



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt  
Director

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### CONSENT AGREEMENT

#### WITH

AlliedSignal Inc.  
Chesterfield Plant  
P. O. Box 831  
Hopewell, Virginia 23860

Registration No. 50233

#### SECTION A: Purpose

This Agreement establishes a Reasonably Available Control Technology (RACT) standard for the AlliedSignal Inc. Chesterfield Plant, for the control of volatile organic compound (VOC) emissions in the Richmond Ozone Nonattainment Area as required by Section 120-04-0407 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This RACT standard shall be the basis for VOC emissions control for this plant.

#### SECTION B: References

Unless the context indicates otherwise, the following words and terms have the meanings assigned to them below:

"Agreement" means this Consent Agreement.

"AlliedSignal" or "affected facility" means AlliedSignal Inc., Chesterfield Plant, located at Bermuda Hundred in Chesterfield County, Virginia.

"BOARD" or "SAPCB" means the State Air Pollution Control Board, a collegial body of the Commonwealth of Virginia described in §10.1-1301 and §10.1-1184 of the Code. Particular powers and duties of the Board are referred to in Section C of this document.

"Code" means the Code of Virginia (1950), as amended.

"Department" or "DEQ" means the Department of Environmental Quality, an agency of the Commonwealth described in §10.1-1183 of the Code.

"Director" means the Director of the Department, whose powers and duties are prescribed in §10.1-1185 of the Code.

"EPA" means the United States Environmental Protection Agency.

"Major Stationary Source" means, for the purposes of this Agreement, any stationary source with a theoretical potential to emit 100 tons or more per year of volatile organic compounds.

"New source review program" means a program for the preconstruction review and permitting of new stationary sources or expansions to existing ones in accordance with regulations promulgated to implement the requirements of §§ 110 (a) (2) (C), 165 (relating to permits in prevention of significant deterioration areas) and 173 (relating to permits in nonattainment areas) of the federal Clean Air Act.

"Non-CTG" means a source type for which the EPA has not issued a Control Technique Guideline (CTG), and thus has not established RACT for that source type.

"Piedmont Regional Office" refers to the Regional Office of the Department of Environmental Quality, 4949-A Cox Road, located in Glen Allen, Virginia.

"ppmv" means parts per million by volume.

"Reasonably Available Control Technology" or "RACT" means the lowest emission limit that a particular source is capable of meeting by the application of control technology that is both reasonably available, as well as technologically and economically feasible.

"Regional Director" means the Director of the Piedmont Regional Office.

"Richmond Ozone Nonattainment Area" is delineated in Appendix K of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution.

"SAPCB Regulations" or "Regulations" means the "State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution."

"SIP" means the State Implementation Plan.

"Theoretical potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. It is based on emissions at design capacity or maximum production and maximum operating hours (8,760 hours per year) before add-on controls, unless the source is subject to state and federally enforceable permit conditions which limit production rates or hours of operation.

"VOC" means volatile organic compounds as defined by Section 120-01-02 of the SAPCB Regulations.

### SECTION C: Authority

1. Chapter 13 of Title 10.1 of the Code creates the Board and vests in it the authority to supervise and control various aspects of air pollution in the Commonwealth. Among the Board's powers is the authority to promulgate regulations "abating, controlling and prohibiting" air pollution, found in § 10.1-1308 of the Code.
1. Pursuant to its authority, the Board has promulgated the SAPCB Regulations, which first took effect March 17, 1972 and have been periodically amended.
2. Pursuant to § 10.1-1307 D of the Code, the Board has the authority to issue orders to diminish or abate the causes of air pollution and to enforce its regulations. Orders of the Board are enforceable pursuant to §§ 10.1-1316 and 10.1-1320 of the Code.
3. The Director is the executive officer of the Board. Under § 10.1-1307.2 A of the Code, the Director is to perform those duties required of him by the Board. Additionally under § 10.1-1307.3 of the Code, the Director has such powers to supervise, administer and enforce the provisions of Chapter 13 of Title 10.1 of the Code, as well as the regulations and orders of the Board, as are conferred upon him by the Board. The powers and duties conferred and imposed upon the Director under §§ 10.1-1307.2 and 10.1-1307.3 of the Code are continued under § 10.1-1185 of the Code.
4. Under § 10.1-1307.2 B of the Code, the Director may be vested with the authority of the Board when it is not in session, subject to such regulations or delegation as may be prescribed by the Board. Appendix F of the SAPCB Regulations contains the Delegation of Authority from the Board to the Director. In Section II A of Appendix F the Director is given the authority, with some exceptions, to act for the Board when it is not in session and to issue consent orders and emergency special orders.

