permittee submitted notice of the emergency to the Technical Manager according to the notification criteria for malfunctions in rule 1200-03-20-.03. For the purposes of this condition, "emergency" shall be substituted for "malfunction(s)" in rule 1200-03-20-.03 to determine the relevant notification threshold. The notice shall include a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- b. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- c. The provisions of this condition are in addition to any emergency, malfunction or upset requirement contained in Division 1200-03 or other applicable requirement.

[Shelby County Air Code 3-5; TAPCR 1200-03-09-.02(11)(e)7]

10. The permittee shall report to the Technical Manager information and data concerning VOC emissions and nitrogen oxide emissions. This information and data shall be in the form prescribed by the Technical Manager, and shall be submitted before March 31 of the year following the calendar year for which the information and data is reported. Each report shall be signed by an official of the company, certifying that the information and data contained in the report is accurate and to the best knowledge of the individual certifying the report. [Shelby County Air Code Section 3-22; TAPCR 1200-03-18-.02(8)]

11. The owner or operator shall submit, annually, an emission report covering the previous year. Each report shall be certified by the responsible official and submitted to the Department no later than February 28th of each year. [City of Memphis Code 16-98]

12. The permittee shall maintain records within the state. If such records are maintained at a site other than the facility for which the records are generated, the Technical Manager shall be informed of this. The notice informing the Technical Manager shall contain, at a minimum, the following:

- a. Facility name;
- b. Facility physical address;
- c. Physical address where the records are maintained; and
- d. Name, phone number, and mailing address of the official responsible for maintenance of the records and from whom records may be obtained.

[Shelby County Air Code Section 3-22; TAPCR 1200-03-18-.02(11)]

13. The permittee shall take all reasonable measures to keep emissions to a minimum during startups, shutdowns, and malfunctions. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered

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malfunctions. [Shelby County Air Code Section 3-9; TAPCR 1200-03-20-.02]

14. When any air contaminant source malfunctions in such a manner as to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-03 or any permit issued thereto, or of sufficient duration to cause damage to property or public health, the permittee shall promptly notify the Technical Manager of such malfunction and provide a statement giving all pertinent facts, including the estimated duration of the malfunction. Violations of the visible emission standard (excluding visible emissions caused by hazardous air pollutants named in Chapter 1200-03-11) which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Shelby County Health Department, Pollution Control Section. The Technical Manager shall be notified when the malfunction has been corrected. In attainment and unclassified areas if emissions [other than from sources designated as significantly impacting on a nonattainment area] in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required. Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Shelby County Health Department, Pollution Control Section, and the Emergency Management Agency. [City of Memphis Code 16-87; Shelby County Air Code Section 3-9; TAPCR 1200-03-20-.03]
15. Logs and Reports
- a. The permittee shall keep a log of all malfunctions, startups, and shutdowns resulting in emissions excess of the standards in Division 1200-03 or any permit issued thereto at the plant. This log must record at least the following:
 - i. Stack or emission point involved.
 - ii. Time malfunction, startup, or shutdown began and/or when first noticed.
 - iii. Type of malfunction and/or reason for shutdown.
 - iv. Time startup or shutdown was complete or time the air contaminant source returned to normal operation.
 - v. The company employee making entry on the log must sign, date, and indicate the time of each log entry.
 - vi. The information under parts (a) i. and ii. of this paragraph must be entered into the log by the end of the shift during which the malfunction or startup began.
 - b. All information shall be entered in the log no later than twenty-four (24) hours after the startup or shutdown is complete, or the malfunction has ceased or has been corrected.
 - c. Any later discovered corrections can be added in the log as footnotes with the reason given for the change.
 - d. The Technical Manager may require the owner or operator of any air contaminant source to submit a copy of the upset log to him ten (10) days after the request is received. The Technical Manager can require submission of copies of the entire log.
- [Shelby County Air Code Section 3-9; TAPCR 1200-03-20-.04(1) and TAPCR 1200-03-20-.05]
16. The permittee shall submit within twenty (20) days after receipt of the notice of violation, the data required in items a. through g. of this condition. If the data required has previously been available to the Technical Manager or the Technical Manager's representative prior to the issuance of the notice of violation no further action is required of the violating source. However, if the source desires to submit additional information, then the additional information must be submitted within the twenty (20) day time period. Each report shall include as a minimum:
- a. The identity of the stack and/or other emission point where the excess emission(s) occurred;
 - b. The magnitude of the excess emissions expressed in pounds per hour and the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;
 - c. The time and duration of the emissions;

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- d. The nature and cause of such emissions;
- e. For malfunctions. The steps taken to correct the situation and the action taken or planned to prevent the recurrence of such malfunctions;
- f. The steps taken to limit the excess emissions during the occurrence reported, and
- g. If applicable, documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good operating practices for minimizing emissions.

Failure to submit the required report within the twenty (20) day period specified shall preclude the admissibility of the data for determination of potential enforcement actions. [Shelby County Air Code Section 3-9; TAPCR 1200-03-20-.06(2), (3), and (4)]

- 17. The permittee shall comply, where applicable, to the requirements of TACPR 1200-03-18-.80, Test Methods and Compliance Procedures: General Provisions.
- 18. The permittee shall comply, where applicable, to the requirements of TACPR 1200-03-18-.83, Test Methods and Compliance Procedures: Emission Capture and Destruction or Removal Efficiency and Monitoring Requirements.
- 19. The permittee shall comply, where applicable, to the requirements of TACPR 1200-03-18-.84, Test Methods and Compliance Procedures: Determining the Destruction or Removal Efficiency of a Control Device.
- 20. The permittee shall comply, where applicable, to the requirements of TACPR 1200-03-18-.85, Test Methods and Compliance Procedures: Leak Detection Methods for Volatile Organic Compounds (VOC's).
- 21. The permittee shall comply, where applicable, to the requirements of TACPR 1200-03-18-.86, Performance Specifications for Continuous Emissions Monitoring of Total Hydrocarbons.
- 22. The permittee shall comply, where applicable, to the requirements of TACPR 1200-03-18-.87, Quality Control Procedures for Continuous Emission Monitoring Systems (CEMS).
- 23. The permittee shall comply with the compliance assurance monitoring requirements as specified in Section K upon issuance of the permit.
- 24. The permittee shall maintain records and calculate actual emissions consistent with the relevant averaging period to demonstrate compliance with applicable mass emission rate limits, e.g. tons per month and tons per year, in Section I. These records may include but are not limited to:
 - a. Fuel type and usage rate in gallons, scf, MMBtu or other units as required for emission rate calculations;
 - b. Materials stored in tanks and the true vapor pressure of stored materials;
 - c. FCCU coke burn rate in 1000 lbs coke per year;
 - d. Operating rate and hours as required for emission rate calculations; and
 - e. Relevant emission factors and source of emission factors.

