

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:

Lanxess Corporation)	<u>Director's Final Findings</u>
356 Three Rivers Parkway)	<u>and Orders</u>
Addyston, Ohio 45001)	

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to Lanxess Corporation ("Respondent") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under Ohio Revised Code ("ORC") § 3704.03.

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondent and successors in interest liable under Ohio law. No change in ownership of the Respondent or of the facility (as hereinafter defined) shall in any way alter Respondent's obligations under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as defined in ORC Chapter 3704 and the rules promulgated thereunder.

IV. FINDINGS

The Director of Ohio EPA has determined the following findings:

1. Respondent owns and operates a thermoplastics manufacturing plant ("the facility") which is located at 356 Three Rivers Parkway in Addyston, Ohio, and is identified by Ohio EPA facility identification number 1431010054. Respondent is a "person" as defined by ORC § 3704.01(O) and Ohio Administrative Code ("OAC") Rule 3745-15-01(U).

2. At the facility, Respondent operates numerous emissions units for the production of acrylonitrile butadiene styrene ("ABS") (predominant product), styrene acrylonitrile ("SAN"), and acrylonitrile styrene acrylate ("ASA") plastics. Among the emissions units is a batch emulsion polymerization process with a flare used as a control device, which is identified by Ohio EPA as emissions unit P001. These emissions units

are each an "air contaminant source" as defined in OAC Rule 3745-15-01(C) and (W), and emit organic compounds as defined in OAC Rule 3745-21-01(B)(4), including 1,3-butadiene, acrylonitrile and styrene, which are "hazardous air pollutants" as defined in OAC Rule 3745-77-01(V).

3. On May 12, 1999, PTI 14-04577 was issued to the facility for emissions unit P001 pursuant to OAC Chapter 3745-31. On September 20, 2004, a Title V Permit to Operate ("Title V PTO") became effective for the facility pursuant to OAC Chapter 3745-77. The Title V PTO will expire on September 20, 2009. The permits require, in part, that the air contaminants emitted by emissions unit P001 not cause a public nuisance, in violation of OAC Rule 3745-15-07, and that Respondent vent all process emissions to a flare having an organic compound control efficiency of at least 99 percent, or to a boiler for incineration with an organic compound control efficiency of at least 99.99 percent.

4. OAC Rule 3745-15-07 prohibits any person from causing, permitting or maintaining a public nuisance due to the emission or escape into the open air from any source or sources of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors, or any other substances or combinations of substances, in such manner or in such amounts as to endanger the health, safety or welfare of the public, or cause unreasonable injury or damage to property.

5. ORC § 3704.05(C) prohibits any person from violating the terms and conditions of any permit issued under ORC § 3704.03(F) or (G). The permits mentioned in Finding 3 were issued pursuant to ORC § 3704.03(F) or (G).

6. ORC § 3704.05(G) prohibits any person from violating any order, rule, or determination of the Director that was issued, adopted or made under ORC Chapter 3704. OAC Rule 3745-15-07 was adopted pursuant to ORC Chapter 3704.

7. ORC § 3704.05(J)(2) prohibits, in part, any person from violating any applicable requirement of a Title V permit.

8. The permit to install (14-04577) and the Title V PTO for emissions unit P001 state the following requirement concerning the control of organic compound emissions: "All process emissions from P001 shall be vented to a flare having a control efficiency of at least 99%, or to a boiler for incineration, with a control efficiency of at least 99.99%." The organic compound emissions from emissions unit P001, which are comprised primarily of 1,3-butadiene, are vented to a flare for control; however, Respondent has identified significant fugitive emissions of 1,3-butadiene emissions from the sump associated with the flare. These fugitive emissions are being vented into the ambient air without any further control. Because these fugitive emissions are not being controlled, Respondent is not meeting the requirement that all process emissions must be vented to the flare and

controlled by a 99% control efficiency. Therefore, emissions unit P001 is, and has been, operating in violation of the permit to install and the Title V PTO. These violations also constitute violations of ORC § 3704.05 (C) and (J)(2). The control system that will be installed by Respondent pursuant to Order 5 will correct these violations associated with emissions unit P001.

