



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

March 8, 2017

CERTIFIED MAIL – RETURN RECEIPT REQUESTED: 7007 3020 0002 5102 2193

Kirk T. Sniff  
Strasburger & Price, LLP  
901 Main Street, Suite 6000  
Dallas, TX 75202-3794

RE: In the LCY Elastomers, L.P., CAA-06-2017-3331

Dear Mr. Sniff,

Please find enclosed a copy of the fully-executed Consent Agreement and Final Order (“CAFO”) that was filed today with the Regional Hearing Clerk in EPA, Region 6. LCY Elastomers, L.P. (“LCY”) will have thirty (30) days from the effective date of the CAFO to pay the civil penalty of eighty-two thousand dollars (\$82,000.00). LCY is required to comply with the conditions of settlement within the deadlines described in the CAFO.

If you have any questions regarding this matter, please feel free to contact me at 214-665-8130 or via email at [lannen.justin@epa.gov](mailto:lannen.justin@epa.gov).

Sincerely,

A handwritten signature in blue ink that reads "Justin Lannen".

Justin Lannen  
Assistant Regional Counsel  
U.S. EPA, Region 6

Enclosure

cc: Nolan Smith  
Site General Manager  
LCY Elastomers, L.P.  
4803 Decker Drive  
Baytown, Texas 77520



4. As described more fully herein, Complainant alleges that Respondent violated its New Source Review Permit No. 20311 and 30 Tex. Admin. Code § 115.722(d) at its flares - Flare H9701 and H7902 (the "Flares") - located at Respondent's synthetic rubber manufacturing facility, 4803 Decker Drive, Baytown, TX 77520 (the "Facility").

5. Complainant and Respondent, having agreed that settlement of this action is in the public interest, consent to the entry of this Consent Agreement along with the corresponding Final Order, hereinafter known together as the "CAFO", without adjudication of any issues of law or fact herein, and Respondent agrees to comply with the terms of this CAFO.

6. Beginning in 2015 LCY implemented the TCEQ / UT Austin Flare Training Program to provide training to all operators and supervisors responsible for operating and controlling the flare system. As of 2016, all operators and supervisors have completed the flare training course, which covered the proper operation of steam-assisted flares, and the effect of steam on flare combustion efficiency and how to recognize when steam-assisted flares are over- or under-assisted.

7. In 2015 and 2016, Respondent installed, and thereafter operated, the following capital improvements at the flares:

- a. Replaced two older Gas Chromatograph instruments installed in 2005 with new two new Gas Chromatograph instruments, one for each flare;
- b. Replaced all flare header nitrogen purges with natural gas for both flares;
- c. Installed and began operating British thermal unit ("Btu") analyzers on both flares to measure the heating value of the vent gas;
- d. Installed and began operating ultrasonic flow meters for natural gas metering on both flares;

- e. Installed and began operating minimum steam flow controllers and low-range steam flow meters for both flares;
- f. Installed and began operating an assist steam exhaust system on both flares to minimize or prevent over-steaming during start-up and shutdown;
- g. Implemented Btu Combustion Zone Control for both flares, including:
  - i. Adjustable natural gas flow to meet the Btu set point,
  - ii. Calculation of combustion zone Btu based on the analyzed flare header Btu, measured flare flow, and measured steam flow; and an
  - iii. Automated system to link the addition of steam and natural gas to real-time vent gas Btu/flow data.

#### **B. JURISDICTION**

8. This CAFO is entered into under Section 113(d) of the Act, as amended, 42 U.S.C. § 7413(d), and the Consolidated Rules, 40 C.F.R. Part 22. The alleged violations in this CAFO are pursuant to Section 113(a)(1)(B).

9. The EPA and the United States Department of Justice jointly determined that this matter, although it involves alleged violations that occurred more than a year before the initiation of this proceeding, is appropriate for an administrative penalty assessment. 42 U.S.C. § 7413(d); 40 C.F.R. § 19.4.

10. In satisfaction of the notice requirements of Section 113(a)(1) of the Act, on August 18, 2015, the EPA issued to Respondent a notice of violation (“NOV”) and provided a copy of the NOV to Texas, providing notice to both that the EPA found that Respondent committed the alleged violations described in Section E of this CAFO and providing Respondent an opportunity to confer with the EPA.

11. The Regional Judicial Officer is authorized to ratify this CAFO which memorializes a settlement between Complainant and Respondent. 40 C.F.R. § 22.4(b) and 22.18(b).

12. The issuance of this CAFO simultaneously commences and concludes this proceeding. 40 C.F.R. § 22.13(b).

### C. DEFINITIONS

13. "Ambient Air" shall mean that portion of the atmosphere, external to buildings, to which persons have access.

14. "Assist Air" shall mean all air that intentionally is introduced prior to or at the flare tip through nozzles or other hardware conveyances for the purposes of, including, but not limited to, protecting the design of the flare tip and promoting turbulence for mixing or inducing air into the flame. Assist Air includes Premix Assist Air and Perimeter Assist Air. Assist Air does not include Ambient Air.

15. "Assist Steam" shall mean all steam that intentionally is introduced prior to or at the flare tip through nozzles or other hardware conveyance for the purposes of, including, but not limited to, protecting the design of the flare tip and promoting turbulence for mixing or inducing air into the flame. Assist Steam includes, but is not necessarily limited to, Center Steam, Lower Steam, and Upper Steam.

16. "Center Steam" shall mean the portion of Assist Steam introduced into the stack of the flare to reduce burnback.

17. "Combustion Zone Gas" shall mean all gases and vapors found after the flare tip. This gas includes all Vent Gas, Pilot Gas, and Total Steam and Premix Assist Air.

18. "In Operation" or "Being In Operation" or "Operating", with respect to a flare, shall mean any and all times that Sweep, Supplemental, and/or Waste Gas is or may be vented to a flare. A flare that is In Operation is Capable of Receiving Sweep, Supplemental, and/or Waste Gas unless all Sweep, Supplemental, and Waste Gas flow is prevented by means of closed valves and/or blinds.

19. "Lower Heating Value" or "*LHV*" shall mean the theoretical total quantity of heat liberated by the complete combustion of a unit volume or weight of a fuel initially at 25 degrees Centigrade and 760 mmHG, assuming that the produced water is vaporized and all combustion products remain at, or are returned to, 25 degrees Centigrade; however, the standard for determining the volume corresponding to one mole is 20 degrees Centigrade.

20. "Lower Steam" shall mean the portion of Assist Steam piped to an exterior annular ring near the lower part of the flare tip, which then flows through tubes to the flare tip, and ultimately exits the tubes at the flare tip.

21. "Malfunction" shall mean, as specified in 40 C.F.R. Part 60.2, "any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions." In any dispute under this CAFO involving this definition, Respondent shall have the burden of proving all of the following:

- a. The excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;
- b. The excess emissions (1) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (2) could not have been avoided by better operation and maintenance practices;

- c. To the maximum extent practicable the air pollution control equipment or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;
- d. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
- e. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;
- f. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;
- g. All emission monitoring systems were kept in operation if at all possible;
- h. The owner or operator's actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;
- i. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and
- j. The owner or operator properly and promptly notified the appropriate regulatory authority.