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Section C – Permit Changes

1. Operational Flexibility

- a. The permittee can make certain changes without requiring a permit revision, if the changes are not modifications under Title I of the Federal Act or Division 1200-03 and the changes do not exceed the emissions allowable under the permit. The permittee must, however, provide the Administrator and Technical Manager with written notification within a minimum of 7 days in advance of the proposed changes. The Technical Manager may waive the 7 day advance notice in instances where the source demonstrates in writing that an emergency necessitates the change. Emergency shall be demonstrated by the criteria of TAPCR 1200-03-09-.02(11)(e)7 and in no way shall it include changes solely to take advantages of an unforeseen business opportunity. The Technical Manager and EPA shall attach each such notice to their copy of the relevant permit.
- b. The written notification must be signed by the facility Title V Responsible Official and include the following:
 - i. contains a brief description of the change within the permitted facility;
 - ii. specifies the date on which the change will occur;
 - iii. declares, and quantifies where possible, any change in emissions;
 - iv. declares any permit term or condition that is no longer applicable as a result of the change; and
 - v. declares the requested change is not a Title I modification and will not exceed allowable emissions under the permit.
- c. The permit shield provisions of TAPCR 1200-03-09-.02(11)(e)6 shall not apply to Section 502(b)(10) changes. [Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(a)4(i)]
- d. The source may make operational flexibility changes that are not addressed or prohibited by the permit without a permit revision subject to the following requirements:
 - i. The change cannot be subject to a requirement of Title IV of the Federal Act or Chapter 1200-03-30.
 - ii. The change cannot be a modification under any provision of Title I of the Federal Act or Division 1200-03.
 - iii. Each change shall meet all applicable requirements and shall not violate any existing permit term or condition.
 - iv. The source must provide contemporaneous written notice to the Technical Manager and EPA of each such change, except for changes that are below the threshold of levels that are specified in Rule 1200-03-09-.04.
 - v. Each change shall be described in the notice including the date, any change in emissions, pollutants emitted; and any applicable requirements that would apply as a result of the change.
 - vi. The change shall not qualify for a permit shield under the provisions of part 1200-03-09-.02(11)(e)6.
 - vii. The permittee shall keep a record describing the changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes. The records shall be retained until the changes are incorporated into subsequently issued permits.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(a)4]

2. Administrative amendment

- a. Administrative permit amendments to this permit shall be in accordance with 1200-03-09-.02(11)(f)4. The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.
- b. The Technical Manager may extend the permit shield as part of an administrative permit amendment revision consistent with the provisions of TAPCR 1200-03-09-.02(11)(e)6 for such revisions made pursuant to item TAPCR 1200-3-09-.02(11)(f)4.(i)(V) which meet the relevant requirements of TAPCR 1200-03-09-.02(11)(e), TAPCR 1200-03-09-.02(11)(f) and TAPCR 1200-03-09-.02(11)(g) for significant permit modifications.
- c. Proceedings to review and grant administrative permit amendments shall be limited to only those parts of the

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permit for which cause to amend exists, and not the entire permit.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(f)4]

3. Minor permit modifications

- a. The permittee may submit an application for a minor permit modification in accordance with TAPCR 1200-03-09-.02(11)(f)5(ii).
- b. The permittee may make the change proposed in its minor permit modification immediately after an application is filed with the Technical Manager.
- c. Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.
- d. Minor permit modifications do not qualify for a permit shield.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(f)5(ii)]

4. Significant permit modifications

- a. Significant modification procedures shall be used for applications requesting permit modifications that do not qualify as minor permit modifications or as administrative amendments. In addition to the criteria of the preceding sentence, a relaxation of monitoring, reporting or recordkeeping requirements shall be considered significant. In the event that the Technical Manager issues a statement of clarification to clarify a permit requirement that is ambiguous or otherwise unclear, such clarification will not be considered a significant modification if it results in the less restrictive interpretation, provided however, that the less restrictive interpretation was the intent of the Technical Manager in issuing the original permit requirement. Nothing herein shall be construed to preclude the permittee from making changes consistent with paragraph 1200-03-09-.02(11) that would render existing permit compliance terms and conditions irrelevant.
- b. Significant modifications shall meet all requirements of paragraph 1200-03-09-.02(11) including those for applications, public participation, review by affected States, and review by EPA, as they apply to permit issuance and permit renewal.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(f)5(iv)]

5. New Construction or Modification Under the Provisions of 1200-03-09-.01

- a. Construction at a source already in possession of a major source operating permit issued pursuant to the provisions of paragraph 1200-03-09-.02(11) shall be governed by the following:
 - i. Sources shall designate in their construction permit application the route that they desire to follow for the purposes of incorporating the newly constructed sources into their existing operating permit. The Technical Manager shall use that information to prepare the operating permit application submittal deadlines in their construction permit.
 - ii. Sources desiring the permit shield shall choose the administrative amendment route of subpart 1200-03-09-.02(11)(f)4(iv) or the significant modification route of subpart 1200-03-09-.02(11)(f)5(iv).
 - iii. Sources desiring expediency instead of the permit shield shall choose the minor permit modification procedure route of Subpart 1200-03-09-.02(f)5(ii) or group processing of minor modifications under the provisions of subpart 1200-03-09-.02(11)(f)5(iii) as applicable to the magnitude of their construction.

[Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.02(11)(d)1(i)(V)]

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Section D – Generally Applicable Requirements

The requirements in this section are generally applicable and in some cases apply to activities and sources that are not subject to unit-specific or equipment-specific applicable requirements.

1. The permittee shall comply with Shelby County Air Code Section 3-16 and TAPCR 1200-03-04.04 for all open burning activities at the facility.
2. With the exception of emission sources for which an opacity standard is specifically provided elsewhere in this permit, the permittee shall not cause, suffer, allow permit discharge of a visible emission from any air contaminant source with an opacity in excess of twenty (20) percent for an aggregate of more than five (5) minutes in any one (1) hour or more than twenty (20) minutes in any twenty-four (24) hour period; provided, however, that, for fuel burning installations with fuel burning equipment of input capacity greater than 600 x 106 Btu per hour, no person shall cause, suffer, allow, or permit discharge of a visible emission from any fuel burning installation with an opacity in excess of twenty (20) percent (6-minute average) except for one six-minute period per one (1) hour of not more than forty (40) percent opacity. [TAPCR 1200-03-05-.01(1)]
3. Consistent with the requirements of Chapter 1200-03-20, due allowance may be made for visible emissions in excess of that permitted in this chapter which are necessary or unavoidable due to routine startup and shutdown conditions. However, no visible emission in excess of that permitted in this chapter shall be allowed which can be proved to cause or contribute to any violations of the Ambient Air Quality Standards contained in Chapter 1200- 03-03 and the National Ambient Air Quality Standards. The owner or operator shall maintain a continuous, current log of all excess visible emissions showing the time at which such conditions began and ended. Such record shall be available to the Technical Secretary or his representative upon his request. [TAPCR1200-03-05-.02(1)]
4. The permittee shall use the methods shown in TAPCR 1200-03-05-.03, as appropriate, to measure visible emissions. [Shelby County Air Code Section 3-17; TAPCR 1200-03-05-.03]
5. The permittee shall not cause, suffer, allow, or permit particulate emissions from non-process sources in excess of the standards in Shelby County Air Code Section 3-21 (TAPCR 1200-03-06).
6. Fugitive dust
 - a. The permittee shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, but not be limited to, the following:
 - i. Use, where possible, of water or chemicals for control of dust in demolition of existing buildings or structures, construction operations, grading of roads, or the clearing of land;
 - ii. Application of asphalt, oil, water, or suitable chemicals on dirt roads, material stock piles, and other surfaces which can create airborne dusts;
 - iii. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.
 - b. The permittee shall not cause, suffer, allow, or permit fugitive dust to be emitted in such manner to exceed five (5) minutes per hour or twenty (20) minutes per day as to produce a visible emission beyond the property line of the property on which the emission originates, excluding malfunction of equipment as provided in Chapter 1200-03-20. [Shelby County Air Code Section 3-18; TAPCR 1200-03-08]