SECTION D: Findings

1. AlliedSignal operates a nylon fibers and plastics production facility which is located off Bermuda Hundred Road in Chesterfield County, Virginia.
2. Section 120-04-0407 of the SAPCB Regulations, which became effective on July 1, 1991 (and as amended January 1, 1993), requires RACT for all non-CTG major stationary sources of VOC emissions in the Richmond Ozone Nonattainment Area, which includes Chesterfield County. The Richmond Ozone Nonattainment Area is classified as a moderate nonattainment area.
3. In February 1993, AlliedSignal notified the DEQ that AlliedSignal had a theoretical potential to emit over 100 tons per year of VOC and was subject to a RACT determination in accordance with Section 120-04-0407 of the SAPCB Regulations.
4. In a letter dated March 29, 1993, AlliedSignal proposed a RACT analysis submittal date of December 31, 1993, to the Department.
5. The DEQ received a RACT analysis from AlliedSignal on December 30, 1993. This analysis underwent many subsequent revisions in response to DEQ comments and due to additional work performed by AlliedSignal. The DEQ received the latest RACT analysis from AlliedSignal on January 22, 1996.
6. Based on maximum production rates for AlliedSignal, the following VOC emissions are summarized in the latest version of the RACT analysis:

EMISSIONS SOURCE	Tons/yr
VOL Storage Tanks	0.10
Group I (Spinning Lines 5-8)	155.95
Group II (Spinning Lines 9-12)	106.83
Group III (Spinning Lines 1-4)	28.24
Group IV (A,B Train Polymerization)	30.45
Group V (DTC Exhausts/Spindraw)	18.36
Group VI (E Train/Building 5 C&R)	4.78
Group VII (Building 12 C&R)	3.54
Group VIII (Spinning Lines 1-12, Quench)	62.22
Group IX (B, C, D, E Train Distillate Exhaust)	23.21
Group X (Depolymerization Batch Process)	43.03
Group XI (Lindberg Ovens)	2.17
Buildings 5&25 Vent Fans	7.58
Industrial Wastewater Streams	2.94
Fugitive Emissions - Process/Open Buildings	0.83
Fugitive Emissions - Heat Transfer System	90.00

7. Maximum expected emissions from AlliedSignal before the implementation of RACT are predicted to be 580.23 tons per year.
8. The EPA DRAFT Control Techniques Guideline document for Volatile Organic Liquid Storage Tanks has not been finalized. Rule 4-25 of the Regulations is currently applicable to the volatile organic liquid storage tanks at AlliedSignal. Therefore, a RACT determination for volatile organic liquid storage tanks is not required from AlliedSignal.
9. The EPA DRAFT Control Technique Guideline document for Industrial Wastewater has not been finalized.
10. The exhaust air streams associated with Group V, Group VIII, Buildings 5 and 25 Vent Fans, and Industrial Wastewater stream contain low concentrations of VOC (2 ppmv, 5 ppmv, 2 ppmv, and 2.1 ppmv respectively). At these low concentrations no air pollution control equipment is available to further reduce emissions. Since there is no RACT for these sources, RACT for these sources is determined to be no control.

- 11. It is not cost effective to control VOC emissions from the sources identified by Group III, Group IV, Group VI, Group VII, Group X, Group XI, and Fugitive Emissions from the Process Operations/Open Buildings. Therefore, RACT for these sources is determined to be no control.
- 12. RACT for Groups I and II (Spinning Lines 5-12) is determined to be the use of a control system with a VOC design reduction efficiency of at least 80 percent on a mass basis.
- 13. RACT for Group IX (B,C,D,E Train Distillate Exhaust) is determined to be the use of a control system with a VOC design reduction efficiency of at least 99 percent on a mass basis.
- 14. RACT for fugitive emissions from the Heat Transfer System is determined to be implementation of a Leak Detection and Repair Program equivalent to 40 CFR, Part 60, Subpart VV (Standards of Performance for VOC Equipment Leaks in the Synthetic Organic Chemicals Manufacturing Industry).
- 15. Based on the implementation of this Agreement, the maximum total VOC emissions from AlliedSignal after RACT is applied, are estimated to be 295.02 tons per year.

