



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAY 21 2007

REPLY TO THE ATTENTION OF:

(AE-17J)

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Sandy Marshall
Vice President Manufacturing
Lanxess Corporation
356 Three Rivers Parkway
Addyston, Ohio 45001

Dear Ms. Marshall:

Enclosed is United States Environmental Protection Agency (U.S. EPA) Administrative Order EPA-05-07-113(a)-OH-01. This order requires that, within three months from the effective date of this Order, Lanxess shall continuously comply with the conditions specified under PTI 14-04577 and Lanxess's Title V permit which require that the Addyston Facility's flare achieve 99% control efficiency at all times that emissions from P001 are vented to it, and that all P001 process streams vented to the flare have a net heating value of 300 BTU/scf or greater.

U.S. EPA issued a Notice and Finding of Violation to Lanxess on June 12, 2006, for failure to comply with the National Emission Standards for Hazardous Air Pollutants for Polymers and Resins, its Title V permit, and its Permit-to-Install at its flare, the control device for large batch chemical reactors.

If you have further questions, please contact me or Brian Dickens of my staff at (312) 886-6073.

Sincerely yours,

A handwritten signature in black ink that reads "William L. MacDowell".

William L. MacDowell, Chief
Air Enforcement and Compliance Assurance Section (MN/OH)

Enclosure

cc: Robert Hodanbosi, Chief
Division of Air Pollution Control
Ohio Environmental Protection Agency

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

IN THE MATTER OF:)
)
) **Administrative Order**
Lanxess Corporation)
Addyston, Ohio) **EPA-5-07-113(a)-OH-01**
)
)
Proceeding Under Sections)
113(a)(1) and 113(a)(3) of the)
Clean Air Act, 42 U.S.C.)
§§ 7413(a)(1) and 7413(a)(3))

Administrative Order

1. The Director of the Air and Radiation Division, United States Environmental Protection Agency (U.S. EPA), Region 5, is issuing this Order to Lanxess Corporation (Lanxess) under Sections 113(a)(1) and 113(a)(3) of the Clean Air Act (CAA), 42 U.S.C. §§ 7413(a)(1) and 7413(a)(3).

Statutory and Regulatory Authority

2. Section 110 of the CAA, 42 U.S.C. § 7410, requires each state to adopt and submit to U.S. EPA for approval a SIP that provides for the implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS). Under Section 110(a)(2) of the CAA, 42 U.S.C. 7410(a)(2), each SIP must include a permit program to regulate the modification and construction of any stationary source of air pollution as necessary to assure that NAAQS are achieved. Pursuant to Section 113(a) and (b) of the CAA, 42 U.S.C. 7413(a) and (b), upon U.S. EPA approval, SIP requirements are federally enforceable under Section 113. Under 40 C.F.R. § 52.23, any permit limitation or condition contained within a permit issued under an U.S.EPA-approved program that is incorporated in a SIP, is a requirement of the SIP, and is federally enforceable under Section 113.

3. On October 31, 1980, U.S. EPA approved Ohio Administrative Code (OAC) Rule 3745-31, permit to install regulations, as part of the federally enforceable SIP for Ohio.

45 Fed. Reg. 72146. Since then, U.S. EPA has approved several revisions to OAC 3745-31 into the federally enforceable SIP. The rules were substantially revised and approved as a revision to the SIP on September 8, 1993. 58 Fed. Reg. 47211.

4. OAC 3745-31-02(A) states that no person shall cause, permit, or allow the installation of a new source of air pollutants or allow the modification of an air contaminant source without first obtaining a permit to install (PTI) from the director of the Ohio Environmental Protection Agency (Ohio EPA). OAC Rule 3745-31-05(D) states that the director may impose such special terms and conditions in a PTI as are appropriate or necessary to ensure compliance with the applicable laws and to ensure adequate protection of environmental quality.