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7. The permittee shall comply, where appropriate, with the sampling, recording, and reporting requirements of Shelby County Air Code Section 3-7 (TAPCR 1200-03-10).
8. Where applicable, the permittee shall comply with the requirements of Shelby County Air Code Section 3-25 (TAPCR 1200-03-11-.02(d)) when conducting any renovation or demolition activities at the facility. [Shelby County Air Code Section 3-25; TAPCR 1200-03-11-.02(d) and 40 CFR Part 61 Subpart M]
9. The permittee shall comply, where appropriate, with the sampling and analysis requirements of Shelby County Air Code Section 3-8 [TAPCR 1200-03-12].
10. The permittee shall not cause, suffer, allow, or permit the emission from a source of sulfur dioxide in excess of 2,000 parts per million, 0.2 percent by volume, dry basis (one hour average). [Shelby County Air Code Section 3-24; TAPCR 1200-03-14-.03(3)].
11. The permittee may be required to submit an acceptable air pollutant episode emissions reduction plan detailing steps that can be taken to relieve a health hazard in the event that the Technical Manager declares an air pollution alert, air pollution warning, or air pollution emergency. In the event that this plan is required, the permittee shall be notified in writing, and shall have thirty days to submit the required plan. [Shelby County Air Code Section 3-14; TAPCR 1200-03-15]
12. In the event that the Technical Manager declares an air pollution alert, air pollution warning, or air pollution emergency, the permittee may be required to cease, curtail, postpone or defer production and allied operations to the extent possible without causing injury to persons or damage to equipment. [Shelby County Air Code 3-14; TAPCR 1200-03-15-.03]
13. The permittee shall not build, erect, install, or use any article, machine, equipment, process, or other method the use of which conceals emissions that would otherwise constitute noncompliance with an applicable regulation found in TAPCR 1200-03-18. This includes, but is not limited to, the use of gaseous diluents to achieve compliance, and the piecemeal carrying out of an operation to avoid coverage by a regulation that applies only to operations larger than a specified size. [Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.02(6)]
14. The requirements below apply to any vacuum-producing system, wastewater separator, and process unit turnaround at petroleum refinery sources. No exemptions are allowable based on size or throughput of a facility. [Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.26(1)(a)]
 - a. These requirements do not apply to segregated storm water run-off drain systems or to non-contact cooling water systems. [Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.26(1)(b)]
 - b. For purposes of this condition, the definitions in TAPCR 1200-03-18-.26(2) apply. [Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.26(2)]
 - c. For any wastewater (oil/water) separator, the permittee shall:
 - i. Provide covers and seals on all separators and forebays, and
 - ii. Equip all openings in covers, separators, and forebays with lids or seals and keep the lids or seals in the closed position at all times except when in actual use.[Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.26(3)(b)]
 - d. During a process unit turnaround, the permittee shall provide for the following:
 - i. Depressurization venting of the process unit or vessel to a vapor recovery system, flare, or firebox;
 - ii. No emission of VOC from a process unit or vessel until its internal pressure is 136 kiloPascals (kPa) (19.7

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- pounds per square inch atmospheric [psia]) or less; and,
- iii. Recordkeeping of the following items:
 - 1. Date of every process unit or vessel turnaround; and
 - 2. The internal pressure of the process unit or vessel immediately prior to venting to the atmosphere.
[Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.26(3)(c)]
 - e. The permittee shall maintain the records required above for at least 3 years and shall make these records available to the Technical Secretary upon request. [Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.26(4)]
 - f. For each occurrence of excess emissions under this condition, within 30 calendar days of becoming aware of such occurrence, the permittee shall supply the Technical Secretary with the following information:
 - i. The name and location of the facility;
 - ii. The subject sources that caused the excess emissions;
 - iii. The time and date of first observation of the excess emissions;
 - iv. The cause and expected duration of the excess emissions;
 - v. For numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and
 - vi. The proposed corrective actions and schedule to correct the conditions causing the excess emissions.
[Shelby County Air Code Section 3-18; TAPCR 1200-03-18-.04(2) as cited by TAPCR 1200-03-18-.26(5)]
15. The permittee may not install or reinstall on a facility component any insulating materials that contain commercial asbestos if the materials are either molded or friable or set-applied and friable after drying. Disposal of asbestos shall be performed in accordance with Shelby County Air Code Section 3-25 [Shelby County Air Code Section 3-25; TAPCR 1200-03-11-.02(2)(j)].
16. Title VI Conditions
- a. The permittee shall comply with the standards for labeling of products using ozone depleting substances pursuant to 40 CFR 82 Subpart E:
 - i. All containers containing a class I or class II substance being stored or transported, all products containing a class I substance, and all products directly manufactured with a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106;
 - ii. The placement of the required warning statement must comply with the requirements pursuant to §82.108;
 - iii. The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110; and
 - iv. No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
 - b. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:
 - i. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to Section 82.156.
 - ii. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to Section 82.158.
 - iii. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification pursuant to Section 82.106.
 - iv. Persons disposing of small appliances, MVAC's, and MVAC-like appliances, as defined in §82.152, must comply with the record-keeping requirements pursuant to §82.166.
 - v. Persons owning commercial or industrial process refrigeration equipment must comply with the leak

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- repair requirements pursuant to §82.156; and
 - vi. Owner/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
 - c. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone depleting substance refrigerant in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.
 - d. The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, Significant new Alternatives Policy Program. [40 CFR Part 82]
17. For processes subject to 40 CFR Part 68 and specified in 40 CFR § 68.10, the permit holder shall comply with the requirements of the Accidental Release Prevention Provisions in 40 CFR Part 68. The permit holder shall submit a risk management plan (RMP) by the date specified in §68.10. [40 CFR Part 68]
18. The permittee shall comply with the following requirements for units subject to any subpart of 40 CFR Part 60, unless otherwise stated in the applicable subpart:
- a. Title 40 CFR § 60.7 (relating to Notification and Recordkeeping)
 - b. Title 40 CFR § 60.8 (relating to Performance Tests)
 - c. Title 40 CFR § 60.11 (relating to Compliance with Standards and Maintenance Requirements)
 - d. Title 40 CFR § 60.12 (relating to Circumvention)
 - e. Title 40 CFR § 60.13 (relating to Monitoring Requirements)
 - f. Title 40 CFR § 60.14 (relating to Modification)
 - g. Title 40 CFR § 60.15 (relating to Reconstruction)
 - h. Title 40 CFR § 60.19 (relating to General Notification and Reporting Requirements)
19. The permittee shall comply with the following requirements for units subject to any subpart of 40 CFR Part 63, unless otherwise stated in the applicable subpart:
- a. Title 40 CFR § 63.4 (relating to Circumvention)
 - b. Title 40 CFR § 63.5 (relating to Preconstruction Review and Notifications)
 - c. Title 40 CFR § 63.6 (relating to Compliance with Standards and Maintenance Requirements)
 - d. Title 40 CFR § 63.7 (relating to Performance Testing)
 - e. Title 40 CFR § 63.8 (relating to Monitoring Requirements)
 - f. Title 40 CFR § 63.9 (relating to Notification Requirements)
 - g. Title 40 CFR § 63.10 (relating to Recordkeeping and Reporting)
 - h. Title 40 CFR § 63.11 (relating to Control Device and Work Practice Requirements)
20. For petroleum refinery facilities subject to 40 CFR Part 60, Subpart QQQ, the permittee shall comply with the following requirements:
- a. Title 40 CFR § 60.692-1(a) - (c) (relating to Standards: General)
 - b. Title 40 CFR § 60.692-2(a) - (c), (e) (relating to Standards: Individual Drain Systems)
 - c. Title 40 CFR § 60.692-6(a) - (b) (relating to Standards: Delay of Repair Standards)
 - d. Title 40 CFR § 60.692-7(a) - (b) (relating to Standards: Delay of Compliance)
 - e. Title 40 CFR § 60.693-1(a) - (d), (e)(1) - (3) (relating to Alternative Standards for Individual Drain Systems)
 - f. Title 40 CFR § 60.697(a), (b)(1) - (3) (relating to Recordkeeping Requirements), as applicable to Individual Drain Systems applicable to Individual Drain Systems
 - g. Title 40 CFR § 60.697(f)(1) - (2), (g) (relating to Recordkeeping Requirements), as applicable to Individual Drain Systems
 - h. Title 40 CFR § 60.697(h) (relating to Recordkeeping Requirements), as applicable to excluded Stormwater