22. "Monitoring System Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of instrumentation or a monitoring system to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Monitoring System Malfunctions. In any dispute under this CAFO involving this definition, Respondent shall have the burden of proving all of the following:

- a. The instrument or monitoring system downtime was caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;
- b. The instrument or monitoring system downtime (1) did not stem from any activity or event that could have been foreseen and avoided, or planned

for, and (2) could not have been avoided by better operation and maintenance practices;

- c. To the maximum extent practicable the air pollution control equipment or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;
- d. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
- e. The amount and duration of the instrument or monitoring system downtime was minimized to the maximum extent practicable;
- f. The owner or operator's actions during the period of instrument or monitoring system downtime were documented by properly signed, contemporaneous operating logs, or other relevant evidence; and
- g. The instrument or monitoring system downtime was not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

23. "Net Heating Value of Combustion Zone Gas" or " $NHV_{cz}$ " shall mean the Lower Heating Value, in Btu/scf, of the Combustion Zone Gas in the flares. The  $NHV_{cz}$  shall be calculated in accordance with Step 3 of Appendix A of this CAFO.

24. "Net Heating Value of Vent Gas" or  $NHV_{vg}$  shall mean the Lower Heating Value, in Btu/scf, of the Vent Gas directed to the flares.  $NHV_{vg}$  shall be calculated in accordance with Step 1 of Appendix A of this CAFO.

25. "Perimeter Assist Air" shall mean the portion of Assist Air introduced at the perimeter of the flare tip or above the flare tip. Perimeter Assist Air includes air intentionally entrained in Lower and Upper Steam. Perimeter Assist Air includes all Assist Air except Premix Assist Air.

26. "Pilot Gas" shall mean gas introduced into the flare tip that provides a flame to ignite the Vent Gas.

27. "Premix Assist Air" shall mean the portion of Assist air that is introduced to the Vent Gas, whether injected or induced, prior to the flare tip. Premix Assist Air also includes any air intentionally entrained in the Center Steam.

28. "Purge Gas" shall mean the gas introduced between a flare header's water seal and the flare tip to prevent oxygen infiltration (backflow) into the flare tip. For a flare with no water seal, the function of Purge Gas is performed by Sweep Gas, and therefore, by definition, such a flare has no Purge Gas.

29. "Supplemental Gas" shall mean all gas introduced to the Flares to comply with the net heating value requirements of 30 Tex. Admin. Code § 115.722(d) (incorporating by reference 40 C.F.R. § 60.18(b)).

30. "Sweep Gas" shall mean the minimum amount of gas introduced into the flare header to (a) prevent oxygen buildup, corrosion, and/or freezing in the flare header; (b) maintain a safe flow of gas through the flare header, including a higher flow during hot taps; and (c) prevent oxygen infiltration (backflow) into the flare tip.

31. "Total Steam" shall mean the total of all steam that is supplied to the flares and includes, but is not limited to, Lower Steam, Center Steam, and Upper Steam.

32. "Upper Steam" shall mean the portion of Assist Steam introduced via nozzles located on the exterior perimeter of the upper end of the flare tip.

33. "Vent Gas" shall mean all gas found just prior to the flare tip. This gas includes all Waste Gas, that portion of Sweep Gas that is not recovered, Purge Gas, and Supplemental Gas, but does not include Pilot Gas, Total Steam, or Assist Air.

34. "Waste Gas" shall mean the mixture of all gases from the facility operations that is directed to the flare for the purpose of disposing of the gas. "Waste Gas" does not include gas introduced to the flare exclusively to make it operate safely and as intended; therefore "Waste Gas" does not include Pilot Gas, Total Steam, Assist Air, or the minimum amount of Sweep Gas and Purge Gas that is necessary to perform the functions of Sweep Gas and Purge Gas. "Waste Gas" also does not include the minimum amount of gas introduced to the flare to comply with regulatory and/or permit requirements regarding the combustible characteristics of Combustion Zone Gas; therefore "Waste Gas" does not include Supplemental Gas.

#### **D. GOVERNING LAW**

35. The Clean Air Act is designed to protect and enhance the quality of the nation's air so as to promote the public health and welfare and the productive capacity of its population. Section 101(b)(1) of the Act, 42 U.S.C. § 7401(b).

36. Section 109(a) of the CAA, 42 U.S.C. § 7409(a), requires the Administrator of EPA to publish national ambient air quality standards ("NAAQS") for certain pollutants. The NAAQS establish primary air quality standards to protect public health and secondary standards to protect public welfare.

37. The Administrator has promulgated NAAQS for nitrogen oxides (NO<sub>x</sub>) and ozone. See 40 C.F.R. §§ 50.9, 50.10, and 50.11.

38. Pursuant to Section 107(d) of the CAA, 42 U.S.C. § 7407(d), each state is required to designate those areas within its boundaries where the air quality is better or worse than the NAAQS for each criteria pollutant, or where the air quality cannot be classified due to insufficient data. An area that meets the NAAQS for a particular pollutant is deemed an "attainment" area. An area that does not meet the NAAQS for a particular pollutant is deemed a

“non-attainment” area. An area that cannot be classified due to insufficient data is deemed “unclassifiable.”

39. To achieve the objectives of the NAAQS and the CAA, Section 110(a) of the CAA, 42 U.S.C. § 7410(a), requires each state to adopt and submit a plan to the Administrator that provides for the implementation, maintenance, and enforcement of the NAAQS in each air quality control region. This plan is known as an applicable implementation plan or state implementation plan (“SIP”).

40. Section 110(a)(2)(C) of the CAA, 42 U.S.C. § 7410(a)(2)(C), requires each SIP to include, *inter alia*, “regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved....”

41. Each state’s SIP must include permitting requirements for “major stationary sources” and “major modifications,” which fall under Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) (collectively, “New Source Review” or “NSR”) statutory provisions and corresponding EPA regulations. *See* Parts C and D of Subchapter I of the CAA, 42 U.S.C. §§ 7470-7492 and 7501-7515, and 40 C.F.R. §§ 52.21 and 51.165.

42. “Major stationary source” includes any stationary source that has the potential to emit 100 tons per year (tpy) or more of any regulated NSR pollutant. *See* 30 Tex. Admin. Code § 116.12(19), Table I; *see also* 40 C.F.R. § 51.165(a)(1)(iv)(A). For stationary sources located in areas that are non-attainment for the NSR pollutant ozone, the “major source” threshold can be less than 100 tpy, depending on an area’s specific nonattainment designation (marginal, moderate, serious, severe, or extreme). *See id.*

43. In a severe ozone nonattainment area, a stationary source that emits 25 tpy of nitrogen oxides (NO<sub>x</sub>) or more is a “major stationary source.” 30 Tex. Admin. Code § 116.12(19), Table I; *see also* 40 C.F.R. § 51.165(a)(1)(iv)(A).

44. “Regulated NSR pollutant” includes NO<sub>x</sub>. 40 C.F.R. § 51.165(a)(1)(xxxvii). NO<sub>x</sub> is a precursor to ozone in all ozone nonattainment areas. *Id.*

45. A major stationary source that is major for NO<sub>x</sub> is considered to be major for ozone. 30 Tex. Admin. Code § 116.12(19); *see also* 40 C.F.R. § 51.165(a)(1)(iv)(B).

46. In addition to NSR permitting requirements, a state’s SIP often includes emission control programs that assist in maintaining or attaining of the NAAQS. These programs are especially important where a state has air quality control regions that are deemed non-attainment for one or more criteria pollutants.

#### **NSR Regulations in Texas**

47. Texas, through the Texas Commission on Environmental Quality (TCEQ), is authorized to issue and enforce NSR Permits. 30 Tex. Admin. Code Chapter 116, Subpart B (approved at 60 Fed. Reg. 49,788, Sept. 27, 1995).

