



# The Commonwealth of Massachusetts

## Department of Environmental Protection

Metropolitan Boston - Northeast Region

5 Commonwealth Avenue

Woburn, Massachusetts 01801

Daniel S. Greenbaum  
Commissioner

MAY 14 1991

Mr. Sidney Smidt  
Barnet Corporation  
58 Pulaski Street  
Peabody, MA 01960-6971

RE: Peabody-Metropolitan  
Boston/Northeast Region  
310 CMR 7.18(17)-Reasonably  
Available Control Technology  
FINAL APPROVAL

Dear Mr. Smidt:

The Metropolitan Boston/Northeast Region of the Department of Environmental Protection, Division of Air Quality Control, has reviewed your proposed Reasonably Available Control Technology (RACT) compliance plan. This RACT compliance plan for the Barnet Corporation (Barnet), located at 58 Pulaski Street in Peabody, Massachusetts, was submitted in October of 1990 by ENSR Consulting and Engineering.

The plan proposed measures for Barnet to comply with the requirements of the Massachusetts Regulation 310 CMR 7.18(17) (RACT). This regulation states in part that any facility which has a potential to emit 100 tons per year or more of volatile organic compounds (VOC) shall install and thereafter operate in compliance with Reasonably Available Control Technology unless such a facility is specifically regulated and required to reduce VOC emissions by another section of 310 CMR 7.18. The following paragraphs describe Barnet's leather coating operations, the previously implemented control measures, an evaluation of additional control options and the Department's RACT determination.

### Facility Description:

Barnet employs 58 people and is a contract leather finisher. The leather coating facility was established in 1920 and purchased by Barnet Corporation in October of 1984. Barnet receives tanned leather from its customers and finishes the leather according to customer specifications based on color, grain, finish and durability. Barnet applies water and solvent based coatings to the leather but no tanning operations take place at the facility. Approximately 85 percent (%) of Barnet's contracts are with the bookbinding industry and 15% from the fashion industry.



Barnet's annual leather coating production rates have fluctuated from approximately 3.9 million square feet to 22.8 million square feet from 1984 to 1989. The average emission rates (in pounds of VOC per 1000 square feet of leather produced) from 1984 to 1989 in respective order are 22.9, 22.7, 15.9, 24.6, 27.4, and 20.9. The projected rates for 1990, 1991, and 1992 are 23.5, 19 and 19, respectively, in pounds of VOC per 1000 square feet of leather produced. This emission rate (on a per product produced basis) is dependent on the facility's VOC reduction strategies and fluctuates depending on customer specifications and fashion and market trends.

Barnet is equipped with a total of four conveyerized coating lines labelled Solvent Lines 1 and 2, and Water Lines 3 and 4. Barnet also has manually operated spray booths for testing purposes and boilers which contribute a relatively insignificant amount of VOC compared to the facility's total VOC emissions.

The majority of the facility's VOC emissions are released from Solvent Lines 1 and 2 where the lacquer finish coats are applied. Solvent Lines 1 and 2 are equipped with a total of three spray booths. The water lines utilize completely waterborne coatings, or water based emulsions which contain small amounts of VOC. Solvent Lines 1 and 2, and Water Line 3 are spray coating technology, and Water Line 4 is a reverse roll coating technique. Lines 1 through 3 are equipped with spray booths and drying ovens. Each spray booth has multiple spray guns which are mounted on horizontal rotating arms. The conveyerized lines are all equipped with electric photocell/microprocessing systems to control coating overspray from the spray guns. The microprocessor pulses the guns on and off as the arm rotates based on the recorded size and shape of the hide. The hide pattern is stored in the microprocessor memory and as the hide enters each spray booth, the guns apply coating to the leather based on the stored hide pattern, thus minimizing overspray.

Barnet utilizes over 50 different base compounds (various solvents and coatings) which are purchased from different coating vendors. These 50+ base compounds are mixed into approximately 100 separate "basic" VOC formulas which are used to coat leather. Barnet utilizes 1200 active colors, therefore there are a minimum of 120,000 different VOC based formulations. Barnet also utilizes approximately 40 "basic" waterborne formulas, so the total number of coating formulations used at Barnet's is virtually infinite. Coating formulations may change without notice, since each product requires a unique coating formulation to meet customer specifications.



The leather is coated on any of the coating lines in varying order depending on specifications. After the leather is coated it is sent to the facility's in house laboratory for quality control testing and it can be checked by the customer. Depending on the results, the leather can be sent back to the lines for additional corrective coatings. The leather can be in the facility for days, or weeks if complications develop, in order to meet exact specifications. The final processing step is to accurately measure the area of the hide in square feet by calibrated roller machines.