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- i. Title 40 CFR § 60.697(i) (relating to Recordkeeping Requirements), as applicable to excluded Ancillary Equipment
 - j. Title 40 CFR § 60.698(a), and (b)(1) (relating to Reporting Requirements), as applicable to Individual Drain Systems
 - k. Title 40 CFR § 60.698(c) (relating to Reporting Requirements), for water seal breaches in Drain Systems
 - l. Title 40 CFR § 60.698(e) (relating to Reporting Requirements), as applicable to Individual Drain Systems
21. The permittee shall comply with the following requirements for units subject to any subpart of 40 CFR Part 61, unless otherwise stated in the applicable subpart:
- a. Title 40 CFR § 61.05 (relating to Prohibited Activities)
 - b. Title 40 CFR § 61.07 (relating to Application for Approval of Construction or Modification)
 - c. Title 40 CFR § 61.09 (relating to Notification of Startup)
 - d. Title 40 CFR § 61.10 (relating to Source Reporting and Request for Waiver of Compliance)
 - e. Title 40 CFR § 61.12 (relating to Compliance with Standards and Maintenance Requirements)
 - f. Title 40 CFR § 61.13 (relating to Emissions Tests and Waiver of Emission Tests)
 - g. Title 40 CFR § 61.14 (relating to Monitoring Requirements)
 - h. Title 40 CFR § 61.15 (relating to Modification)
 - i. Title 40 CFR § 61.19 (relating to Circumvention)
22. For facilities where total annual benzene quantity from waste is greater than or equal to 10 megagrams per year and subject to emission standards in 40 CFR Part 61, Subpart FF, the permittee shall comply with the following requirements: (Subpart FF applicable requirements for specific equipment types are also identified in Section H.)
- a. Title 40 CFR § 61.342(c)(1)(i) - (iii) (relating to Standards: General)
 - b. Title 40 CFR § 61.342(e)(1) (relating to Standards: General)
 - c. Title 40 CFR § 61.342(e)(2)(i) - (ii) (relating to Standards: General)
 - d. Title 40 CFR § 61.342(f)(1), and (2) (relating to Standards: General)
 - e. Title 40 CFR § 61.342(g) (relating to Standards: General)
 - f. Title 40 CFR § 61.348 (related to Standards: Treatment processes)
 - g. Title 40 CFR § 61.350(a) and (b) (relating to Standards: Delay of Repair)
 - h. Title 40 CFR § 61.355(a)(1)(iii), (a)(2), (a)(6), (b), and (c)(1) - (3) (relating to Test Methods, Procedures, and Compliance Provisions)
 - i. Title 40 CFR § 61.355(k)(1) - (6), and (7)(i) - (iv) (relating to Test Methods, Procedures, and Compliance Provisions), for calculation procedures
 - j. Title 40 CFR § 61.356(a) (relating to Recordkeeping Requirements)
 - k. Title 40 CFR § 61.356(b), and (b)(1) (relating to Recordkeeping Requirements)
 - l. Title 40 CFR § 61.356(b)(4) (relating to Recordkeeping Requirements)
 - m. Title 40 CFR § 61.356(b)(5) (relating to Recordkeeping Requirements)
 - n. Title 40 CFR § 61.356(c) (relating to Recordkeeping Requirements)
 - o. Title 40 CFR § 61.357(a), (d)(1), (d)(2), (d)(6), and (d)(8) (relating to Reporting Requirements)
 - p. Title 40 CFR § 61.357(d)(5) (relating to Reporting Requirements)
23. For facilities with containers subject to emission standards in 40 CFR Part 61, Subpart FF, the permittee shall comply with the following requirements:
- a. Title 40 CFR § 61.345(a)(1) - (3), (b), and (c) (relating to Standards: Containers)
 - b. Title 40 CFR § 61.355(h) (relating to Test Methods, Procedures and Compliance Provisions)
 - c. Title 40 CFR § 61.356(g) (relating to Recordkeeping Requirements)
 - d. Title 40 CFR § 61.356(h) (relating to Recordkeeping Requirements)

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24. For facilities with individual drain systems subject to emission standards in 40 CFR Part 61, Subpart FF, the permittee shall comply with the following requirements:
- a. Title 40 CFR § 61.346(b)(1), (2), (2)(i), (3), (4)(i) - (iv), and (5) (relating to Standards: Individual Drain Systems)
 - b. Title 40 CFR § 61.346(b)(2)(ii)(A) (relating to Standards: Individual Drain Systems), for junction boxes
25. The permittee shall comply with the maintenance vent requirements in 40 CFR 63, Subpart CC, § 63.643(c)(1), (2), and (3).
26. The permittee shall comply with the requirement to prepare and implement an operation, maintenance and monitoring plan in accordance with 40 CFR Part 63, Subpart UUU, 40 CFR § 63.1574(f).
27. Site remediation activities are not subject to the requirements of 40 CFR Part 63, Subpart GGGGG provided that the permittee meets the requirements in Conditions 26.a, b., and c. [40 CFR 63.7881(c)(1)-(c)(3)]
- a. The permittee determines that the total quantity of the HAP listed in Table 1 to this subpart that is contained in the remediation material excavated, extracted, pumped, or otherwise removed during all of the site remediations conducted at your facility is less than 1 megagram (Mg) annually. This exemption applies the 1 Mg limit on a facility-wide, annual basis, and there is no restriction to the number of site remediations that can be conducted during this period.
 - b. The permittee prepares and maintains written documentation to support your determination that the total HAP quantity in your remediation materials for the year is less than 1 Mg. The documentation must include a description of your methodology and data used for determining the total HAP content of the remediation material.
 - c. The Title V permit does not have to be reopened or revised solely to include the recordkeeping requirement specified in paragraph (c)(2) of this section. However, the requirement must be included in the permit the next time the permit is renewed, reopened, or revised for another reason.
28. For containers managing remediation materials subject to 40 CFR Part 63, Subpart GGGGG, the permittee shall comply with the following requirements:
- a. Title 40 CFR § 63.923(b)(1) - (3), (c), (d)(1) - (5), (e), and (f)(1) - (4) (relating to Standards - Container Level 2 Controls)
 - b. Title 40 CFR § 63.925(a)(1) - (8), and (b)(1) - (3) (relating to Test Methods and Procedures)
 - c. Title 40 CFR § 63.926(a)(1) - (3) (relating to Inspection and Monitoring Requirements)
 - d. Title 40 CFR § 63.7901(b) and (b)(1), for initial demonstration of compliance
 - e. Title 40 CFR § 63.7901(d), and (d)(1) - (4), for initial demonstration of compliance
 - f. Title 40 CFR § 63.7903(b) and (b)(1), for continuous demonstration of compliance
 - g. Title 40 CFR § 63.7903(d)(5), (d)(5)(i), and (d)(5)(ii), for continuous demonstration of compliance
 - h. Title 40 CFR § 63.7952(c), for recordkeeping

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[Sections E and F inserted here]

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[Sections G, H, I and J inserted here]

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Endnotes for Section G

1. The individual pressurized/LPG tanks in Regulatory group GRP-TK-NEGPRES are not listed in Sections G or H since they have no applicable requirements.
2. Unit 24-09-105 (Tank 105) is only subject to NSPS Kb during maintenance events when maintenance wastewater (potentially oil-bearing) is stored. During normal operations, Tank 105 contains only cooling tower blowdown, boiler blowdown and boiler condensate.

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Section K: Additional Monitoring Requirements (CAM)

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CAM Plan for the FCCU (P001) PM₁₀ Control

Facility:	Valero Refining Company – Tennessee, LLC
Emissions Unit:	FCCU
Applicable Regulation:	Permit 0101-13P, Condition 3
Emission Limit:	0.82 lb PM ₁₀ /1000 lb coke burn off and 171.4 tpy
Monitoring Req's:	Four or more data values equally spaced over each hour (40 CFR 64.3(b)(4)(ii))
Control Device:	Wet Gas Scrubber

Monitoring Approach

Indicator: Average pressure drop and liquid-to-gas (L/G) ratio, i.e., scrubber liquid supply rate and regenerator exhaust gas flow rate at the wet gas scrubber when the FCCU is in operation. During periods of startup, shutdown and hot standby, the permittee may elect one of the following options in lieu of meeting the established indicators:

- (i) Comply with only the L/G ratio indicator (the pressure drop indicator does not apply); or
- (ii) Maintain the inlet velocity to the primary internal cyclones of the FCCU catalyst regenerator at or above 20 feet per second.