48. Under the Texas NSR Permit program, a source must apply for, and obtain, an authorization to construct any new or modified source of air contaminants. *See* 30 Tex. Admin. Code § 116.110(a)(1) (approved at 68 Fed. Reg. 64,543, Nov. 14, 2003).

49. Texas NSR Permits may contain general or special conditions. *See* 30 Tex. Admin. Code § 116.115(a) (approved at 68 Fed. Reg. 64,543).

50. A Texas NSR Permit holder must comply with all special conditions contained in the permit document. 30 Tex. Admin. Code § 116.115(c) (approved at 68 Fed. Reg. 64,543).

51. Requirements and conditions in NSR Permits issued by Texas pursuant to its federally-approved NSR program are federally enforceable. *See* 30 Tex. Admin. Code §§ 101.1(36) (approved at 75 Fed. Reg. 68989, Nov. 10, 2010) and 116.10(5) (approved at 72 Fed. Reg. 49198, Aug. 28, 2007).

**HRVOC Control Requirements for the Houston/Galveston/Brazoria Area**

52. In 2004, the Houston/Galveston/Brazoria (“HGB”) area was designated non-attainment under the 1997 8-hour ozone standard. 69 Fed. Reg. 23858, 23936 (April 30, 2004, effective June 15, 2004). The HGB area includes, *inter alia*, Harris County.

53. In 2006, EPA approved, as part of the Texas SIP, rules for the control of highly reactive Volatile Organic Compounds (“HRVOC”) in the HGB area. 71 Fed. Reg. 52656 (September 6, 2006, effective October 6, 2006); 30 Tex. Admin. Code Chapter 115, Subchapter H. Texas had promulgated the HRVOC control rules in an effort to attain and maintain the NAAQS for ozone in non-attainment areas. 71 Fed. Reg. 52656.

54. VOC are a class of compounds that react in the atmosphere with oxides of nitrogen and oxygen in the presence of sunlight to form ozone. 70 Fed. Reg. 17641 (April 7, 2005). HRVOC are chemicals that have a very high propensity to form ozone.

55. In Harris County, Texas, HRVOC are defined to include, *inter alia*, 1,3-butadiene. 30 Tex. Admin. Code § 115.10(21)(A) (approved at 71 Fed. Reg. 03009, January 19, 2006).

56. Any site in the HGB area with a flare that emits or has the potential to emit HRVOC is subject to the vent gas control requirements of the HRVOC control rules in the Texas SIP. *See* 30 Tex. Admin. Code § 115.720-729 (approved at 71 Fed. Reg. 52656, September 6, 2006).

57. 30 Tex. Admin. Code § 115.722(d) provides that all flares in HRVOC service must continuously meet the requirements of 40 C.F.R. § 60.18(c)(2)-(6) and (d) when vent gas containing HRVOC is routed to the flare.

58. 40 C.F.R. § 60.18(c)(3)(ii) provides that “[f]lares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted.”

**E. FINDINGS OF FACT AND CONCLUSIONS OF LAW**

59. At all times relevant to this proceeding, Respondent has owned and/or operated the Facility.

60. Respondent is the owner and/or operator of the Facility within the meaning of Section 40 C.F.R. § 51.100(f).

61. The Facility is “major stationary source” because it has the potential to emit 25 tpy or more of NO<sub>x</sub>.

62. On January 13, 2012, Respondent was issued Permit No. 20311 (the “Permit”), a NSR Permit issued under the SIP-approved Texas NSR permit program. Permit No. 20311 contains special conditions that are federally enforceable.

63. At all times relevant to this proceeding, the Facility was a “major source” within the meaning of the Act’s Title V program, Section 501(2) of the Act, 42 U.S.C. § 7661(2), 40 C.F.R. § 70.2, and 30 Tex. Admin. Code § 122.10(14).

64. The Facility is subject to the CAA Title V Federal Operating Permit program. On or about March 21, 2012, the Texas Commission on Environmental Quality (“TCEQ”) issued Respondent Permit No. O1756 (the “Title V Permit”), an air permit issued under the Texas

Operating Permit program. This Title V Permit covers various emissions units at the Facility, including Flare H7901 and Flare H7902.

65. At all times relevant to this proceeding, Respondent operated two steam-assisted flares – Flare H7901 and Flare H7902 – to control air emissions at the Facility.

66. At all times relevant to this proceeding, the Facility was located within the Houston/Galveston/Brazoria ozone nonattainment area.

67. At all times relevant to this proceeding, Respondent owned and operated equipment at the Facility that emitted, or had the potential to emit, HRVOC, including 1,3 butadiene.

68. At all times relevant to this proceeding, Respondent's flares operated in HRVOC service and were routed vent gas containing HRVOC, including 1,3 butadiene.

69. On July 29, 2014, EPA issued a Clean Air Act Section 114 Information Request to Respondent, to which Respondent responded on October 4, 2014. As part of its responses, Respondent provided information regarding the Facility's flaring operations, including, but not limited to, vent gas and assist steam flow rates, and vent gas net heating values.

70. Based on its review of the above information, EPA identified alleged violations of the CAA at Flares H7901 and H7902, as described in Section F of this CAFO.

## F. ALLEGED VIOLATIONS

### Disposing of VOC with Less than 98 Percent Efficiency

71. Permit No. 20311, Special Condition 8, requires that Respondent's flares operate with no less than 98 percent efficiency in disposing of the VOC captured by the waste gas collection system.

72. On information and belief, at various times between July 1, 2011 and July 31, 2014, Respondent operated Flares H7901 and H7902 with high steam-to-vent gas ratios, as reflected in the data Respondent produced to EPA described in Section E, above. Upon information and belief, these high steam-to-vent gas ratios resulted in a VOC disposal efficiency at the Flares of less than 98 percent.

73. Respondent's operation of Flares H7901 and H7902 with a VOC disposal efficiency of less than 98% violated Permit No. 20311, Special Condition 8.

**Combusting Gas with a Net Heating Value of Less than 300 Btu/scf**

74. 30 Tex. Admin. Code § 115.722(d), incorporating by reference 40 C.F.R. § 60.18(c)(3)(ii), requires that the net heating value of the vent gas being combusted at Respondent's flares must continuously be 11.2 MJ/scm (300 Btu/scf), or greater.

75. On information and belief, at various times between July 1, 2011 and July 31, 2014, the net heating value of the vent gas being combusted at Flares H7901 and H7902 was less than 11.2 MJ/scm (300 Btu/scf), as reflected in the data Respondent produced to EPA described in Section E, above.

76. Respondent's operation of Flares H7901 and 7902 with the vent gas being combusted having a net heating value of less than 11.2 MJ/scm (300 Btu/scf) violated 30 Tex. Admin. Code § 115.722(d).

**G. CIVIL PENALTY AND CONDITIONS OF SETTLEMENT**

**General**

77. For the purpose of this proceeding, as required by 40 C.F.R. § 22.18(b)(2), Respondent:

- a. admits that the EPA has jurisdiction over the subject matter alleged in this CAFO;
- b. neither admits nor denies the specific factual allegations contained in the CAFO;
- c. consents to the assessment of a civil penalty as stated below;
- d. consents to the issuance of any specified compliance or corrective action order;<sup>1</sup>
- e. consents to the conditions specified in this CAFO;
- f. consents to any stated Permit Action;<sup>2</sup>
- g. waives any right to contest the alleged violations set forth in Section F of this CAFO; and
- h. waives its rights to appeal the Final Order included in this CAFO.