9. The emissions of 1,3-butadiene from Respondent's facility, as measured by Hamilton County Department of Environmental Services ("HCDOES") at a rooftop monitoring site located at Meredith Hitchens Elementary School, 190 Main Street, in Addyston beginning on May 10, 2005 through the present, have caused elevated ambient air concentrations of this pollutant in the vicinity of the facility, resulting in an ambient risk calculation of 3.22×10^{-4} (approximately in excess of three in 10,000 excess cancer risk to the surrounding affected population for a lifetime exposure at the measured concentrations, as defined by the U.S. Environmental Protection Agency ("USEPA")), which Ohio EPA considers to be unacceptable for protecting public health. The monitoring data collected to date shows 1,3-butadiene concentrations for 24-hour periods ranging from "not detectable" to 33.18 micrograms per cubic meter (or 15 parts per billion ("ppb") by volume), with an average concentration based on 27 samples of 10.72 micrograms per cubic meter (or 4.85 ppb by volume). (Four samples that were collected on days that Respondent's facility was not in operation were not included in the calculation of the average concentration. Also, any sample analysis indicating non-detectible levels of 1,3-butadiene was included in the calculation of the average concentration at a value of one-half the detection limit.) Ohio EPA considers a concentration of no greater than 0.3 microgram per cubic meter (or 0.13 ppb by volume), as an annual average, to be an acceptable ambient air concentration for 1,3-butadiene to protect public health. As a result, Respondent has violated and is violating PTI 14-04577, the Title V PTO, OAC Rule 3745-15-07, and ORC § 3704.05(C), (G) and (J)(2).

10. The emissions of acrylonitrile from Respondent's facility, as measured by HCDOES at a rooftop monitoring site located at Meredith Hitchens Elementary School, 190 Main Street, in Addyston beginning on May 10, 2005 through the present, have caused elevated ambient air concentrations of this pollutant in the vicinity of the facility, resulting in an ambient risk calculation of 1.55×10^{-4} (approximately in excess of 1.5 in 10,000 excess cancer risk to the surrounding affected population for a lifetime exposure at the measured concentrations, as defined by the U.S. Environmental Protection Agency ("USEPA")), which Ohio EPA considers to be unacceptable for protecting public health. The monitoring data collected to date shows acrylonitrile concentrations for 24-hour periods ranging from "not detectable" to 16.71 micrograms per cubic meter (or 7.7 parts per billion ("ppb") by volume), with an average concentration based on 27 samples of 2.28 micrograms per cubic meter (or 1.05 ppb by volume). (Four samples that were collected on days that Respondent's facility was not in operation were not included in the calculation

of the average concentration. Also, any sample analysis indicating non-detectable levels of acrylonitrile was included in the calculation of the average concentration at a value of one-half the detection limit.) Ohio EPA considers a concentration of no greater than 0.1 microgram per cubic meter (or 0.05 ppb by volume), as an annual average, to be an acceptable ambient air concentration for acrylonitrile to protect public health. As a result, Respondent has violated and is violating PTI 14-04577, the Title V PTO, OAC Rule 3745-15-07, and ORC § 3704.05(C), (G) and (J)(2).

11. On October 17, 2005, Respondent submitted general plans to Ohio EPA and HCDOES for the purchase and installation of a containment system that the company believes will abate the 1,3-butadiene nuisance condition identified in Finding 9. The containment system would separate the liquid/solids/foam from the 1,3-butadiene vapors from emissions unit P001 and vent those vapors into the flare for combustion. Currently, the vapors from the process are vented to the flare, with liquids/solids/foam collected in a flare sump; however, there are fugitive emissions of 1,3-butadiene from the flare sump. Respondent also submitted a compliance schedule calling for the installation and initial operation of the containment system by no later than October 15, 2006. Respondent anticipates an expenditure of up to \$1,000,000 for the purchase and installation of the containment system.

12. Ohio EPA has reviewed the 1,3-butadiene control plan and schedule submitted by the Respondent and finds the plan acceptable and the schedule to be as expeditious as possible considering technical feasibility and economic reasonableness. Ambient air concentrations of 1,3-butadiene, as well as acrylonitrile and styrene, will continue to be monitored while the containment system is being installed and, afterwards, during operation.

13. The Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economic reasonableness of complying with the following Orders and their benefits to the people of the State to be derived from such compliance.