Measurement Approach: Measurements of pressure drop, scrubber caustic liquid supply rate, and regenerator exhaust gas rate are recorded continuously, with four or more data values equally spaced over each hour.

Indicator Range: Minimum pressure drop and L/G ratio are available in the most recent annual performance test report (40 CFR 60.104a(b)).

Definition of Excursion: 3-hour periods during which the average PM control device operating indicators, as measured by the continuous monitoring systems under §60.105a(b)(1), fall below the levels established during the most recent performance test or below the standards during periods of startup, shutdown and hot standby.

Performance Criteria

Data Representativeness: Wet gas scrubber operating indicators (pressure drop and L/G ratio) at or exceeding the levels established during performance testing indicates proper operation of the wet gas scrubber and ensures that PM₁₀ emissions meet the applicable emission limits.

Verification of Operational Status: Records of the wet gas scrubber operating indicators will be kept onsite and made available for inspection.

QA/QC Practices: Valero will ensure quality data by using appropriate monitoring techniques (e.g., automated sensor or observations by trained Valero personnel) and keeping records.

Monitoring Frequency: The wet gas scrubber operating indicators are recorded

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continuously, with four or more data values equally spaced over each hour.

Justification

Background: The FCCU is equipped with a wet gas scrubber to control emissions of PM₁₀.

Rationale for Selection of Performance Indicator: Wet gas scrubber operating indicators at or exceeding the levels established during performance testing indicates proper operation of the wet gas scrubber.

Rationale for Selection of Indicator Level: Wet gas scrubber operating indicators established during performance testing indicate the proper operation of the wet gas scrubber.

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CAM Plan for Barge Loading Flare (P024) VOC Control

Facility:	Valero Refining Company – Tennessee, LLC
Emissions Unit:	Barge Loading Flare
Applicable Regulation:	Permit 0101-02P(R), Condition 1, and Permit 0101-19P, Condition 2
Emission Limit:	3.49 tons/month of VOC during non-crude loading (02P(R)) 37.52 tpy of VOC during non-crude loading (02P(R)) 36.29 tpy of VOC during crude loading (19PC)
Monitoring Req's:	Data collection at least once per 24-hour period. (40 CFR 64.3(b)(4)(iii))
Control Device:	Flare

Monitoring Approach

Indicator: The presence of a pilot flame via a thermocouple indicates that the vapor control system (i.e., flare) is operational. A continuous interlock system only allows loading when this pilot flame is present and other safety criteria are met.

Measurement Approach: Continuous interlock system that allows loading only when the flare and vapor capture and control system is operational.

Indicator Range: Presence of a pilot flame (i.e., vapor capture and control system is operational).

Definition of Excursion: Loading occurs when the vapor capture and control system is not operational while loading is occurring.

Performance Criteria

Data Representativeness: Operation of the vapor capture and control system ensures that VOC emissions meet the applicable emission limits.

Verification of Operational Status: Presence of a pilot flame and continuous interlock system that allows loading only when the flare and vapor capture and control system is operational.

QA/QC Practices: Continuous interlock system is calibrated regularly.

Monitoring Frequency: Continuous interlock system allows loading only when the flare (vapor capture and control system) is operational.

Justification

Background: The barge loading operation is equipped with a flare to control emissions of VOC.

Rationale for Selection of Performance Indicator: The continuous interlock system confirms the presence of a pilot flame via a thermocouple (before loading is permitted) and this indicates that the

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flare is operational.

Rationale for Selection of Indicator Level: The presence of a pilot flame indicates proper operation of the flare and ensures that VOC emissions meet the applicable emission limits.

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[Section L – Permit Shield inserted here]

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Section M - Insignificant Activities and Other Permitting Authority Determinations

Relevant permitting authority determinations regarding insignificant activities as well as other regulatory interpretations are included at the end of this Section.

The following actions were approved as insignificant activities per City of Memphis Code Section 16-77 [Reference 1200-3-9-.04] or otherwise determined to be exempt from permitting requirements by the permitting authority:

1. Flare gas recovery system (04/09/2009)
2. 12,000 gpm Alkylation Unit Cooling Tower 10 (06/18/2010)
3. Wet Gas Scrubber Plus System (04/09/2012)
4. Alkylation Unit Upgrades (03/20/2013)
5. Diamond Pipeline Connection (01/05/2017)
6. Butane Defluorinator (04/27/2018)
7. DHT Naphtha Reroute (08/07/2018)
8. LPG Merox Treater Upgrades (08/09/2018)

The following activities and/or equipment have been determined to qualify as insignificant activities as part of this permit action.

1. LPG Truck and Rail Loading and Unloading
2. Gasoline Underground Storage Tank for On-site Vehicle Fueling (if <10,000 gallon, exempt under item 12 below)
3. Gasoline Dispensing for On-site Vehicle Fueling
4. Process Unit Group GRP-TK-NEGPRES (see Section F)

Per Shelby County Air Code Section 3-5; TAPCR 1200-03-09-.04(4)(d), the following activities and emission sources are not required to be listed in the construction or operating permit applications for the facility. These exemptions shall not be used to lower the sources potential to emit below “major source” applicability thresholds or to avoid any “applicable requirement”.

1. Fuel burning equipment of less than 500,000 Btu per hour capacity. This exemption shall not apply where the total capacity of such equipment operated by one person exceeds 2.00 million Btu per hour.
2. Single stack of an air contaminant source that emits no hazardous air contaminants or pollutants, and which does not have the potential for emitting more than 0.50 pounds per hour of nonhazardous particulates and 0.5 pounds per hour of any regulated nonhazardous gas (particulates and gases not defined as hazardous air contaminants or pollutants), provided that the total potential particulate emissions from the air contaminant source amounts to less than two (2) pounds per hour, and the total regulated gaseous emissions from the air contaminant source amounts to less than two (2) pounds per hour. For the purpose of this part, an air contaminant source includes all sources located within a contiguous area, and under common control.
3. Any air contaminant source constructed and operated at a domestic residence solely for domestic

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use.

4. Equipment used exclusively to store, hold, or distribute natural gas or propane excluding all associated fuel burning equipment not specifically exempted.
5. Brazing, soldering, or welding equipment which does not emit lead in amounts equal to or greater than 0.6 tons per year.
6. Sources within the counties of Shelby, Davidson, Hamilton, and Knox until such time as the Board shall determine that air pollution is not being controlled in such county to a degree at least as stringent as the substantive provisions of the Tennessee Air Quality Act and regulations adopted pursuant thereto. This exemption does not apply to any air contaminant source in those counties if the local regulation is less stringent than the applicable state regulation.
7. Automobile body shops - including paint spraying, grinding and polishing operations. This exemption does not apply to sources in ozone nonattainment areas which emit more than 15 pounds per day of volatile organic compounds.
8. Any process emission source emitting less than 0.1 pounds per hour of a pollutant.
9. Any emission unit with the potential to emit radionuclides which will result in a dose to the most exposed member of the public of less than 0.1 million per year. Even though radionuclide air contaminant sources are regulated under Chapter 1200-03-11, this exemption is still valid except that recordkeeping and reporting requirements must be met.
10. Any modification (as defined in Rule 1200-03-02-.01) to an existing process emission source, incinerator, or fuel-burning installation to add sources of equipment leaks (e.g. valves, flanges, pumps, compressors, etc.) as long as the estimated increase in annual emissions attributable to the modification does not exceed 5 tons per year. However, such emissions increases shall be considered when making major modification determinations pursuant to paragraphs 1200-03-09-.01(4) and (5).
11. All livestock (including poultry) operations and associated fuel burning and incineration equipment. This exemption from permitting requirements does not extend to:
 - i. An incineration unit which has a manufacturer's rated capacity greater than 500 pounds per hour or has a total burner rated capacity greater than 400,000 Btu per hour.
 - ii. An incineration unit into which is charged materials or wastes other than livestock and poultry carcasses; or
 - iii. A commercial incineration unit.
12. All storage tanks with a capacity less than 10,000 gallons and all process tanks with a capacity less than 3,000 gallons.
13. Mobile sources such as: automobiles, trucks, buses, locomotives, planes, boats, and ships. This exemption only applies to the emissions from the internal combustion engines used exclusively to propel such vehicles.
14. Diesel fuel or fuel oil storage tanks with a capacity of forty thousand (40,000) gallons or less.
15. Surface coating and degreasing operations which do not exceed a combined total usage of more than 60 gallons/month of coatings, thinners, clean-up solvents, and degreasing solvents at any one plant location, and does not exceed 1,000 pounds per year of each hazardous air pollutant.
16. Repair and maintenance, cleaning and degreasing operations which do not exceed more than 145 gallons in any twelve (12) month period, and does not exceed 1,000 pounds per

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year of each hazardous air pollutant.