78. For the purpose of this proceeding, Respondent:

- a. agrees that this CAFO states a claim upon which relief may be granted against Respondent;
- b. acknowledges that this CAFO constitutes an enforcement action for purposes of considering Respondent's compliance history in any subsequent enforcement actions;
- c. waives any and all remedies, claims for relief and otherwise available rights to judicial or administrative review that Respondent may have with respect to any issue of fact or law set forth in this CAFO, including any

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<sup>1</sup> 40 C.F.R. § 22.18(b)(2) requires that all of the items in section 70 be included in a CAFO. However sub-bullets d and f are not applicable to this case.

<sup>2</sup> See previous footnote.

right of judicial review under Section 307(b)(1) of the Clean Air Act, 42

U.S.C. § 7607(b)(1);

- d. consents to personal jurisdiction in any action to enforce this CAFO in the United States District Court for the Southern District of Texas;
- e. waives any right it may possess at law or in equity to challenge the authority of the EPA to bring a civil action in the United States District Court for the Southern District of Texas to compel compliance with this CAFO and to seek an additional penalty for such noncompliance, and agrees that federal law shall govern in any such civil action; and
- f. agrees that in any subsequent administrative or judicial proceeding initiated by the Complainant or the United States for injunctive relief, civil penalties, or other relief relating to this Facility, Respondent shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim splitting, or other defenses based on any contention that the claims raised by the Complainant or the United States were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to this CAFO.

#### **Penalty Assessment and Collection**

79. Upon consideration of the entire record herein, including the Findings of Fact and Conclusions of Law, which are hereby adopted and made a part hereof, and upon consideration of the size of the business, the economic impact of the penalty on the business, the Respondent's full compliance history and good faith efforts to comply, the duration of the

violation, payment by the Respondent of penalties previously assessed for the same violation, the economic benefit of noncompliance, the seriousness of the violation, and other factors as justice may require, including Respondent's agreement to perform the additional conditions of settlement and Supplemental Environmental Project ("SEP") set forth below, EPA has assessed a civil penalty in the amount of **Eighty-two Thousand Dollars** (\$82,000) ("EPA Penalty"). The EPA Penalty has been determined in accordance with Section 113 of the Act, 42 U.S.C. § 7413, and at no time exceeded EPA's statutory authority.

80. Respondent agrees to:

- a. pay the EPA Penalty within 30 calendar days of the Effective Date of this CAFO; and
- b. pay the EPA Penalty by cashier's check, certified check, or wire transfer made payable to "Treasurer, United States of America, EPA – Region 6." Payment shall be remitted in one of five (5) ways: (1) regular U.S. Postal Service mail including certified mail; (2) overnight mail; (3) wire transfer; (4) Automated Clearinghouse for receiving U.S. currency; or (5) On Line Payment.

For regular U.S. Postal Service mail, U.S. Postal Service certified mail, or U.S. Postal Service express mail, payment should be remitted to:

U.S. Environmental Protection Agency  
Fines and Penalties  
Cincinnati Finance Center  
P.O. Box 979077  
St. Louis, MO 63197-9000

For overnight mail (non-U.S. Postal Service), payment should be remitted to:

U.S. Bank  
Government Lockbox 979077  
U.S. EPA Fines & Penalties

Re: LCY Elastomers, L.P.  
Docket No. CAA-06-2017-3331

1005 Convention Plaza  
SI-MO-C2-GL  
St. Louis, MO 63101

Contact: Natalie Pearson  
(314) 418-4087

For wire transfer, payment should be remitted to:

Federal Reserve Bank of New York  
ABA: 021030004  
Account Number: 68010727  
SWIFT address: FRNYUS33  
33 Liberty Street  
New York, NY 10045

Field Tag 4200 of the Fedwire message should read:  
"D 68010727 Environmental Protection Agency"

For Automated Clearinghouse (also known as REX or remittance express):

U.S. Treasury REX / Cashlink ACII Receiver  
ABA: 051036706  
Account Number: 310006, Environmental Protection Agency  
CTX Format Transaction Code 22 – checking  
Physical location of U.S. Treasury facility:  
5700 Rivertech Court  
Riverdale, MD 20737

Contact – Jesse White (301) 887-6548

For On Line Payment:

<https://www.pay.gov/paygov/>  
Enter sfo 1.1 in search field  
Open form and complete required fields.

PLEASE NOTE: The docket number CAA-06-2017-3331 should be clearly typed on the check to ensure proper credit. The payment shall also be accompanied by a transmittal letter that shall reference LCY's name and address, the case name, and docket number CAA-06-2017-3331. LCY's adherence to this request will ensure proper credit is given when penalties are received for the Region. LCY shall also send a simultaneous notice of such payment, including a copy of the money order, or check, and the transmittal letter to the following addresses:

Margaret Osborne  
Chief, Air Toxics Section (6EN-AT)

Compliance Assurance and Enforcement Division  
U.S. EPA, Region 6  
1445 Ross Avenue Suite 1200  
Dallas, TX 75202-2733

and

Region 6 Hearing Clerk (6RC-D)  
U.S. EPA Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

81. Respondent shall pay the following on any overdue EPA Penalty:

- a. Interest. Pursuant to Section 113(d)(5) of the Act, 42 U.S.C. § 7413(d)(5), any unpaid portion of a civil penalty must bear interest at the rates established pursuant to 26 U.S.C. § 6621(a)(2).
- b. Nonpayment Penalty. On any portion of a civil penalty more than 90 calendar days delinquent, Respondent must pay a nonpayment penalty, pursuant to Section 113(d)(5) of the Act, 42 U.S.C. § 7413(d)(5), which shall accrue from the date the penalty payment became delinquent, and which shall be in addition to the interest which accrues under subparagraph a. of this paragraph.

82. Respondent shall pay a charge to cover the cost of processing and handling any delinquent penalty claim, pursuant to 42 U.S.C. § 7413(d)(5), including, but not limited to, attorneys' fees incurred by the United States for collection proceedings.

83. If Respondent fails to timely pay any portion of the penalty assessed under this CAFO, the EPA may:

- a. refer the debt to a credit reporting agency, a collection agency, or to the Department of Justice for filing of a collection action in the appropriate

United States District Court (in which the validity, amount, and appropriateness of the assessed penalty and of this CAFO shall not be subject to review) to secure payment of the debt, which may include the original penalty, enforcement and collection expenses, nonpayment penalty and interest, 42 U.S.C. § 7413(d)(5) and 40 C.F.R. §§ 13.13, 13.14, and 13.33;

- b. collect the above-referenced debt by administrative offset (i.e. the withholding of money payable by the United States to, or held by the United States for, a person to satisfy the debt the person owes the Government), which includes, but is not limited to, referral to the Internal Revenue Service for offset against income tax refunds, 40 C.F.R. Part 13, Subparts C and H; and
- c. suspend or revoke Respondent's licenses or other privileges, or suspend or disqualify Respondent from doing business with the EPA or engaging in programs the EPA sponsors or funds, 40 C.F.R. § 13.17.

#### **Conditions of Settlement**

84. Respondent agrees that, no later than December 31, 2017, Respondent shall comply with the following requirements at the H7901 Flare and H7902 Flare:

- a. Net Heating Value of Combustion Zone Gas (NHV<sub>CZ</sub>). LCY shall operate the H7901 Flare and H7902 Flare to maintain the *NHV<sub>CZ</sub>* at or above 270 Btu/scf determined on a 15-minute block period basis at all times when waste gas is vented to the Flares. LCY shall utilize the equations and

directives set forth in Appendix A to meet the requirements of this Subparagraph 84.a.