Implemented Control Measures:

Barnet Corporation has implemented VOC emissions reduction measures since the facility was purchased in 1984 according to the submitted information. The facility has utilized waterborne coatings since 1984. Approximately 80 to 90 percent of the coatings used at Barnet are waterborne on an "applied solids" basis. The facility uses all waterborne coatings for its base coats. In 1989, Barnet installed electric photocell/microprocessing systems on all solvent and water based spray coating lines to reduce overspray. By reducing overspray, the amount of coating used per product is reduced, therefore the VOC emissions are also reduced. In 1989, a new waterborne coating line (Water Line 4) was installed to apply a waterborne base coat to the leather. This line utilizes rotogravure printing technology (reverse roll coating) which replaced a spray coating operation that was formerly a registered VOC emission source.

In 1988, Barnet also hired a full time chemist to research water based technology which would work for the industries that Barnet services. Barnet has a testing and research and development laboratory, and has implemented an on-going program to replace, where possible, solvent based coatings with waterborne coatings. New waterborne coatings are tested in the on-site laboratory in order to meet performance contract specifications. The lab also performs tests on existing solvent applications to determine if fewer coats of solvent based materials can be used. Barnet estimates that in 1990 approximately 30 percent of total production was converted from solvent based systems to waterborne or water emulsion systems.

Additional Control Options:

Additional control techniques include installing add-on air pollution control equipment and further substitution with waterborne coatings. The add-on controls considered in the RACT analysis were thermal incineration, catalytic incineration, and regenerative carbon adsorption. Environmental, technological,



economic and energy related parameters were evaluated in the feasibility study in order to establish the appropriate Reasonably Available Control Technology determination for the facility. The evaluation of add-on controls also included consideration of air flow reduction in paint booths to minimize capital costs, and the maximization of heat recovery for incineration to optimize annual operating costs.

Continuing the existing reformulation program and replacing solvent based coatings, where possible, was evaluated further. Additional coating substitution may require the installation of new drying ovens.

Barnet's submitted RACT compliance plan lists each basic VOC formulation and separates the coatings into categories. The plan proposes six categories of coatings and specifies an emission limit for each of the following categories: 1) solvent correction coatings, 2) high solvent based coatings, 3) all other solvent based coatings, 4) waterborne impregnation coatings, 5) waterborne coatings I, and 6) waterborne coatings II. Compliance with each emission limit may be checked during plant inspections by obtaining a coating sample and subsequently analyzing the sample.

The compliance plan also proposes to eliminate the use of four solvent based coatings. Two "High Solvent" based coatings labelled Geiger Black Pigskin and Geiger 921 Brown will be reformulated to waterborne formulations. Two coatings in category 3 labelled Missouri Brown Dandy and Missouri Burgundy Dandy are also being reformulated to waterborne coatings.

The RACT plan documented the history of Barnet's emission rate in pounds of VOC per 1000 square feet of leather coated. The emission rate was 20.9 pounds of VOC per square foot as of the date of the RACT submittal (October 1990). This rate is below the emission limitation which is considered RACT in Wisconsin's USEPA approved regulation for leather coaters. The Wisconsin regulation requires a VOC emission limit of 38 pounds of VOC per 1000 square foot of leather coated. The Technical Support Document for the Wisconsin regulation approved the following RACT methods as feasible options for leather coaters: 1) low solvent/high solids coatings, 2) roll coating instead of rotary spray, 3) electric photocell/microprocessing controls on spray booths, and 4) thermal incineration. The document stated that RACT levels are achievable in most cases by implementing the first three techniques without the use of thermal incineration.

Barnet Corporation is required to implement, effective immediately, the following measures and comply with the following provisos:

1) The Department concludes that Barnet Corporation will be in compliance with RACT by implementing the following compliance measures:

a) Barnet must continue to utilize its electric eye/microprocessing control system on its solvent spray coating lines at all times that the lines are operating. The control system should be properly maintained and continuously operated according to the manufacturer's specifications and operating procedures.

b) Barnet shall continue its on-going reformulation program in order to replace VOC based coatings with waterborne coatings or low VOC coatings. This provision shall apply until all coatings at the facility meet an emission limitation of 3.5 pounds VOC per gallon of coating (minus water) as applied.

c) Barnet shall continue its research and development activities in order to investigate the feasibility of installing new technology which may reduce its VOC emission rates.

d) Barnet shall not utilize coatings that exceed the following RACT emission limitations in pounds of VOC per gallon of coating minus water as applied:

1) Corrective Coatings	7.6
2) High Solvent Based Coatings	7.16
3) All Other Solvent Coatings	6.95
4) Waterborne Impregnation Coatings	5.81
5) Waterborne Coatings I	3.09
6) Waterborne Coatings II	0.60

All coatings used at Barnet must be included in one of the categories of coatings listed above, and must comply with the corresponding emission limit.

e) Barnet shall utilize waterborne or low VOC formulations in place of the following four coatings: Geiger Black Pigskin, Geiger 921 Brown, Missouri Brown Dandy, and Missouri Burgundy Dandy. Barnet must eliminate the use of these coatings by July 1, 1991 if alternatives have not been finalized.