V. ORDERS

The Director hereby issues the following Orders:

1. As expeditiously as practicable, but not later than October 15, 2006, Respondent shall bring the emissions of 1,3-butadiene from emissions unit P001 into compliance with (a) the control requirements in permit to install (14-04577) and the Title V PTO and (b) the air pollution nuisance prohibition requirements of OAC Rule 3745-15-07 by achieving and maintaining an off-site ambient air concentration of 1,3-butadiene not to

exceed 0.3 microgram per cubic meter (or 0.13 ppb by volume), as an annual average, using standard methods of measurement as identified in Order 7. Compliance with the above-mentioned control requirements and acceptable off-site ambient air concentration shall be achieved in accordance with the control plans and schedules specified in Orders 5 and 9.

2. Respondent shall demonstrate compliance with the acceptable, annual average, off-site ambient air concentration for 1,3-butadiene by (a) not later than October 15, 2006, maintaining the annual average of the monitored concentrations below the acceptable, annual average, off-site ambient air concentration and (b) performing air quality dispersion modeling that documents that the maximum, annual average, off-site ambient air concentration of 1,3-butadiene resulting from the emissions from the facility is below the acceptable, annual average, off-site ambient air concentration. The air quality dispersion modeling shall be performed in accordance with Ohio EPA Engineering Guide #69, using USEPA-approved modeling techniques [40 CFR, Part 51, Appendix W (The Guideline on Air Quality Models)], five years of meteorological data, and the emission inventory data required by Order 11. Respondent shall perform the air quality dispersion modeling for 1,3-butadiene and submit the results to HCDOES and Ohio EPA by not later than one hundred twenty (120) days after the effective date of these Orders.

3. As expeditiously as practicable, Respondent shall bring the emissions of acrylonitrile from the facility into compliance with the air pollution nuisance prohibition requirements of OAC Rule 3745-15-07 by achieving and maintaining an off-site ambient air concentration of acrylonitrile not to exceed 0.1 microgram per cubic meter (or 0.05 ppb by volume), as an annual average, using standard methods of measurement as identified in Order 7. Compliance with the acceptable off-site ambient air concentration shall be achieved in accordance with the control plan and schedule specified in Order 10.

4. Respondent shall demonstrate compliance with the acceptable, annual average, off-site ambient air concentration for acrylonitrile by (a) not later than the latest technically feasible and economically reasonable measure is implemented for acrylonitrile pursuant to Order 10, maintaining the annual average of the monitored concentrations below the detectable limit for acrylonitrile, when using the test method specified in Order 7 and (b) performing air quality dispersion modeling that documents that the maximum, annual average, off-site ambient air concentration of acrylonitrile resulting from the emissions from the facility is below the acceptable, annual average, off-site ambient air concentration. The air quality dispersion modeling shall be performed in accordance with Ohio EPA Engineering Guide #69, using USEPA-approved modeling techniques [40 CFR, Part 51, Appendix W (The Guideline on Air Quality Models)], five years of meteorological data, and the emission inventory data required by Order 11. Respondent shall perform the air quality dispersion modeling for acrylonitrile and submit the results to the HCDOES and

Ohio EPA by not later than one hundred twenty (120) days after the effective date of these Orders.

5. Respondent shall install and operate a new, enclosed vessel ("containment system") for emissions unit P001, to be located upstream of the existing flare and as a replacement for the existing flare sump, for separation of solids/liquids/foam from existing vented vapors from chemical process equipment, prior to firing such vapors in the flare serving emissions unit P001. Such vessel shall be equipped with heating, circulating, and solids removal systems, with liquid discharge to the wastewater treatment plant at the facility or to a treatment system required by the applicable maximum achievable control technology ("MACT") standards in 40 CFR, Part 63. This containment system shall be installed and placed in operation in accordance with the following schedule:

	<u>Milestone</u>	<u>Completion Deadline</u>
a.	Submit general plans for the containment system by:	Completed
b.	Initiate procurement of the containment system by:	December 31, 2005
c.	Initiate construction of the containment system by:	March 31, 2006
d.	Complete construction of the containment system by:	September 30, 2006
e.	Begin operation of the containment system by:	October 15, 2006

6. Respondent shall submit a written progress report to Ohio EPA and HCDOES regarding compliance with the milestone completion deadlines in Order 5 by not later than thirty (30) days after each completion deadline. Each report shall identify the actual completion date of the milestone. If a milestone was not completed by the completion deadline in Order 5, Respondent shall provide a reason for the delay and the date by which compliance with the milestone is expected to occur.