5. Under Section 113(a)(1) of the CAA, 42 U.S.C. § 7413(a)(1), the Administrator of U.S. EPA may issue an order requiring compliance to any person who has violated or is violating any requirement of the SIP or permit. The Administrator has delegated this authority to the Director of the Air and Radiation Division.

6. Section 502(a) of the CAA, 42 U.S.C. § 7661a(a), and 40 C.F.R. § 70.7(b) provide that, after the effective date of any permit program approved or promulgated under Title V of the CAA, no source subject to Title V may operate except in compliance with a Title V permit.

7. Under Section 113(a)(3) of the Act, 42 U.S.C. § 7413(a)(3), the Administrator of U.S. EPA may issue an order requiring compliance to any person who has violated or is violating any requirement of Title V of the CAA. The Administrator has delegated this authority to the Director of the Air and Radiation Division.

8. U.S. EPA approved Ohio's part 70 (Title V) program, codified at OAC 3745-77, on August 15, 1995, with an effective date of October 1, 1995. 60 Fed. Reg. 42045.

Facility

9. Lanxess owns and operates a facility at 356 Three Rivers Parkway, Addyston, Ohio 45001-003 that manufactures ABS (acrylonitrile, butadiene, styrene) plastics and resins (Addyston Facility).

10. Ohio EPA issued to the Addyston Facility pursuant to the PTI regulations of Rule 3745-31, PTI 14-01787 on October 12,

1989, which regulates emissions from unit ABS #1 Poly (P001). P001 is part of the Addyston Facility's batch polymerization process. The PTI requires emissions from P001 to be vented to a flare having a control efficiency of at least 99%, or to a boiler for incineration with a control efficiency of 99.99%.

11. Ohio EPA issued to the Addyston Facility PTI 14-04577 on May 12, 1999, which regulates emissions from P001. The PTI requires emissions from P001 to be vented to a flare having a control efficiency of at least 99%, or to a boiler for incineration with a control efficiency of 99.99%.

12. PTI 14-01787 states that the flare shall comply with OAC 3745-21-09(DD)(10), and PTI 14-04577 states that the flare shall comply with the applicable rules of flare equipment in 40 C.F.R. § 63.11(b). Both of these provisions specify, among other things, that the net heating value of process gases vented to the flare shall be 300 BTU/scf or greater.

13. Ohio EPA issued the Addyston Facility Title V permit 14-31-01-0054 (Lanxess Title V permit) pursuant to Ohio's part 70 program, on August 30, 2004.

14. Among the emission units Lanxess Title V permit has conditions for the control of air pollutants is P001.

15. The Lanxess Title V permit, Part III (P001), states under Condition A.I.2.a that the flare must achieve 99% control efficiency, under Condition A.II.2 that the flare must be operated at all times that emissions from P001 are vented to it, and under Condition A.II.4 that Lanxess must adhere to the heat content specifications in 40 CFR § 63.11(b)(6)(ii), which requires that the net heating value of the P001 vent streams must be 300 BTU/scf or greater.

Findings

16. P001 is a process which has several process vents that emit the volatile organic chemical and hazardous air pollutant 1,3-butadiene (butadiene). These vents flow to a closed vent system controlled by a flare. The flare tip was manufactured by John Zink Company

17. P001 components include reactor kettles identified as C Kettle (C Kt) and D Kettle (D Kt). C Kt and D Kt have similar emission profiles given the kettles manufacture the same types of products via the same process technology.

18. The C Kt and D Kt production lines include parallel coolers and holding tanks. Butadiene emissions are vented during various stages of the batch operation, including: venting during kettle reaction; venting during the transfer of product from a kettle to a cooler; and venting while product is stored in the cooler. These emissions are vented to the flare stack.

19. The flare used at the Addyston Facility is steam-assisted. Steam is piped to the flare tip to eliminate black smoke from the flame. The steam addition rate is adjustable to establish a rate sufficient to reduce smoking depending upon the organic load of the vent stream being combusted.