- b. Permits Needed to Meet Compliance Obligations. If any compliance obligation under this CAFO requires LCY to obtain federal, state, or local authorization or approval, LCY shall submit timely and complete applications and take all other actions necessary to obtain all such authorizations or approvals.

- c. Permits to Ensure Survival of CAFO Limits and Standards.

Notwithstanding the ultimate compliance date of December 31, 2017, by no later than ninety (90) days after the effective date of this CAFO, LCY shall submit a complete application to the TCEQ requesting to incorporate the limits and standards in Paragraph 84.a into a non-Title V, federally enforceable permit.

#### **Mitigation Project**

85. As a condition of settlement, LCY implemented the following Environmental Mitigation Action ("Mitigation Action"). In September of 2016, LCY completed the conversion of the Anti-Oxidant (AO) tank operation from a nitrogen pressure based system to a fully pumped system. This Mitigation Action is expected to reduce VOC emissions from the AO tank by approximately 486 pounds per year. Emission reductions shall be determined using an approved EPA method for estimating tank emissions.

86. By no later than ninety (90) days after the Effective Date of this CAFO, LCY shall submit a complete application to the TCEQ to incorporate these emission reductions resulting from the Mitigation Action into the Facility's applicable permit.

87. LCY shall maintain, and present to the EPA upon request, all documents to substantiate the mitigation dollars expended and shall provide these documents to the EPA within thirty (30) days of a request by the EPA for the documents.

88. Respondent shall certify that Respondent is not otherwise required by law to perform the Mitigation Action described in Paragraph 85, that Respondent is unaware of any other person who is required by law to perform the Mitigation Actions, and that Respondent will not use any Mitigation Actions, or portion thereof, to satisfy any obligations that it may have under other applicable requirements of law

89. Within sixty (60) days following the Effective Date of this CAFO, Respondent shall submit to the EPA a report that documents Respondent's results of implementing the Mitigation Action, including the emission reductions or other environmental benefits achieved, and the cost expended by Respondent in implementing the Mitigation Action.

**Certification of Completion**

90. At such time as the Respondent believes that it has complied with the requirements of Paragraph 80 (payment of EPA Penalty), that it has achieved initial compliance with the requirements of Paragraph 84 and Appendix A (Conditions of Settlement), and that it has satisfactorily completed the Supplemental Environmental Project in Paragraph 98, Respondent shall certify to EPA completion of these items and provide any necessary documentation. Respondent represents that the signing representative will be fully authorized by Respondent to certify that the terms and conditions of this CAFO have been met. The certification should include the following statement:

I certify under penalty of law that I have examined and am familiar with the information submitted in this document and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is, to the best of my knowledge, true, accurate, and complete. I am aware

that there are significant penalties for knowingly submitting false information, including the possibility of fines and imprisonment.

The certification required above shall be sent to:

Margaret Osbourne  
Chief, Air Toxics Enforcement Section (6FN-AT)  
Compliance Assurance and Enforcement Division  
U.S. EPA, Region 6  
1445 Ross Avenue Suite 1200  
Dallas, TX 75202-2733

EPA has 90 days to respond in writing with questions or disagreement that the conditions of the CAFO have been satisfied.

91. Respondent agrees that the time period from the Effective Date of this CAFO until initial compliance with the conditions specified in Paragraph 84 and the Supplemental Environmental Project in Paragraph 98 is completed (the "Tolling Period") shall not be included in computing the running of any statute of limitations potentially applicable to any action brought by Complainant on any claims set forth in Section F of this CAFO (the "Tolled Claims"). Respondent shall not assert, plead, or raise in any fashion, whether by answer, motion or otherwise, any defense of laches, estoppel, or waiver, or other similar equitable defense based on the running of any statute of limitations or the passage of time during the Tolling Period in any action brought on the Tolled Claims.

92. The provisions of this CAFO shall apply to and be binding upon Respondent and its officers, directors, employees, agents, authorized representatives, successors and assigns. From the Effective Date of this CAFO until the end of the Tolling Period, as set out in Paragraph 90, Respondent must give written notice and a copy of this CAFO to any successors in interest prior to transfer of ownership or control of any portion or interest in the Facility. Simultaneously with such notice, Respondent shall provide written notice of such transfer,

assignment, or delegation to the EPA. In the event of any such transfer, assignment or delegation, Respondent shall continue to be bound by the obligations or liabilities of this CAFO until the EPA has provided written approval.

93. By signing this CAFO, Respondent acknowledges that this CAFO will be available to the public and agrees that this CAFO does not contain any confidential business information.

94. By signing this CAFO, the undersigned representative of Complainant and the undersigned representative of Respondent each certify that he or she is fully authorized to execute and enter into the terms and conditions of this CAFO and has legal capacity to bind the party he or she represents to this CAFO.

95. By signing this CAFO, Respondent certifies based on information and belief that the information it has supplied concerning this matter was at the time of submission, and is at the time of signing, true, accurate, and complete for each submission, response, and statement. Respondent acknowledges that there are significant penalties for submitting false or misleading information, including the possibility of fines and imprisonment for knowing submission of such information, under 18 U.S.C. § 1001.

96. Respondent specifically waives its right to seek reimbursement of its costs and attorney's fees under 5 U.S.C. § 504 and 40 C.F.R. Part 17. Except as qualified by Paragraph 82, each party shall bear its own attorney's fees, costs, and disbursements incurred in this proceeding.

#### **H. SUPPLEMENTAL ENVIRONMENTAL PROJECT**

97. Respondent shall undertake the following SEP, which the parties agree is intended to secure significant environmental or public health protection and improvements.

98. Within one hundred eighty (180) days from the effective date of this CAFO, Respondent shall complete a comprehensive air regulatory compliance audit at the Facility, described as follows:

- a. Respondent shall use an independent third-party auditor to perform the compliance audit.
- b. The audit's scope of work shall include a detailed evaluation of Respondent's compliance with the Federal CAA, including, but not limited to, compliance with 40 C.F.R. Parts 60, 61, and 63; New Source Review permitting programs (both Nonattainment and Prevention of Significant Deterioration) under Title I of the CAA; and Refrigerant Recycling requirements under 40 C.F.R. Part 82.
- c. The audit's scope of work shall also include a detailed evaluation of Respondent's compliance with the Texas Clean Air Act, including, but not limited to, compliance with Pollutant-Specific Regulations (Regulations I-IV, VII, and IX); New Source Review permitting under Regulation VI; and Title V permitting under Regulation VII.

99. Respondent's total expenditure for the SEP shall be no less than Seventeen Thousand Dollars (\$17,000).

100. Respondent hereby certifies based on information and belief formed after reasonable inquiry that:

- a. All cost information provided to the EPA in connection with EPA's approval of the SEP is complete and accurate and that Respondent in good faith estimates that its cost to implement the SEP is Seventeen Thousand Dollars (\$17,000).