17. Fuel burning sources that are either gas fired or #2 oil fired with a heat input rate under 10 million Btu/hour, where the combined total heat input rate at each location does not exceed 10 million Btu/hour.
18. Machining of metals where total solvent usage does not exceed more than 60 gallons/month at any one plant location, and does not exceed 1,000 pounds per year of each hazardous air pollutant.
19. Equipment used exclusively for steam or dry cleaning of fabrics, plastics, rubber, wood, or vehicle engines or drive trains, provided the total solvent usage on all equipment of this type at the same plant location is less than 60.0 gallons per month, and does not exceed 1,000 pounds per year of each hazardous air pollutant.
20. Heat treating, soaking, case-hardening, or surface conditioning of metal objects, such as carbonizing, nitriding, carbon nitriding, siliconizing, or diffusion treating using sweet natural gas or liquid petroleum gas as in process fuel and where the heat input rate is under 10 million Btu per hour.
21. Natural gas fired and #2 oil fired ovens which have no emissions other than products of combustion which have a heat input rate under 10 million Btu per hour.
22. Degreasing operations with solvent usage less than 30 gallons/month, and where hazardous air pollutant emissions are less than 1,000 pounds per year.
23. Silk screen operations with solvent usage less than 30 gallons per month, and where hazardous air pollutant emissions are less than 1,000 pounds per year.
24. The procedures for the on-site remediation of soil or water contaminated with organic compounds as follows:
 - i. Land spreading, aeration or bioremediation of contaminated soil.
 - ii. Negative pressure venting of contaminated soil, provided the remediation is completed within 18 months and volatile organic compound emissions do not exceed one (1) pound per hour.
 - iii. Installation and use of air strippers for treatment of contaminated water, provided the remediation is completed within 18 months, and the emissions are no more than 5 tons per year of any regulated pollutant that is not a hazardous air pollutant, and less than 1,000 pounds per year of each hazardous air pollutant.
25. Temporary-use air curtain destructors or temporary-use air curtain incinerators used in disaster recovery solely for disposal of materials resulting from a natural disaster, and when conducted in conformity with the following conditions:
 - i. Fires disposing of structural and household materials and vegetation are allowed only when those structures or materials are destroyed or severely damaged by natural disaster. The air curtain destructor or air curtain incinerator shall only be used to combust debris in an area declared a State of Emergency by a local or State government, or the President, under the authority of the Stafford Act, has declared that an emergency or a major disaster exists in the area. Input from Emergency Management personnel may be requested in determining qualification with this criterion.
 - ii. The maximum rated capacity for each temporary-use air curtain destructor or temporary-use air curtain incinerator shall not exceed 35 tons per day per unit.
 - iii. The persons using temporary-use air curtain destructors or temporary-use air curtain

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incinerators under this provision must make a reasonable effort to remove all tires and other rubber products, vinyl shingles and siding, vinyl flooring, carpet, other plastics, asphalt shingles and other asphalt roofing materials, and/or asbestos containing materials from the materials to be burned before ignition. The Technical Manager reserves the right to inspect the proposed materials to be burned before ignition. The alternative use of chippers and grinders, landfilling, or on-site burial of waste in lieu of burning, if lawful, is encouraged.

- iv. The person responsible for such burning must notify the Division of Air Pollution Control of the proposed location. The notification must be delivered to the Division of Air Pollution Control at the appropriate regional Environmental Field Office at least three (3) days prior to commencing the burn. The Division may request that alternate sites be identified to minimize impact to air quality. The alternative use of chippers and grinders in lieu of burning is encouraged.
- v. No fire shall be ignited while any air pollution emergency episode is in effect in the area of the burn.
- vi. The air curtain destructor or air curtain incinerator shall only be used during a period that begins on the date the unit started operation and lasts 8 weeks or less within the boundaries of the same emergency or disaster declaration area.
- vii. Disposal via temporary-use air curtain destructors or temporary-use air curtain incinerators conducted under this exception is only allowed where no other safe and/or practical means of disposal is available.
- viii. The Technical Manager reserves the right to require a person to cease or limit burning if emissions from the air curtain destructor or air curtain incinerator are deemed by the Technical Manager or his designee to jeopardize public health or welfare, create a public nuisance or safety hazard, create a potential safety hazard, or interfere with the attainment or maintenance of the air quality standards.

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Attachment 1 - Process Description and Process Flow Diagrams

Crude Units

The East Crude Unit (ECU) and West Crude Unit (WCU) are the first major processing units in the refining process. Raw crude oil is first washed with water to remove salts and other impurities. The “treated” crude oil is then preheated by passing it through a series of heat exchangers before it is routed into the Preflash Tower where light ends are “flashed” from the crude oil. The crude leaves the Preflash Tower and passes through a furnace (P003 [WCU heater], P010a and P010b [ECU heaters]) where it is heated. After the crude oil passes through the furnace it enters the Crude Column where the crude oil is separated by boiling point using distillation into feedstocks for downstream units.

A portion of the kerosene fraction is sent to a treating unit to make finished kerosene or jet fuel. The Merox Treating Unit treats jet fuel to remove acidic components and mercaptans from the product. The Merox process uses a caustic prewash and catalytic reaction on the jet fuel stream. Following the catalytic reaction, the fuel stream passes through a series of water washes and filters before moving to final product storage. Water wash streams discharge to oil water separators (APIs)/Dissolved Air Flotation (DAF) treatment.

Flexibility of Crude Unit operation is maintained by altering the crude slate being processed, as well as furnace temperatures, process flows, and pressures. Operational flexibility is required to meet required product yields, downstream processing needs and market demands.

Naphtha and Distillate Units

The Memphis Refinery employs one naphtha hydrotreating or hydrodesulfurization (NHDS) unit, one distillate hydrotreating (DHDS) unit, and one hydrocracking unit (HCU) to remove sulfur from products and feedstocks. All three units use basically the same chemistry in that hydrogen (H_2) is mixed with a hydrocarbon stream and passed through a reactor vessel with a fixed bed of catalyst containing metal oxides. The catalyst facilitates a reaction of the H_2 with sulfur compounds in the hydrocarbon to form hydrogen sulfide (H_2S). After the reactor effluent is cooled, the excess H_2 is separated from the liquid hydrocarbon along with most of the H_2S . The liquid hydrocarbon is stripped of any remaining H_2S and light ends before it goes to a storage tank as finished product. The gas stream containing the H_2 and H_2S is treated to remove the H_2S and the H_2 is recycled to the process. In addition, the hydrocracking unit uses hydrogen to convert a portion of the distillate feed to naphtha range material, based on market economics of the products.

The NHDS unit includes the NHDS Reactor Charge Heater (P005) and NHDS Stabilizer Reboiler Heater (P015). The DHDS unit includes the DHDS Reactor Charge Heater (P013a) and DHDS Stabilizer Reboiler Heater (P013b). The HCU unit includes the HCU 18 Reactor Charge Heater (P043) and HCU 18 Fractionator Reboiler Heater (P044).

Operational flexibility is required to meet product yields, downstream processing needs and market demands. Flexibility of Hydrotreating Unit operation is maintained by altering the feedstock being processed, furnace temperatures, process flows, pressures and catalyst.