20. In March 1983, the Chemical Manufacturers Association (CMA) issued "A Report on a Flare Efficiency Study." This study, partially funded by U.S. EPA, included various tests to determine the combustion efficiency and hydrocarbon destruction efficiency of flares under a variety of operating conditions. Certain tests were conducted on a steam-assisted flare provided by John Zink Company. The tests performed included a wide range of steam flows and steam-to-vent gas ratios. The data collected showed decreasing combustion efficiencies when the steam-to-vent gas ratio was above 3.5. The tests showed the following efficiencies at the following steam-to-vent gas ratios:

Pounds of Steam to One Pound of Vent Gas	Combustion Efficiency (%)
3.45	99.7
5.67	82.18
6.86	68.95

The report's authors indicated they believed excessive steam-to-vent gas ratios caused steam quenching of the flare during the tests which resulted in lower combustion efficiency.

21. On September 12-13, 2005, U.S. EPA conducted an inspection of the Addyston Facility. During this inspection, U.S. EPA representatives observed discontinuous combustion at the flare for P001.

22. On February 7, 2006, U.S. EPA issued an information request to Lanxess Corporation pursuant to Section 114 of the CAA, 42 U.S.C. § 7414. Included in this information request was

a specific request requiring Lanxess to provide copies of documents regarding the design and operation of the Addyston Facility's flare, including design evaluations, design drawings and operations and maintenance manuals for the flare.

23. In response to the February 7, 2006 information request, Lanxess submitted information enclosed with a letter dated March 23, 2006. Included in the information are documents that Lanxess identified as "[c]opies of the site's Flare design evaluations, drawings, operation and maintenance manuals, and parametric monitoring records that have been generated since January 1, 2003." Among the documents provided by Lanxess is the 2005 "LANXESS Addyston Plant Flare Venting Engineering Evaluation" document.

24. The 2005 "LANXESS Addyston Plant Flare Venting Engineering Evaluation" document summarizes an engineering study that included, among other things, a review of "conditions for assuring the best possible combustion at the flare." With respect to combustion, the document indicates that Lanxess consulted with John Zink Company, the manufacturer of the flare tip. The document indicates:

...Discussions with John Zink Company led to consideration of API Document 521, Guide for Pressure-Relieving and Depressuring Systems. For promoting smokeless combustion, Table 10 of this document suggests a steam to gas ratio of 0.90 to 1.0 when the gas being fired is butadiene.

Among the conclusions stated in the document is the statement: "Flare combustion could be further optimized by actively controlling the steam rate." Among the recommendations stated in the document is the statement: "Design a system for actively controlling the steam injection rate to the flare based on the real-time gas loading to the flare."

25. In March 1997, the American Petroleum Institute (API) released a report entitled "Guide for Pressure-Relieving and Depressuring Systems." This document discusses the venting of organic material and recommends proper practices. With respect to steam-assisted flares, the document states, "the amount of steam required is primarily a function of the gas composition, flow rate and steam pressure and flare tip design and is normally in the range of 0.25 to 1.0." The report suggests a steam rate for butadiene of 0.9 -1.0 lb of steam per pound of gas.

26. On July 21, 2006, U.S. EPA issued an information

request to Lanxess Corporation pursuant to Section 114 of the CAA. Included in this information request was the following request identified as Request # 2:

Provide all documents that recommend or prescribe the steam flow rate to the flare tip controlling emissions from unit P001.

27. In response to the July 21, 2006 information request, Lanxess submitted information enclosed with a letter dated August 21, 2006. The letter indicated that Lanxess's response to U.S. EPA Request # 2 is:

The "LANXESS Addyston Plant Flare Venting Evaluation" document that LANXESS submitted to the USEPA on March 23, 2006 suggests that the site maintain a 0.9 to 1.0 steam/gas mass venting ratio to promote smokeless combustion, which was obtained from API publication # 521.

28. The July 21, 2006 U.S. EPA information request included the following request identified as Request # 10:

Provide a copy of all documents that John Zink Company has sent to Lanxess, or its contractor or consultant, since January 1, 1001.