SECTION E: Agreement

Accordingly, the Board and AlliedSignal agree that:

- 1. VOC Emissions from the affected facility shall be controlled and reduced as outlined in this Agreement.
- 2. By November 15, 1996, AlliedSignal shall install absorption (scrubbing) systems for reducing VOC emissions from Groups I and II (Spinning Lines 5-12), each system having a control efficiency of at least 80 percent on a mass basis.
- 3. One-hour average pressure losses of the gas stream through each absorption system shall not be less than 6 inches water column. One-hour average scrubbing liquid flow rates to each absorption system shall not be less than 40 gallons per minute.
- 4. AlliedSignal shall install, calibrate, maintain, and operate monitoring devices that continuously measure and record the pressure losses of the gas stream through each absorption system and the scrubbing liquid flow rates to each absorption system, and shall comply with the following requirements:

- a. The pressure loss monitoring devices must be certified by the manufacturer to be accurate within 5 percent of water column gauge pressure at the level of operation.
- b. The liquid flow rate monitoring devices must be certified by the manufacturer to be accurate within 5 percent of design scrubbing liquid flow rate.
- c. AlliedSignal shall determine and record, in addition to the records made by the monitoring devices, the one-hour average pressure losses of the gas stream through each absorption system and one-hour average scrubbing liquid flow rates to each absorption system.

During all periods of operation of the Group I and Group II processes, to include startup and shutdown, the pressure losses of the gas stream through each absorption system and the scrubbing liquid flow rates to each absorption system shall be continuously monitored and recorded. All monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications. All monitoring devices shall be calibrated annually and the results of the calibrations recorded. If a monitor fails its calibration check (i.e. calibration error exceeds manufacturer's specifications), its data shall be invalid from the time of the failed calibration check until corrective actions are taken and a successful recalibration is completed.

5. Within 180 days of initial start-up of each absorption system, AlliedSignal shall conduct performance tests on the absorption system using EPA Reference Method 5 (modified for caprolactam), EPA Reference Method 25, any other Reference Method approved by the Department, or an equivalent or alternative method to demonstrate compliance with the control efficiency specified in Section E2 of this agreement. Performance tests shall be conducted and reported and data reduced as set forth in Section 120-05-03. Written notification of the anticipated date of the performance tests and a testing protocol postmarked at least 30 days prior to such date shall be sent to the Director, Piedmont Regional Office. Any details of the performance tests are to be arranged with the Director, Piedmont Regional Office. Three (3) copies of the test results shall be submitted to the Director, Piedmont Regional Office, within forty-five (45) days after test completion.
6. By July 1, 1997, AlliedSignal shall install condenser systems for reducing VOC emissions from Group IX (B, C, D, E Train Distillate Exhaust), each system having a

control efficiency of at least 99 percent on a mass basis.

- 7. One-hour average temperatures of each condenser exhaust vent stream shall not exceed 100°F.
- 8. AlliedSignal shall install, calibrate, operate, and maintain monitoring devices that continuously measure and record the temperatures of each condenser exhaust vent stream. Additionally, each monitoring device shall be equipped with an alarm such that excessive temperature can be recognized and corrected. AlliedSignal shall determine and record, in addition to the records made by the monitoring devices, the one-hour average temperatures of each condenser exhaust vent stream. During all periods of operation of the Group IX process, to include startup and shutdown, the temperatures of each condenser exhaust vent stream shall be continuously monitored and recorded. All monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications. All monitoring devices shall be calibrated annually and the results of the calibrations recorded. If a monitor fails its calibration check (i.e. calibration error exceeds manufacturer's specifications), its data shall be invalid from the time of the failed calibration check until corrective actions are taken and a successful recalibration is completed.
- 9. Within 180 days of initial start-up of each condenser system, AlliedSignal shall conduct performance tests on the condenser system using EPA Reference Method 5 (modified for caprolactam), EPA Reference Method 25, or any other Reference Method approved by the Department, or an equivalent or alternative method to demonstrate compliance with the control efficiency specified in Section E6 of this agreement. Performance tests shall be conducted and reported and data reduced as set forth in Section 120-05-03 of State Regulations. Written notification of the anticipated date of the performance tests and a testing protocol postmarked at least 30 days prior to such date shall be sent to the Director, Piedmont Regional Office. Any details of the performance tests are to be arranged with the Director, Piedmont Regional Office. Three (3) copies of the test results shall be submitted to the Director, Piedmont Regional Office, within forty-five (45) days after test completion.
- 10. By April 1, 1997, AlliedSignal shall implement a Leak Detection and Repair Program for the Heat Transfer System, which is substantively equivalent to the requirements set forth in 40 CFR, Part 60, Subpart VV. AlliedSignal shall implement the procedures and standards contained in Subpart VV and shall perform any

necessary testing and record keeping set forth in that Subpart.