7. Ambient air concentrations of 1,3-butadiene and acrylonitrile will be monitored by HCDOES at the current rooftop location at Meredith Hitchens Elementary School, 190 Main Street, in Addyston, and/or at any other locations as determined by HCDOES to best measure ambient air quality and affected populations. Monitoring will

be conducted using the methods prescribed by USEPA in the publication titled "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (Second Edition); Compendium Method TO-14A, Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography." Samples will be collected on, at least, an every six-day schedule for 24 hours until the requirements of these Orders have been terminated pursuant to Section VI of these Orders. Concentrations of 1,3-butadiene and acrylonitrile shall be measurable to detection limits of 0.1 ppb and 0.2 ppb, respectively. Respondent shall continue to reimburse HCDOES for costs associated with the analysis of samples collected at the monitoring location at Meredith Hitchens Elementary School and at up to two additional sites, in a manner required by HCDOES and in consultation with Respondent, until these Orders are terminated pursuant to Section VI of these Orders. Respondent also shall cooperate with HCDOES and Ohio EPA in supplying information needed for any additional monitoring and computer modeling purposes.

8. Compliance with the ambient air concentrations for 1,3-butadiene and acrylonitrile specified in Orders 1 and 3 shall be determined by calculating an average concentration using the results of the ambient monitoring collected since May 10, 2005. The average shall be calculated on a monthly basis. As of May 10, 2006, a rolling, 12-month average shall be used for this calculation. Concentrations reported below the detection limit of Method TO-14A shall be calculated into the average at one-half the detection limit for the sample collected.

9. Within thirty (30) days after the effective date of these Orders, Respondent shall prepare and submit an interim control plan and expeditious schedule for minimizing the emissions of 1,3-butadiene from emissions unit P001 until the construction of the improvements to the flare system, as described in Order 5, are completed. The interim control plan and expeditious schedule shall be submitted to HCDOES and Ohio EPA and shall include the following:

- a. Respondent shall identify and evaluate all of the technically feasible measures for minimizing the 1,3-butadiene emissions from emissions unit P001 and the associated flare system. For each technically feasible measure, Respondent shall include a detailed description of the measure and a summary of the estimated emission reductions that would occur by implementing the measure, the estimated capital and installation costs for the measure, and the approximate time required to expeditiously implement the measure. The measures evaluated by Respondent shall include, but shall not be limited to (a) installing a temporary total enclosure for the flare sump to prevent fugitive emissions, (b) restricting production, (c) revising production procedures to minimize the materials discharged to the flare and flare

sump, and (d) limiting production in emissions unit P001 to non-school hours.

- b. Respondent shall specify all of the technically feasible measures, identified pursuant to Order 9a, that are economically reasonable and shall commit to implement all of such measures that can be implemented within sixty (60) days of the effective date of these Orders. For each of those technically feasible measures that Respondent determines are not economically reasonable, Respondent shall provide a detailed explanation concerning the basis and rationale for the determination that the measure is not economically reasonable.

Within seven (7) days after completing the implementation of each technically feasible and economically reasonable measure specified by Respondent pursuant to Order 9b, Respondent shall submit a progress report to HCDOES and Ohio EPA.

10. Within thirty (30) days after the effective date of these Orders, Respondent shall prepare and submit a control plan and expeditious schedule for minimizing the emissions of acrylonitrile from the facility and achieving the acceptable off-site ambient concentration specified for acrylonitrile in Finding 10. The control plan and expeditious schedule shall be submitted to HCDOES and Ohio EPA and shall include the following:

- a. Respondent shall identify and evaluate all of the technically feasible measures for minimizing the acrylonitrile emissions from the facility. For each technically feasible measure, Respondent shall include a detailed description of the measure and a summary of the estimated emission reductions that would occur by implementing the measure, the estimated capital and installation costs for the measure, and the approximate time required to expeditiously implement the measure. The measures evaluated by Respondent shall include, but shall not be limited to (a) restricting production, (b) revising production procedures to minimize the materials discharged to the existing control equipment and the ambient air, and (c) limiting production in the processes that generate significant quantities of acrylonitrile emissions to non-school hours.
- b. Respondent shall specify all of the technically feasible measures, identified pursuant to Order 10a, that are economically reasonable and shall commit to expeditiously implement all of such measures. For each of those technically feasible measures that Respondent determines are not economically reasonable, Respondent shall provide a detailed explanation concerning the basis and rationale for the determination that the measure is not economically reasonable.