- b. As of the Effective Date of this CAFO, Respondent is not required to perform or develop the SEP by any federal, state, or local law or regulation and is not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum;
- c. The SEP is not a project that Respondent was planning or intending to construct, perform, or implement other than in voluntary settlement of the claims resolved in this CAFO;
- d. Respondent has not received and will not receive credit for the SEP in any other enforcement action;
- e. Respondent will not receive reimbursement for its portion of the SEP from another person or entity;
- f. For federal income tax purposes, Respondent agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEP;
- g. Respondent is not a party to any open federal financial assistance transaction that is funding or could fund the same activity as the SEP; and
- h. Respondent has inquired of the SEP recipient and/or SEP implementer (if applicable) whether either is a party to an open federal financial assistance transaction that is funding or could fund the same activity as the SEP and has been informed by the recipient and/or the implementer (if applicable) that neither is a party to such a transaction.

101. No later than sixty (60) days after it has completed the air regulatory compliance audit as described in Paragraph 98 above of this CAFO, Respondent shall submit a Final SEP Completion Report. The Final SEP Completion Report shall contain the following information: (i) a detailed description of the SEP as implemented, (ii) a certification that the SEP has been fully implemented pursuant to the provisions of this CAFO with itemized final costs and copies of receipts for all expenditures, (iii) a certification upon completion of the SEP that the Respondent has not deducted the SEP from its income taxes, and (iv) a description of the environmental, emergency preparedness, and/or public health benefits resulting from implementation of the SEP.

102. In itemizing its costs in the Final SEP Completion Report, Respondent shall clearly identify and provide acceptable documentation for all eligible costs. For purposes of this paragraph, "acceptable documentation" includes invoices, purchase orders, or other documentation that specifically identifies and itemizes the individual costs of the goods and/or services for which payment is being made. Canceled drafts do not constitute acceptable documentation unless such drafts specifically identify and itemize the individual costs of the goods and/or services for which payment is being made.

103. Respondent shall, by its representative who is fully authorized by Respondent to legally commit and bind Respondent, sign and certify under penalty of law that the information contained in the Final SEP Completion Report is true, accurate, and complete, by signing the following statement:

I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

The Final SEP Completion Report shall be sent to:

Margaret Osbourne  
Chief, Air Toxics Enforcement Section (6EN-AT)  
Compliance Assurance and Enforcement Division  
U.S. EPA, Region 6  
1445 Ross Avenue Suite 1200  
Dallas, TX 75202-2733

104. After receipt of the Final SEP Completion Report described above, EPA will notify Respondent, in writing within ninety (90) days, regarding: (a) any deficiencies in the SEP Completion Report itself along with a grant of an additional thirty (30) days, from receipt of that notification, for Respondent to correct any deficiencies in the SEP Completion Report; or (b) indicate that EPA concludes that the project has been completed satisfactorily; or (c) determine that the project has not been completed satisfactorily.

105. If Respondent fails to comply with any of the terms or provisions of this CAFO relating to performance of the SEP and/or to the extent Respondent's actual expenditures for the SEP do not equal or exceed its estimated cost for the SEP, Respondent shall be liable for stipulated penalties according to the provisions set forth below:

- a. Except as provided in subparagraphs (b)-(e) below, for a SEP which has not been completed satisfactorily pursuant to this CAFO, Respondent shall pay a stipulated penalty to the United States in the amount of Thirty-four Thousand Dollars (\$34,000).
- b. Where all elements of the SEP have been satisfactorily completed, but the Respondent has expended less than the agreed-upon amount on the SEP, the EPA may, in its discretion, choose to reduce or waive stipulated penalties otherwise due under the settlement agreement.

- c. Where the SEP has not been satisfactorily completed, but the Respondent can demonstrate that the partially completed SEP provides some of the expected environmental and/or public health benefits, the EPA may, in its discretion, choose to reduce or waive stipulated penalties otherwise due under this agreement.
- d. If the Respondent fails to timely complete the SEP for any reason, the Respondent shall pay the stipulated penalties shown below. Respondent's stipulated penalties for failure to timely complete the SEP shall not exceed Thirty-four Thousand Dollars (\$34,000).

<u>Penalty Per Day</u>	<u>Period of Noncompliance</u>
\$250	1st through 14th day
\$500	15th through 30th day
\$750	31st day and beyond

- e. For failure to timely submit the SEP Final Completion Report required by Paragraphs 101-102 above, Respondent shall pay stipulated penalties as follows:

<u>Penalty Per Day</u>	<u>Period of Noncompliance</u>
\$100	1st through 14th day
\$250	15th through 30th day
\$500	31st day and beyond

- f. The EPA may, in its unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due under this CAFO.

106. The determination of whether the SEP has been satisfactorily completed and

whether Respondent has made a good faith, timely effort to implement the SEP shall be at the sole, reasonable discretion of EPA.

107. Nothing herein shall obligate Respondent to publicize its involvement in the SEP; however, any public statement, oral or written, made by Respondent to publicize its participation in SEP activities shall include the following language: "This project was undertaken in connection with the settlement of an enforcement action taken by the U.S. Environmental Protection Agency for violations of the Clean Air Act and the regulations promulgated thereunder."

**I. EFFECT OF CONSENT AGREEMENT AND FINAL ORDER**

108. In accordance with 40 C.F.R. § 22.18(c), this CAFO resolves only Respondent's liability for federal civil penalties for the violations alleged in Section F and the facts that form the basis for those alleged violations.

109. Penalties paid pursuant to this CAFO shall not be deductible for purposes of federal taxes.

110. This CAFO constitutes the entire agreement and understanding of the parties and supersedes any prior agreements or understandings, whether written or oral, among the parties with respect to the subject matter hereof.

111. The material terms, conditions, and compliance requirements of this CAFO may not be modified or amended except upon the written agreement of both parties, and approval of the Regional Judicial Officer. The correction of errors and other non-substantive changes are not material terms and may be modified by written agreement of the parties.

112. Any violation of the included Final Order may result in a civil judicial action for an injunction or civil penalties of up to \$37,500 per day of violation, or both, as provided in

Section 113(b)(2) of the Act, 42 U.S.C. § 7413(b)(2), as well as criminal sanctions as provided in Section 113(c) of the Act, 42 U.S.C. § 7413(c). The EPA may use any information submitted under this CAFO in an administrative, civil judicial, or criminal action.

113. Nothing in this CAFO shall relieve Respondent of the duty to comply with all applicable provisions of the Act and other federal, state, or local laws or statutes, nor shall it restrict the EPA's authority to seek compliance with any applicable laws or regulations, nor shall it be construed to be a ruling on, or a determination of, any issue related to any federal, state, or local permit.

114. Nothing herein shall be construed to limit the power of the EPA to undertake any action against Respondent or any person in response to conditions that may present an imminent and substantial endangerment to the public health, welfare, or the environment.

**J. EFFECTIVE DATE**

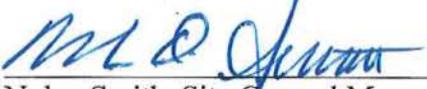
115. Respondent and Complainant agree to the issuance of the included Final Order. Upon filing the EPA will transmit a copy of the filed CAFO to the Respondent. This CAFO shall become effective after execution of the Final Order by the Regional Judicial Officer on the date of filing with the Hearing Clerk.

Re: LCY Elastomers, L.P.  
Docket No. CAA-06-2017-3331

The foregoing Consent Agreement In the Matter of LCY Elastomers, L.P., Docket No. CAA-06-2017-3331, is Hereby Stipulated, Agreed, and Approved for Entry.