29. In the Lanxess August 21, 2006 response U.S EPA's July 21, 2006 information request, Lanxess provided in response to Rquest # 10 a May 31, 2000 document prepared by John Zink Company entitled "Operation and Maintenance Manual for John Zink EEF-QS-C Steam Flares." In Section IV of the document, "Operating Instructions," the document states the following:

During a flaring event, the steam flow to the Upper Steam Ring should be adjusted to the point where smoke is not visible and the flame is a yellow-orange color. Excessive steam injection will cause high noise and can cause deterioration of destruction efficiency.

30. The July 21, 2006 U.S. EPA information request included the following request identified as Request # 1:

For the years 2001, 2002, 2003, 2004 and 2005 provide the highest, lowest, and average mass flow rates of steam, in lb/hr, to the flare tip while it was controlling emissions from unit P001.

31. Lanxess's August 21, 2006 response to U.S. EPA's July 21, 2006 information request included a response to Request # 1. In response to Request # 1, Lanxess provided the following table containing the minimum, maximum and average steam rates to the flare for each year for 2001 through 2005:

	Maximum	Average	Minimum
Year	(lb/hr)	(lb/hr)	(lb/hr)
2001	5923	3531	<500
2002	4213	3654	<500
2003	4775	3137	<500
2004	4246	3538	<500
2005	7680	3493	<500

This information indicates that from 2001 through 2005, the average steam rate added to the flare was approximately 3470 lb/hr, and that every year, the average steam rate was above 3000 lb/hr.

32. In a letter dated November 15, 2001, the Addyston Facility submitted to U.S. EPA a Notice of Compliance Status (NCS) as required by 40 C.F.R. § 63.1335(e)(5) of the Group IV Polymer and Resins Maximum Available Control Technology (MACT) standard under 40 C.F.R. Part 63, Subpart JJJ. The requirements of the NCS include, among other things, a demonstration of whether a facility's affected vents are "Group 1" (requiring MACT control) or "Group 2" (exempt from MACT control) under Subpart JJJ. The Addyston Facility's NCS included group determinations for the vents of P001. The group determinations were based on emission sampling testing conducted on September 11, 2001. The only two vent steams with organic content high enough to be designated Group 1 streams were the vents streams for the reaction step of C KT and D KT. The sampling emission rate obtained for the vent stream of the C KT reaction step was 233.663 lb butadiene/hr, whereas vent stream emission rates for the C KT product transfer to cooler, C KT cooler venting, and C KT product transfer to hold tank was 5.939, 8.135, and 41.279 lb butadiene/hr, respectively.

33. Based on the information supplied by Lanxess for its NCS and in response to Section 114 information requests, Lanxess supplies steam to the flare in excess of 3000 lb/hr, on average, while the mass flow rate of the vent gas from P001 can range from approximately 6 to 498 lb/hr of butadiene (498 lb/hr assuming C KT and D KT are venting their reaction steps simultaneously). This translates into steam-to-vent gas ratios of approximately 500 to 6. This range of steam-to-vent gas ratios far exceeds the ratio necessary for proper combustion at 99% control efficiency.

34. Based on the findings contained in the CMA Flare Efficiency Report identified in Paragraph 20, above, Lanxess P001 operations include steam-to-vent gas ratios which reduce the flare's control efficiency to below 99%.

35. Lanxess's P001 operations include steam-to-vent gas ratios which are inconsistent with flare combustion specifications contained in the 2005 "LANXESS Addyston Plant Flare Venting Engineering Evaluation" document identified in Paragraph 24, above, and the 2000 "Operation and Maintenance Manual for John Zink EEF-QS-C Steam Flares" identified in Paragraph 29, above.

36. Between 2001 through 2005, Lanxess P001 operations include flare control efficiencies below 99% when process emissions are vented to it, thus violating the conditions under the PTI 14-04577, Condition A.2, and the Lanxess Title V permit, Part III (P001), Condition A.I.2.a, requiring that all process emissions from P001 must be vented to a flare which achieves 99% control efficiency.