11. AlliedSignal shall maintain records of all data necessary to demonstrate compliance with this Agreement. The content of and format of such records shall be arranged with the Director, Piedmont Regional Office. These records shall include, but are not limited to:
  - a. One-hour average pressure loss of the gas stream through each absorption system.
  - b. One-hour average scrubbing liquid flow rate to each absorption system.
  - c. One-hour average temperature of each condenser exhaust vent stream.
  - d. For the Heat Transfer System, any necessary records identified in 40 CFR, Section 60.486.
  - e. Results of annual calibrations of all monitoring equipment.
  - f. Maintenance and calibration schedules for all air pollution control and monitoring equipment.
  - g. Scheduled and unscheduled maintenance records for all air pollution control and monitoring equipment.
  - h. Written procedures for start-up, shutdown, and operation of the control systems.

These records shall be available on site for inspection by DEQ personnel and shall be current for the most recent five years.

12. AlliedSignal may choose to use alternate controls in place of the absorption systems or the condenser systems, provided that:
  - a. The VOC control efficiencies of the alternate controls meet or exceed those specified in Section D (FINDINGS) of this agreement, and
  - b. Prior to installation of the alternate controls, AlliedSignal submits a written request for the use of the alternate controls and the DEQ and the EPA approve the request through a SIP revision.
13. AlliedSignal may choose to use an alternative control strategy (which may involve control of other process points not required to control) in place of controlling

VOC emissions from Group I, Group II, or Group IX, provided that:

- a. The overall VOC emission reductions from the use of the alternative control strategy are equivalent to those resulting from implementation of RACT as defined in Section D (FINDINGS) of this agreement, and
  - b. Prior to installation of the alternative control strategy, AlliedSignal submits a written request for the use of the alternative control strategy and the DEQ and the EPA approve the request through a SIP revision.
14. AlliedSignal shall comply with all applicable SAPCB Regulations including the requirements for monitoring, notification, recordkeeping, reporting, maintenance, and malfunction.
  15. At any time in the future, should AlliedSignal plan any modifications (within the context of the new source review program) of the affected facility covered by this Agreement, AlliedSignal shall have the right to apply to the Board for a new source review permit and the Board may consent to such modifications provided such modifications will meet all of the new source review permit program regulatory requirements in existence at that time.
  16. The Board may modify, rewrite, or amend this Agreement with the consent of AlliedSignal, for good cause shown by AlliedSignal, or on its own motion provided approval of the changes is accomplished in accordance with any applicable SAPCB regulations, the Administrative Process Act (§ 9-6.14:1 et. seq.) and 40 CFR Part 51 (Requirements for Preparation, Adoption, and Submittal of Implementation Plans).
  17. So long as this Agreement remains in effect, AlliedSignal waives the right to any hearing pursuant to §§ 9-6.14:11 and 9-6.14:12 of the Code and to judicial review of any issue of fact or law contained herein. Nothing herein, however, shall be construed as a waiver of the right to a hearing or to judicial review of any action taken by the Board to enforce this Agreement.
  18. Failure by AlliedSignal to comply with any of the terms of this Agreement shall constitute a violation of an Order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by the Board as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.

19. AlliedSignal shall not be responsible for failure to comply with any of the terms and conditions of the Agreement if such non-compliance is considered to be caused by conditions beyond the reasonable control of AlliedSignal, including but not limited to earthquake, flood, or other act of God, fire, war, riot, strike, or other occurrence resulting in impossibility of compliance, and if AlliedSignal shows that such occurrence and non-compliance were not due to a lack of good faith or diligence on the part of AlliedSignal, and if within fifteen (15) days of any event above listed, which AlliedSignal intends to assert will result in impossibility of compliance, AlliedSignal notifies the Board of the occurrence of such event.
20. AlliedSignal declares it has received fair and due process under the Administrative Process Act (§ 9-6.14:1 et. seq.).
21. This Agreement shall become effective upon signature by both parties and shall continue in effect indefinitely or until otherwise terminated by the Board.

The foregoing Consent Agreement has been executed on behalf of the STATE AIR POLLUTION CONTROL BOARD of the COMMONWEALTH OF VIRGINIA and on behalf of AlliedSignal Inc., each by its duly authorized representatives, or self, on the dates indicated below.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
OF THE COMMONWEALTH OF VIRGINIA

5/20/96

(date)

BY: John W. Schmidt  
Peter W. Schmidt  
Director

ALLIEDSIGNAL INC.

5/14/96

(date)

BY: R. E. Smith  
R. E. Smith  
Director of Operations

COMMONWEALTH OF VIRGINIA  
CITY OF RICHMOND

The foregoing instrument was acknowledged before me this 14<sup>th</sup> day of May, 1996, by R. E. Smith, Director of Operations of AlliedSignal Inc., a Virginia Corporation, on behalf of the Corporation.

My commission expires October 31, 2000.

Mason L. Simpson  
Notary Public