Continuous Catalytic Reformer (CCR) Unit

The CCR process converts low octane naphthenes and paraffins into higher octane aromatic compounds. The process feed

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is mixed with H₂ and heated to the vapor phase before being passed over a bed of catalyst in the first reactor where naphthenes are dehydrogenated to form aromatics in an endothermic reaction. The effluent from the first reactor is reheated before entering the second reactor where the reactions continue. This process continues through a third and fourth reactor. The CCR Reactor Heater and Interheaters No. 1, 2, and 3 are represented by (P006). The effluent from the last reactor is cooled and the liquid products condensed and the H₂ is separated from the liquid in a separator vessel and recycled to the process. Any excess H₂ is exported to other hydrogen consuming process units and/or the fuel system. The liquid portion is fractionated using a distillation column and the CCR Platform Stabilizer Reboiler (P033) to remove the lighter materials before being sent to a storage tank.

Over time, unwanted reactions occurring during the process (such as cracking) leave coke deposits on the catalyst, blocking its active sites and lowering the catalyst activity. The reaction section of the unit consists of the four reactors stacked vertically. The catalyst flows by gravity downward through each of the reactors. When it reaches the bottom, it is lifted to the top of the regenerator section. The coke is removed by combustion using the CCR Catalyst Regenerator (P007) and the catalyst is re-chlorinated before recycling to the top of the reactor stack.

Operational flexibility of the reforming unit is required to meet product yields and downstream processing needs such as hydrogen production, pool octane and market demands. Flexibility of Reformer Unit operation is maintained by altering the feedstock being processed, furnace temperatures, process flows, pressures and catalyst regeneration.

Fluid Catalytic Cracking (FCC)

The FCC process uses a catalyst composed of very fine particles which behave as a fluid when aerated with a vapor. The fluidized catalyst is continuously circulated between the reactor and regenerator vessels and acts as a vehicle to transfer heat from the regenerator to the oil feed and reactor. Heat from the regenerated catalyst vaporizes the feed oil and heats it to the desired reaction temperature. The cracking reactions start when the hot catalyst and feed oil are mixed at the bottom of the reactor riser and continue until the hydrocarbon vapors and catalyst are separated at the top of the reactor vessel. The hydrocarbon vapors flow into a fractionator for separation into gas and liquid products. The catalyst that has been separated from the hydrocarbon vapors in the top of the reactor fall to the bottom of the upper reactor section where steam is passed through it to remove hydrocarbons that may have been absorbed by the catalyst, but coke that was formed on the catalyst during the process remains. The catalyst flows by gravity from the reactor vessel to the bottom of the regenerator vessel.

The catalyst regenerator used at the Memphis Refinery is a “full burn” design and combusts the coke to carbon dioxide. After the coke combustion, the regenerated catalyst is separated from the combustion gases and is recirculated back to the reactor. The regenerator temperatures and coke burn-off can be controlled by varying the amount of oxygen available for combustion. The regenerator exhaust gases pass through a venturi scrubber for removal of particulate matter (PM) and sulfur dioxide (SO₂) emissions. The scrubber is also equipped with Wet Gas Scrubber Plus technology which provides control for nitrogen oxides (NO_x) emissions.

Operational flexibility of the FCCU (P001) is required to meet product yields, downstream processing needs, pool octane and market demands. Product yield flexibility from the FCCU is maintained by varying process temperatures, pressures, flows, feedstock quality and the type of catalyst used. Process product yields are greatly influenced by reaction temperatures which are controlled by the temperature and rate of the catalyst entering the reactor riser which, in turn,

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is dictated by regenerator operations.

Gas Concentration Unit

The Gas Concentration (Gas Con) Unit recovers light liquid, liquid petroleum gas (LPG) and other gases from the FCC process using compression, absorption, and fractionation. Any non-condensable gases are sent to the Cryo Units for further processing. Recovered LPG is treated to remove sulfur compounds before being sent to the Alkylation (Alky) Unit for further processing or to storage. The liquid fraction (cat gasoline) is sent to a storage tank and/or the Cat Gasoline Hydrodesulfurization (or Hydrotreater) Unit (CGHT) for further processing before it is used to blend finished gasoline.

Cat Gas Hydrodesulfurization or Hydrotreater Unit (CGHT)

The gasoline recovered in the Gas Con Unit (cat gasoline) is treated in the CGHT Unit to meet the Tier 2 Low Sulfur Gasoline regulations. The cat gasoline is passed over a fixed catalyst bed where light sulfur compounds are converted into heavier sulfur compounds. The reactor effluent is then fractionated into light cat naphtha (LCN) and heavy cat naphtha (HCN) using a distillation column and the SHU Splitter Reboiler Heater (P037). The LCN is either sent to storage for use in finished gasoline blending or recombined with the HCN downstream of the CGHT. The HCN is processed in the hydrotreating section of the unit using a process much like the naphtha and distillate hydrotreaters. The feed is mixed with hydrogen, heated using the CGHT Reactor Charge Heater (P038), and passed over a fixed catalyst bed where sulfur compounds are converted to H₂S. The H₂S is separated from the liquid and the liquid fractionated using the CGHT Stabilizer Reboiler (P011) to remove light end products. The treated HCN is recombined with the LCN and sent to storage for use to blend finished gasoline.

Alkylation Unit

The Alkylation (Alky) unit process combines monolefin molecules (butylenes and propylenes) with isobutane in the presence of hydrofluoric (HF) acid and produces larger molecules. The LPG feed from the Gas Con Unit is first fractionated to remove propylene from the stream and sent to storage. Some water is also removed from the LPG feed during this fractionation step. The remaining butane-butylene (BB) mix from the first fractionation is sent to storage or to a selective hydrogenation process (SHP) to convert any 1,3-butadiene present into 1-Butene and 2-Butene before the stream enters the Alky. After a second fractionation removes any non-condensable compounds and remaining water, the BB mixture then passes into the Alky reactor where it is mixed with isobutane and HF acid. The reactor effluent is separated into HF acid and hydrocarbon. The hydrocarbon is fractionated to separate any remaining propane and isobutane from the heavier fraction or alkylate. The Alky Unit Isostripper Reboiler Heater (P017) provides process heat for this step. The alkylate goes to storage for use in blending finished gasoline.

Saturated Gas (Sats Gas) Plant

The Sats Gas Plant (SGP) processes saturated hydrocarbon off-gases from other process units using compression, absorption, and fractionation. LPGs are fractionated into propane, isobutane, normal butane, light gasoline, and an off-gas. H₂S is removed from the recovered LPG streams before being sent to storage for use in Refinery processes, gasoline blending, or sale. Non-condensable gases are sent to the Cryogenic Units for recovery of any remaining propane and butane.

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Cryogenic Unit

The Cryogenic Gas Plant (Cryo Units 1 and 2) utilizes cryogenic cooling and fractionation to recover LPG from Refinery gas streams before treatment to remove H₂S and use as refinery fuel gas. Operational flexibility is maintained by varying process temperatures, pressures, and flows.