Within seven (7) days after completing the implementation of each technically feasible and economically reasonable measure specified by Respondent pursuant to Order 10b, Respondent shall submit a progress report to HCDOES and Ohio EPA.

11. Within ninety (90) days after the effective date of these Orders, Respondent shall submit a comprehensive and accurate emission inventory for all the sources of acrylonitrile, 1,3-butadiene and styrene emissions at the facility. The emission inventory shall be submitted to HCDOES and Ohio EPA and shall include the following information for each source of acrylonitrile emissions, each source of 1,3-butadiene emissions, and each source of styrene emissions at the facility:

- a. a description of the source of emissions;
- b. the emissions unit from which the emissions emanate (e.g., P001);
- c. whether the emissions are stack or fugitive;
- d. the maximum hourly uncontrolled and controlled acrylonitrile, 1,3-butadiene and styrene emission rates at the maximum production capacity, and the duration of those emissions over a 24-hour production period;
- e. the bases for the uncontrolled and controlled acrylonitrile, 1,3-butadiene and styrene emission rates (e.g., material balance calculations, emission tests or emission factors);
- f. the calculations for the uncontrolled and controlled acrylonitrile, 1,3-butadiene and styrene emission rates;
- g. the type of control equipment employed and the name of the manufacturer(s);
- h. the design efficiency for each piece of control equipment employed;
- i. for fugitive emissions, the release height of the emissions (in feet above ground level);
- j. for stack emissions, the height of the stack (in feet above ground level), the diameter of the stack at the top of the stack (in feet), the temperature of the exhaust gases (in degrees Fahrenheit), and the flow rate of the exhaust gases [in actual cubic feet per minute ("acfm") and standard cubic feet per minute ("scfm")];
- k. the dimensions of all nearby buildings (height, width and length, in feet [see Ohio EPA, DAPC, Engineering Guide 69]); and

- I. the UTM coordinates for the point at which the emissions are vented into the ambient air.

VI. TERMINATION

Respondent's obligations under these Orders shall terminate when Respondent certifies in writing and demonstrates to the satisfaction of Ohio EPA that Respondent has performed all obligations under these Orders and the Chief of Ohio EPA's Division of Air Pollution Control acknowledges, in writing, the termination of these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondent of the obligations that have not been performed, in which case Respondent shall have an opportunity to address any such deficiencies and seek termination as described above.

The certification shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate and complete."

This certification shall be submitted by Respondent to Ohio EPA and shall be signed by a responsible official of Respondent. For purposes of these Orders, a responsible official is as defined in OAC Rule 3745-35-02(B)(1) for a corporation.

VII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, State and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondent.

VIII. NOTICE

All documents required to be submitted by Respondent pursuant to these Orders shall be addressed to:

Hamilton County, Department of Environmental Services
250 William Howard Taft Road
Cincinnati, Ohio 43138
Attention: Kerri Castlen

and to:

Ohio Environmental Protection Agency
Division of Air Pollution Control
P.O. Box 1049
Columbus, Ohio 43216-1049
Attention: Thomas Kalman, Manager, Enforcement Section

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

IX. RESERVATION OF RIGHTS

Nothing contained herein shall be construed to prevent Ohio EPA from seeking legal or equitable relief to enforce the terms of these Orders or from taking other administrative, legal or equitable action as deemed appropriate and necessary, including seeking penalties against Respondent for noncompliance with these Orders and/or for the violations described herein. Nothing contained herein shall be construed to prevent Ohio EPA from exercising its lawful authority to require Respondent to perform additional activities pursuant to ORC Chapter 3704 or any other applicable law in the future. Nothing herein shall restrict the right of Respondent to raise any administrative, legal or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of Respondent. Nothing in these Orders shall be construed to limit the authority of Ohio EPA to seek relief for violations not addressed in these Orders.

X. EFFECTIVE DATE

The effective date of these Orders is the date these Orders are entered into the Ohio EPA Director's journal.

IT IS SO ORDERED:

Ohio Environmental Protection Agency

Joseph P. Koncelik
Director

Date