- f) Barnet shall not exceed an emission rate of 28 pounds of VOC per 1000 square feet of leather coated over a 12 month rolling average. Since Barnet's emission rate constantly fluctuates over time due to customer contract specifications and based on the type of leather product produced (bookbinding, fashion, etc.), this average emission limitation must be met on a rolling 12 month basis and documented in the monthly reports (see proviso 6).
  - g) Barnet shall maintain daily recordkeeping. Barnet has proposed to develop a computer software program by September 1991 in order to maintain daily coating records (see proviso 8).
- 2) That Barnet shall keep a logbook on the electric eye/microprocessing control system in order to record activities such as maintenance, calibration and malfunctions of the equipment. The logbook shall be made available to the Department on request.
  - 3) That Barnet shall notify the Department by telephone and subsequently in writing if a malfunction occurs with the electric photocell/microprocessing system of Solvent Line 1, Solvent Line 2 or Water Line 3.
  - 4) That Barnet shall label each container used in its leather coating processes by category, i.e. coating category 1, 2, 3, 4, 5, or 6 formulation as listed in Proviso No. 1) d) above.
  - 5) That any reformulation/substitution efforts, or any research and development/technological improvements shall be summarized by Barnet in an annual progress report due by the last working day of each subsequent January, and noted in the appropriate monthly report (see proviso 6).
  - 6) That in order to verify compliance with the emissions limitation of 28 pounds of VOC per 1000 square feet of leather coated over a 12 month rolling period, Barnet shall submit monthly reports to the Department. The reports shall provide : 1) the average emission rate in pounds of VOC per 1000 square feet for the month, 2) the total previous 12 month rolling average, 3) the amount of leather coated during the same time period, and 4) the total VOC emissions for the month. The reports shall summarize the data as well as provide necessary information in order to verify the accuracy of the reports. The monthly reports shall be submitted to the Air Quality Section Chief of the Department of Environmental Protection's Northeast Regional Office.

The Standard Operating and Maintenance plan shall be submitted to the Department for review and approval by December 31, 1991. Once approved by the Department, it will become part of this plan approval.

- 10) That should any nuisance condition(s) be generated by the operation of this facility, then appropriate steps shall immediately be taken by Barnet to abate the nuisance condition(s).
- 11) Upon request of the Department or the United States Environmental Protection Agency (USEPA), Barnet shall perform tests on its coatings to demonstrate compliance by Reference Method 24.

The Department's RACT determinations under 310 CMR 7.18(17) Reasonably Available Control Technology are revisions to the Massachusetts State Implementation Plan (SIP) and as such are subject to public notice and hearing requirements. A public hearing was held on April 17, 1991, and written comments were received from the USEPA.

The Department reviewed all comments on the RACT plan and revised the PROPOSED CONDITIONAL APPROVAL. All revisions to the SIP must be submitted to the United States Environmental Protection Agency for its review and approval before being considered effective.

For Air Quality Control purposes, an Environmental Notification Form is not required for this action since it is categorically exempt pursuant to the Regulations Governing the Preparation of Environmental Impact Reports adopted by the Secretary of Environmental Affairs.

This plan approval is an action of the Department. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date you received this plan approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts which are the grounds for the request, and the relief sought. Additionally, the request must state why the plan approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:



Commonwealth of Massachusetts  
Department of Environmental Protection  
P.O. Box 4062  
Boston, Massachusetts 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver as described below.

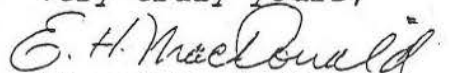
The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

The Department may waive the adjudicatory hearing filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Please be advised that this FINAL APPROVAL does not negate the responsibility of Barnet to comply with this or any other applicable federal, state or local regulations in the future. Nor does this approval imply compliance with any other applicable federal, state, or local regulations now or in the future.

Should you have any questions concerning this matter, please do not hesitate to contact Mr. James Belsky, Air Quality Section Chief, Metropolitan Boston/Northeast Region, 5 Commonwealth Avenue, Woburn, Massachusetts 01801.

Very truly yours,

  
Edward H. MacDonald  
Regional Engineer for  
Waste Prevention

EHM/ma/jb

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