Sulfur Recovery Units

The Sulfur Recovery Units (SRUs) process acid gas-containing streams produced when H₂S and ammonia (NH₃) are removed from various Refinery streams using amine absorbers located throughout the Refinery, as well as the off gas from the sour water stripper (SWS). The Memphis Refinery operates two SRUs: SRU No. 1 (P020) and SRU No. 2 (P042). The SWS off gas is injected directly into the Claus Thermal Reactor. The H₂S and NH₃ are removed from the amine solution using heat and fractionation. The regenerated amine solution is recirculated back to the amine absorbers. The gases stripped from the amine solution (referred to as amine acid gas [AAG]) and SWS off gas are injected into the thermal reactor where their components (H₂S, NH₃, and a small amount of hydrocarbons) are oxidized. About one-third of the H₂S in the AAG is oxidized to form SO₂ and H₂O ($\text{H}_2\text{S} + 1.5 \text{O}_2 \rightarrow \text{SO}_2 + \text{H}_2\text{O}$). The SO₂ then reacts with the remaining H₂S to form elemental sulfur and water vapor ($2 \text{H}_2\text{S} + \text{SO}_2 \rightarrow 1.5 \text{S}_2 + 2 \text{H}_2\text{O}$). Also, a small portion of the H₂S in the AAG dissociates to free hydrogen and elemental sulfur ($\text{H}_2\text{S} + \text{Heat} \rightarrow \text{H}_2 + 0.5 \text{S}_2$). The NH₃ is oxidized to nitrogen and water ($\text{NH}_3 + 0.75 \text{O}_2 \rightarrow 0.5 \text{N}_2 + 1.5 \text{H}_2\text{O}$). Any hydrocarbons in the AAG are oxidized to carbon dioxide (CO₂), carbon monoxide (CO) and H₂O. About 60% of the sulfur production is formed non-catalytically in the thermal reactor. This sulfur is condensed and drained from the process gas stream prior to entering the first catalytic reactor bed. Two successive catalytic reactor beds, each followed by condensation and removal of liquid sulfur, convert the remaining H₂S and SO₂ to elemental sulfur.

The tail gas exiting the third Claus reactor contains small amounts of unconverted sulfur compounds such as H₂S, SO₂, and sulfur (S), as well as carbon disulfide (CS₂), and carbonyl sulfide (COS), which are formed in the thermal reactor. A tail gas treating unit (TGTU) using technology such as Shell Claus Off Gas Treating (SCOT) or ReSolve[®] converts the various sulfur compounds to H₂S. Conversion to H₂S is achieved through hydrolysis and a hydrogenation-type reaction. Some of the sulfur-related compounds react with H₂O to form H₂S and CO₂ ($[\text{COS} + \text{H}_2\text{O} \rightarrow \text{H}_2\text{S} + \text{CO}_2]$, $[\text{CS}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{H}_2\text{S} + \text{CO}_2]$ and $[\text{CO} + \text{H}_2\text{O} \rightarrow \text{H}_2 + \text{CO}_2]$). The remaining sulfur-related components react with hydrogen (H₂) to form H₂S and H₂O ($[\text{SO}_2 + 3\text{H}_2 \rightarrow \text{H}_2\text{S} + 2\text{H}_2\text{O}]$ and $[\text{S}_n + n\text{H}_2 \rightarrow n\text{H}_2\text{S}]$). The H₂S is then removed from the tail gas as by absorption into an amine-based solution. The H₂S is stripped from the amine solution and recycled to the front of the Claus. SRU No. 1 includes the SRU Hot Oil Heater (P019), which provides hot oil used for process heating throughout the unit.

Operation of the SRUs is influenced by the amount of the AAG and SWS off gas and the concentration of H₂S, NH₃, and hydrocarbon entering the SRUs as well as the pressure drop across the Claus catalyst beds. As the component concentrations vary, so does the amount of air required to complete the reactions. The pressure drop across the catalyst beds can be caused either by the bed being partially plugged with a material such as soot from the combustion of hydrocarbons in the thermal reactor or by the unit running against its mechanical limitations.

Sour Water Stripper (SWS) and Benzene Strippers

Sour water containing NH₃ and H₂S is collected from various overhead systems throughout the Refinery in a common storage tank. Hydrocarbons entrained in the sour water separates from the water inside the tank and is removed using a

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skimmer located underneath the tank's floating roof. Water is drawn from the tank and pumped to the SWS located on the south side of the No. 2 SRU. The sour water enters the SWS near the top and falls down the tower while steam flows upward. The steam provides enough heat to raise the temperature of the sour water, lowering the solubility of the NH_3 and H_2S and enabling them to be stripped from the water. The SWS off gas leaves the top of the tower and flows to the SRU for processing and treatment.

Process water containing benzene is treated using two Benzene Strippers before it enters the process sewer system and wastewater treatment facilities. As with the SWS, the benzene-containing water is pumped into the stripper near the top and falls down the tower as steam flows upward. The rise in temperature makes the benzene less soluble in the water and allows the benzene to be stripped out. The benzene-containing off gas from the stripper is fed into the FCCU Main Column Overhead (MCOH) system where it is condensed, recovered and recycled into the process. An alternative to recovering the stream in the FCCU MCOH system is to route it into the East Crude Unit.

Wastewater Treatment

Process wastewater and contaminated stormwater run-off are treated to remove free oil and solids. The Refinery's wastewater treatment is considered to be primary treatment only. Process water containing entrained or free oil flows into parallel API separators (P026) where oil, water, and solids are gravimetrically separated.

The separator effluent flows by gravity into a mix basin where a flocculent is added and mixed into the water. The water is then pumped into a small tank where a coagulant is added and mixed into the water before it flows into a dissolved air flotation (DAF) unit. Just before the water flows into the DAF, a slip stream of DAF effluent that has been mixed with compressed air under pressure is injected. When the air-saturated water emerges from the DAF inlet into the vessel proper and is no longer under pressure, the air comes out of solution and forms microscopic bubbles. The bubbles attach themselves to the coagulated oil and solid particles and float them to the surface where they are skimmed into a collection tank. The treated water flows from the bottom of the vessel upwards between the vessel wall and an underflow weir where it combines with the Purge Treatment Unit (PTU) effluent water and then flows into the city sewer system.

The recovered DAF float is processed using a centrifuge (P045) to remove the free water and recover some oil. The solids material is transferred by a conveyor system (P055) to a roll-off box (WWT-BOX). The solids are sent offsite for recycling, or if a recycling facility is not available, to a hazardous waste treatment facility.

Auxiliary Facilities

The Memphis Refinery operates a number of auxiliary processes and equipment that produce products needed in the refining process. The following auxiliary processes provide vital products to the refining process:

- The No. 10 Boiler (P021e), No. 11 Boiler (P049), and No. 12 Boiler (P021f) provide process steam to various process units,
- The No. 2 Cooling Tower (P058), No. 3/4 Cooling Tower (P059), No. 6 Cooling Tower (P060), No. 7 Cooling Tower (P061a), No. 7a Cooling Tower (P061b), No. 8 Cooling Tower (P031 aka P062), No. 9 Cooling Tower (P048), and No. 10 Cooling Tower (P063) provide cooling water to various process units, and

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- A hydrogen plant and associated Steam Methane Reformer Heater (P071) provide hydrogen necessary for the hydrotreating processes.
- A Flare Gas Recovery System (FGRS) including separator vessels (knockout drum, liquid seal drums) and a series of compressors is connected to the flare header system and utilized to reduce routine flaring and associated emissions.
- Process vents throughout the Refinery are routed to a vent header and sent for gas sweetening (sulfur removal) and eventual use as fuel in process units as needed. When excess fuel gas exists, the fuel gas is routed to the FGRS mentioned above. If the volume of flare gas relieved into the flare header system exceeds the capacity of the FGRS, the flare header pressure increases until it exceeds the back-pressure exerted by the liquid seal. This excess gas volume will pass through the Liquid Seal Drum and on to either the North Refinery Flare (P029) or the South Refinery Flare (P030) for emissions control where it will be combusted. This excess flare header pressure will be the case, for example, when there is a rapid increase in flare gas flow due to an emergency release.
- Several stationary (and portable) diesel-fired reciprocating internal combustion engines (RICE) are used to drive emergency generators and pumps in various locations throughout the Refinery.

Barge Loading Facilities

The Memphis Refinery includes a barge loading dock that allows the Refinery to ship product via barge on the Mississippi River. The Refinery is also able to receive crude oil via pipeline and subsequently load it into barges for export at the North River Dock. The North Dock is equipped with a vapor recovery system and flare (P024), which is used to control emissions during product and crude oil loading.

Crude Oil, Intermediate and Product Storage

Incoming crude oil, intermediate products, and outgoing refined products are stored in a number of fixed roof and floating roof storage tanks collectively referred to as the “tank farm”. The tank farm is designed to allow the Refinery to operate without interruption, and each tank has design characteristics based on the material stored.