37. The Addyston Facility's emission sampling done on September 11, 2001 as part of its NCS submission requirements obtained the following average butadiene concentrations, in parts per million (ppm), for the vent streams from C KT transfer product to cooler step and C KT cooler venting step: 86,000 and 64,400 ppm, respectively.

38. Given the butadiene concentrations identified in Paragraph 37, above, the vent streams flowing to the flare during the kettle transfer product to cooler step and kettle cooler venting step have heat values of less than 300 BTU/scf.

39. Lanxess has violated the conditions of the PTI 14-04577, Condition A.3., and the Lanxess Title V permit, Part III (P001), Condition A.II.4, requiring Lanxess to adhere to the heat content specifications in 40 C.F.R. § 63.11(b)(6)(ii) during those periods when the vent stream flowing to the flare

constitutes the vent stream from the kettle transfer product to cooler step or kettle cooler venting step of either C Kt or D Kt.

40. Lanxess's PTI violations constitute violations of the Ohio SIP, and its Title V permit violations constitute violations of Section 502 of the CAA.

Compliance Program

41. Within three months from the effective date of this Order, Lanxess shall continuously comply with the conditions specified under PTI 14-04577 and Lanxess's Title V permit which require that the Addyston Facility's flare achieve 99% control efficiency at all times that emissions from P001 are vented to it, and that all P001 process streams vented to the flare have a net heating value of 300 BTU/scf or greater.

General Provisions

42. This Order does not affect Lanxess's responsibility to comply with local, state, and federal laws and regulations.

43. This Order does not restrict U.S. EPA's authority to enforce Section 112 of the CAA, or any other section of the CAA.

44. Nothing in this Order limits U.S. EPA's authority to seek appropriate relief, including penalties under Section 113 of the CAA, 42 U.S.C. § 7413, for Lanxess's violations of the CAA.

45. This Order is an interim enforcement action and is not the final resolution of past violations. This Order does not resolve Lanxess's liability, including liability for any penalties, for the violations cited here.

46. Failure to comply with this Order may subject Lanxess to penalties of up to \$32,500 per day for each violation under Section 113 of the CAA, 42 U.S.C. § 7413.

47. The terms of this Order are binding on Lanxess, its assignees and successors during the period it is effective. Lanxess must give notice of this Order to any successors in interest, prior to transferring ownership, and must simultaneously verify to U.S. EPA, at the above address, that Lanxess has given the notice.

48. This Order shall be effective on the date immediately after the Parties have conferred pursuant to Section 113(a)(4) of the Act, or alternatively, if no conference is requested or held

with Lanxess within the time specified in the Notice of Administrative Compliance Order enclosed herewith, this Order shall take effect after the lapse of such time.

5/21/2007
Date



Stephen Rothblatt, Director
Air and Radiation Division

CERTIFICATE OF MAILING

I, Loretta Shaffer, certify that I sent the Administrative Order, EPA Order No. **EPA-5-07-113(a)-OH-01**, by Certified Mail, Return Receipt Requested, to:

Sandy Marshall
Vice President Manufacturing
Lanxess Corporation
356 Three Rivers Parkway
Addyston, OH 45001

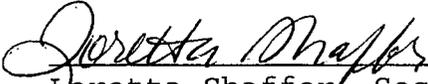
I also certify that I sent a copy by First Class Mail to:

Robert Hodanbosi, Chief
Division of Air Pollution Control
Ohio Environmental Protection Agency
Lazarus Government Center
PO Box 1049
Columbus, Ohio 43216

And

Mike Kramer
Hamilton County Department of Environmental Services
250 William Howard Taft Road
Cincinnati, Ohio 45219

on the 22nd day of May 2007.


Loretta Shaffer, Secretary
AECAS (MN/OH)

CERTIFIED MAIL RECEIPT NUMBER: 7001 0320 0005 8919 2065