FOR RESPONDENT:

Date: 2/24/2017

  
\_\_\_\_\_  
Nolan Smith, Site General Manager  
LCY Elastomers, L.P.  
4803 Decker Drive  
Baytown, Texas 77520

Re: LCY Elastomers, L.P.  
Docket No. CAA-06-2017-3331

FOR COMPLAINANT:

Date: 3/1/2017



Cheryl T. Seager  
Director  
Compliance Assurance and  
Enforcement Division  
U.S. EPA, Region 6  
1445 Ross Avenue  
Dallas, Texas 75202



CERTIFICATE OF SERVICE

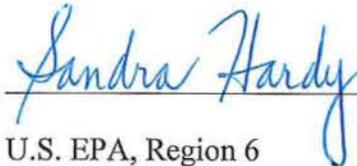
I hereby certify that on the 8<sup>th</sup> day of March, 2017, the original and one copy of the foregoing Consent Agreement and Final Order was hand delivered to the Regional Hearing Clerk, U.S. EPA - Region 6, 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202-2733, and a true and correct copy was delivered to the following individual(s) by the method indicated below:

CERTIFIED MAIL - RETURN RECEIPT REQUESTED 7007 3020000015228304

Nolan Smith, Site General Manager  
LCY Elastomers, L.P.  
4803 Decker Drive  
Baytown, Texas 77520

CERTIFIED MAIL - RETURN RECEIPT REQUESTED 70073020000251022193

Kirk F. Sniff  
Strasburger & Price, LLP  
901 Main Street, Suite 6000  
Dallas, Texas 75202-3794



U.S. EPA, Region 6  
Dallas, Texas

## APPENDIX A

### Calculating Net Heating Value of the Combustion Zone Gas

All abbreviations, constants, and variables are defined in the Key on Page 5 of this Appendix.

#### Step 1: Determine the Net Heating Value of the Vent Gas (NHV<sub>vg</sub>)

LCY shall determine the Net Heating Value of the Vent Gas (NHV<sub>vg</sub>) based on composition monitoring data on a 15-minute block average basis according to the following requirements. If LCY monitors separate gas streams that combine to comprise the total vent gas flow to the Acetic Acid Flare, the 15-minute block average Net Heating Value shall be determined separately for each measurement location according to the following requirements and a flow-weighted average of the gas stream Net Heating Values shall be used to determine the 15-minute block average Net Heating Value of the cumulative Vent Gas. The NHV<sub>vg</sub> 15-minute block averages shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

#### Step 1a: Equation or Output to be Used to Determine NHV<sub>vg</sub> at a Measurement Location

**For any gas stream for which LCY operates a monitoring system capable of continuously measuring (i.e., at least once every 15 minutes), calculating and recording the individual component concentrations present in the Vent Gas:** Equation 1 shall be used to determine the NHV<sub>vg</sub> of a specific sample by summing the Net Heating Value for each individual component by individual component volume fractions. Individual component Net Heating Values are listed in Table 1 of this Appendix.

$$NHV_{vg} = \sum_{i=1}^n (x_i \cdot NHV_i) \quad \text{Equation 1}$$

**For any gas stream for which LCY operates a calorimeter capable of continuously measuring, calculating, and recording the NHV<sub>vg</sub> at standard conditions but for which a Hydrogen Concentration Monitor is not used:** Use the direct output (measured value) of the monitoring system(s) (in BTU/scf) to determine the NHV<sub>vg</sub> for the sample.

**For any gas stream for which LCY operates a calorimeter capable of continuously measuring, calculating, and recording the NHV<sub>vg</sub> at standard conditions and for which a Hydrogen Concentration Monitor is also used:** Equation 2 shall be used to determine the NHV<sub>vg</sub> for each sample measured via the Net Heating Value monitoring system. Where hydrogen concentration data is collected, Equation 2 performs a net correction for the measured heating value of hydrogen since the theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of this Consent Decree, a Net Heating Value of 1,212 Btu/scf may be used (1,212 – 274 = 938 BTU/scf).

$$NHV_{vg} = NHV_{measured} + 938x_{H2} \quad \text{Equation 2}$$

**Step 1b: Choose the Calculation Method to be Used in Applying Equation/Output to Determine  $NHV_{vg}$**

- (1) Feed-forward calculation method. When calculating  $NHV_{vg}$  for a specific 15-minute block:
- A. Use the results from the first sample collected during an event, (for periodic flare Vent Gas flow events) for the first 15-minute block associated with that event.
  - B. If the results from the first sample collected during an event (for periodic flare Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the second 15-minute block associated with that event.
  - C. For all other cases, use the results that are available from the most recent sample prior to the 15-minute block period for that 15-minute block period for all flare Vent Gas streams. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:45 AM to 1:00 AM.

Note: LCY is required to use the  $NHV_{vg}$  going into the flare in one 15-minute period to adjust the assist media (i.e., steam) and/or supplemental gas in the next 15-minute period, as necessary for the equation to calculate an  $NHV_{cz}$  limit of 270 Btu/scf or greater. In the event that an instantaneous  $NHV_{cz}$  based on the compositional analysis and the flow rates is below 270 Btu/scf, that is not a deviation of the operating limit. Rather, LCY is only required to make operational adjustments based on that information to achieve, at a minimum, the net heating value limit for the subsequent 15-minute block average.

- (2) Direct calculation method. When calculating  $NHV_{vg}$  for a specific 15-minute block:
- A. If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the first 15-minute block associated with that event.
  - B. For all other cases, use the arithmetic average of all  $NHV_{vg}$  measurement data results that become available during a 15-minute block to calculate the 15-minute block average for that period. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:30 AM to 12:45 AM.

## **Step 2: Determine Volumetric Flow Rates of Gas Streams**

LCY shall determine the volumetric flow rate in standard cubic feet (scf) of vent gas, along with the volumetric flow rates (in scf) of any Supplemental Gas, assist steam, and premix assist air, over a 15-minute block average basis. The 15-minute block average volumetric flow rates shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

**For any gas streams for which LCY uses a monitoring system that directly records volumetric flow rate:** Use the direct output (measured value) of the monitoring system(s) (in scf), as corrected for the temperature and pressure of the system to standard conditions (i.e., a temperature of 20 °C (68 °F) and a pressure of 1 atmosphere) to then calculate the average volumetric flow rate of that gas stream for the 15-minute block period.

**For Vent Gas, assist steam, or premix assist air gas streams for which LCY uses a mass flow monitor to determine volumetric flow rate:** Equation 3 shall be used to determine the volumetric flow rate of Vent Gas, premix assist air, or assist steam by converting mass flow rate to volumetric flow at standard conditions (i.e., a temperature of 20 °C (68 °F) and a pressure of 1 atmosphere). Equation 3 uses the molecular weight of the gas stream as an input to the equation; therefore, if LCY elects to use a mass flow monitor to determine volumetric flow rate of Vent Gas, LCY must collect compositional analysis data for such Vent Gas. For assist steam, use a molecular weight of 18 pounds per pound-mole. For assist air, use a molecular weight of 29 pounds per pound-mole. The converted volumetric flow rates at standard conditions from Equation 3 shall then be used to calculate the average volumetric flow rate of that gas stream for the 15-minute block period.

$$Q_{vol} = \frac{Q_{mass} * 385.3}{MWT} \quad \text{Equation 3}$$

**For gas streams for which the molecular weight of the gas is known and for which LCY uses a continuous pressure/temperature monitoring system(s):** Use appropriate engineering calculations to determine the average volumetric flow rate of that gas stream for the 15-minute block period. For assist steam, use a molecular weight of 18 pounds per pound-mole. For assist air, use a molecular weight of 29 pounds per pound-mole. For Vent Gas, molecular weight must be determined by collecting compositional analysis data for such Vent Gas.

## **Step 3: Calculate the Net Heating Value of the Combustion Zone Gas (NHV<sub>cz</sub>)**

LCY shall determine the net heating value of the combustion zone gas (NHV<sub>cz</sub>) as specified below either using method (1) or (2), as applicable from Step 1b.

- (1) Should LCY choose to use the direct calculation methodology in Step 1b, Equation 4 shall be used to determine the 15-minute block average NIIV<sub>cz</sub> based on the 15-minute block average Vent gas and assist gas flow rates. For periods when there is no Assist Steam flow or Premix Assist Air flow, NHV<sub>cz</sub> = NIIV<sub>vg</sub>.

$$NHV_{cz} = \frac{Q_{vg} * NHV_{vg}}{Q_{vg} + Q_s + Q_{a,premix}} \quad \text{Equation 4}$$

(2) Should LCY choose to use the feed-forward calculation methodology in Step 1b, Equation 5 shall be used to determine the 15-minute block average  $NHV_{cz}$  based on the 15-minute block average Vent Gas, Supplemental Gas, and assist gas flow rates. For periods when there is no Assist Steam flow or Premix Assist Air flow,  $NHV_{cz} = NHV_{vg}$ .

$$NHV_{cz} = \frac{(Q_{vg} - Q_{NG2} + Q_{NG1}) * NHV_{vg} + (Q_{NG2} - Q_{NG1}) * NHV_{NG}}{(Q_{vg} + Q_s + Q_{a,premix})} \quad \text{Equation 5}$$

For the first 15-minute block period of an event,  $Q_{NG1}$  shall use the volumetric flow value for the current 15-minute block period (i.e.  $Q_{NG1} = Q_{NG2}$ ).  $NHV_{NG}$  shall be determined using one of the following methods: 1) direct compositional or Net Heating Value monitoring of the natural gas stream in accordance with Step 1; or 2) for purchased (“pipeline quality”) natural gas streams, the Company may elect to either: a) use annual or more frequent grab sampling at any one representative location; or b) assume a Net Heating Value of 920 BTU/scf.

**Step 4: Ensure that during flare operation,  $NHV_{cz} \geq 270$  BTU/scf**

The flare must be operated to ensure that  $NHV_{cz}$  is equal to or above 270 BTU/scf, as determined for each 15-minute block period when Waste Gas is routed to a Covered Flare for at least 15-minutes. Equation 6 shows this relationship.

$$NHV_{cz} \geq 270 \text{ BTU/scf} \quad \text{Equation 6}$$

## Key to the Abbreviations:

$385.3 =$  conversion factor (scf/lb-mol)

$i =$  individual component in Vent Gas (unitless)

$MW_t =$  molecular weight of the gas at the flow monitoring location (lb/lb-mol)

$n =$  number of components in Vent Gas (unitless)

$NHV_{CZ} =$  Net Heating Value of Combustion Zone Gas (BTU/scf)

$NHV_i =$  Net Heating Value of component  $i$  according to Table 1 of this Appendix (BTU/scf)

$NHV_{measured} =$  Net Heating Value of Vent Gas stream as measured by monitoring system (BTU/scf)

$NHV_{NG} =$  Net Heating Value of Supplemental Gas to flare during the 15 – minute block period (BTU/scf)

$NHV_{vg} =$  Net Heating Value of Vent Gas (BTU/scf)

$Q_{a,premix} =$  cumulative vol flow of premix assist air during the 15 – minute block period (scf)

$Q_{mass} =$  massflow rate (pounds per second)

$Q_{NG1} =$

cumulative vol flow of Supplemental Gas (measured as total natural gas flow to the flare) to flare during previous 15 – minute block period (scf)

$Q_{NG2} =$

cumulative vol flow of Supplemental Gas (measured as total natural gas flow to the flare) to flare during the 15 – minute block period (scf)

$Q_s =$  cumulative vol flow of Total Steam during the 15 – minute block period (scf)

$Q_{vg} =$  cumulative vol flow of Vent Gas during the 15 – minute block period (scf)

$Q_{vol} =$  volumetric flow rate (scf per second)

$x_i =$  concentration of component  $i$  in Vent Gas (vol fraction)

$x_{H2} =$  concentration of H<sub>2</sub> in Vent Gas at time sample was input into NHV monitoring system (vol fraction)

**Table 1**  
**Individual Component Properties**

Component	Molecular Formula	MW <sub>i</sub> (pounds per pound-mole)	CMN <sub>i</sub> (mole per mole)	NHV <sub>i</sub> (British thermal units per standard cubic foot)	LFL <sub>i</sub> (volume %)
Acetylene	C <sub>2</sub> H <sub>2</sub>	26.04	2	1,404	2.5
Benzene	C <sub>6</sub> H <sub>6</sub>	78.11	6	3,591	1.3
1,2-Butadiene	C <sub>4</sub> H <sub>6</sub>	54.09	4	2,794	2.0
1,3-Butadiene	C <sub>4</sub> H <sub>6</sub>	54.09	4	2,690	2.0
iso-Butane	C <sub>4</sub> H <sub>10</sub>	58.12	4	2,957	1.8
n-Butane	C <sub>4</sub> H <sub>10</sub>	58.12	4	2,968	1.8
cis-Butene	C <sub>4</sub> H <sub>8</sub>	56.11	4	2,830	1.6
iso-Butene	C <sub>4</sub> H <sub>8</sub>	56.11	4	2,928	1.8
trans-Butene	C <sub>4</sub> H <sub>8</sub>	56.11	4	2,826	1.7
Carbon Dioxide	CO <sub>2</sub>	44.01	1	0	∞
Carbon Monoxide	CO	28.01	1	316	12.5
Cyclopropane	C <sub>3</sub> H <sub>6</sub>	42.08	3	2,185	2.4
Ethane	C <sub>2</sub> H <sub>6</sub>	30.07	2	1,595	3.0
Ethylene	C <sub>2</sub> H <sub>4</sub>	28.05	2	1,477	2.7
Hydrogen	H <sub>2</sub>	2.02	0	1,212 <sup>A</sup>	4.0
Hydrogen Sulfide	H <sub>2</sub> S	34.08	0	587	4.0
Methane	CH <sub>4</sub>	16.04	1	896	5.0
Methyl-Acetylene	C <sub>3</sub> H <sub>4</sub>	40.06	3	2,088	1.7
Nitrogen	N <sub>2</sub>	28.01	0	0	∞
Oxygen	O <sub>2</sub>	32.00	0	0	∞
Pentane+ (C5+)	C <sub>5</sub> H <sub>12</sub>	72.15	5	3,655	1.4
Propadiene	C <sub>3</sub> H <sub>4</sub>	40.06	3	2,066	2.16
Propane	C <sub>3</sub> H <sub>8</sub>	44.10	3	2,281	2.1
Propylene	C <sub>3</sub> H <sub>6</sub>	42.08	3	2,150	2.4
Water	H <sub>2</sub> O	18.02	0	0	∞

<sup>A</sup> The theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of this Consent Agreement, a Net Heating Value of 1,212 Btu/scf shall be used.

Note: If a component is not specified in this Table 1, the heats of combustion may be determined using any published values where the net enthalpy per mole of vent gas is based on combustion at 25 °C and 1 atmosphere (or constant pressure) with vent gas water in the gaseous state, but the standard temperature for determining the volume corresponding to one mole of vent gas is 20 °C.