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November 23, 2010

**By Overnight Mail**

U.S. Environmental Protection Agency  
Clerk of the Board, Environmental Appeals Board  
1341 G Street, N.W., Suite 600  
Washington, DC 20005

**Re: Petition for Review**

**Barnhardt Manufacturing Company  
NPDES Permit No. MA0003697  
Colrain, Massachusetts**

Dear Clerk of the Board:

Enclosed for filing are the following documents:

1. One original and five copies of the Petition for Review;
2. Three sets of Exhibits.

I also enclose a copy of this letter and the first page of the Petition for Review, along with a self-addressed, stamped envelope. Please date stamp the letter and Petition, and mail them to me. Thank you.

Thank you for your assistance and consideration. Please contact me if you have any questions.

Very truly yours,

Peter J. Feuerbach

PJF/ees  
Enclosures  
cc: Client (w/encl.)

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2010 NOV 24 AM 10:05  
ENVIR. APPEALS BOARD

**BEFORE THE ENVIRONMENTAL APPEALS BOARD  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C.**

**In re:**

**BARNHARDT MANUFACTURING COMPANY  
NPDES Permit No. MA0003697  
Colrain, Massachusetts**

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**PETITION FOR REVIEW**

**Introduction**

Pursuant to 40 CFR 124.19(a), Barnhardt Manufacturing Company ("Petitioner" or "Barnhardt") petitions for review of certain conditions of NPDES Permit No. MA0003697 ("Permit"), which was re-issued to Barnhardt on October 26, 2010, by the United States Environmental Protection Agency, Region 1 ("the Region") and Commonwealth of Massachusetts. The Permit authorizes Barnhardt to discharge wastewater at its facility located at 247 Main Road, Colrain, Massachusetts. Barnhardt contends that certain permit conditions are based on clearly erroneous findings of fact and conclusions of law and are based on the Region's improper exercise of discretion as well as important policy considerations which the Environmental Appeals Board ("Board") should review. Specifically, Barnhardt challenges the following Permit conditions:

- (1) Acute toxicity, Permit Parts I.A.1 and I.C.1.d.
- (2) Nitrogen, Permit Parts I.A.1, I.C.1.e and I.C.2.

In accordance with 40 CFR 124.16, Barnhardt requests that all Permit conditions pertaining to the two Permit conditions cited above, be stayed pending this appeal.

### **Factual and Statutory Background**

The existing NPDES permit was issued to Barnhardt's predecessor, BBA Nonwovens Simpsonville, Inc. ("BBA"), on March 26, 2001 (the current permit), which was modified on or about August 17, 2004 (pertaining to phenol), and would have expired on May 26, 2006. However, BBA submitted a timely permit renewal application on or about November 22, 2005, which the Region determined was timely and complete and, therefore, administratively continued the current permit. The facility ownership changed from BBA to Barnhardt and the current permit and the pending permit renewal application were transferred to Barnhardt effective June 29, 2007.

Barnhardt is a textile goods processing facility that processes raw cotton by cleaning and bleaching the cotton, including finishing the cotton, dry processing and final packaging of the cotton products for distribution. Barnhardt's products are sold to customers in the medical, healthcare and consumer products sectors. These customers, especially the medical and healthcare customers, have exacting standards with minimum tolerance for deviations in product quality. As such, Barnhardt treatment process is constrained by technological challenges and extremely narrow customer acceptance. In addition, as discussed below, the in-stream sampling data demonstrate that Barnhardt's discharge does not impair the biological integrity of the receiving water.

### **Threshold Procedural Requirements**

Barnhardt satisfies the threshold requirements for filing a petition for review under 40 CFR 124.19, to wit:

1. Barnhardt has standing to petition for review of the Permit decision because it is the permit holder and it participated in the public comment period on the Permit. (Attached as Exhibit A is a copy of Barnhardt's comment letter from its expert consultant, Cushing Jammallo and Wheeler, Inc., dated May 14, 2010. Please see the set of Exhibits filed herewith.) In addition, although the Region did not conduct a public hearing, Barnhardt and its consultant met with the Region and the counterpart State agency to discuss the Permit.

2. The issues raised by Barnhardt in this Petition were raised during the public comment period and therefore were preserved for review.

### **Argument**

The Petitioner, Barnhardt Manufacturing Company ("Barnhardt"), contends that certain Permit conditions are based on clearly erroneous findings of fact and conclusions of law, and said conditions involve improper exercise of discretion by EPA Region 1 ("Region") and involve important matters of policy. Specifically, Barnhardt challenges Permit conditions pertaining to (1) acute toxicity and (2) nitrogen, as set forth below.

#### **1. Acute Toxicity**

Barnhardt appeals the Permit's acute toxicity limit  $LC_{50}$  of  $\geq 100\%$ <sup>1</sup> and the Permit's requirement to "develop and implement site specific BMPs in order to reduce and/or eliminate the acute toxicity of the discharge ("toxicity BMPs"). (Permit Part I.A.1 and I.C.1.d) Barnhardt contends that the Region failed to take into account evidence that Barnhardt presented, along with the Commonwealth of Massachusetts, concerning

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<sup>1</sup> "LC<sub>50</sub> is defined as the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate." (Footnote 6, Permit Part I.A.1)

ecological conditions of the subject North River and the lack of any evidence that Barnhardt's discharge causes any adverse impacts to those ecological conditions. The Region also misinterpreted and misapplied policies, toxic controls and the establishment of mixing zones. The Region also failed to establish a feasible schedule to provide Barnhardt with an opportunity to try to establish compliance with applicable requirements.

Barnhardt demonstrated that the Commonwealth of Massachusetts ("State") had determined that Barnhardt's discharge did not cause detriment to the biological integrity of the river. (See, e.g., Comment No. 5 of the Response to Comments, and the State's Water Quality Certification to the Region dated September 28, 2010, attached hereto as Exhibit B.) The State's findings were based on point source investigations in close proximity to the Barnhardt facility, including benthic macroinvertebrate biomonitoring. The investigations were performed specifically to investigate the potential ecological impacts of Barnhardt's discharge. (See, internal State e-mail attached hereto as Exhibit C.) The State's benthic biomonitoring data indicated that Barnhardt's discharge does not cause detriment or impairment due to toxicity or other pollutants, to the biological integrity in this portion of the river. (See Comment No. 5; see, also, the State's Deerfield River Watershed 2005 Benthic Macroinvertebrate Assessment, dated February 2009, p. 19-20, Figure 2, and Table 9, attached hereto as Exhibit D.)

The Region did not disclose any evidence to refute Barnhardt's and the State's demonstrations that Barnhardt's discharge did not impair the biological integrity of the North River. The Region should have taken into account the biological condition of the River, as well as Barnhardt's non-impact on that condition, in removing or establishing

the acute toxicity limit, in permitting dilution in the evaluation of acute toxicity, establishing a mixing zone for the purpose of assessing acute toxicity, and/or selecting the species for acute toxicity testing. However, the Region failed to take this evidence into account.

In the February 2009 report, the State determined that the biological condition of the North River was “non-impacted” by Barnhardt’s discharge. Based upon empirical data, the State concluded that the sampling point just downstream of the Barnhardt facility was “comparable to the best situation to be expected within [the] ecoregion, watershed, etc.” (Figure 2 of Ex. D, emphasis added)

The empirical in-stream data proving “no impact” from Barnhardt’s facility caused the State to certify to the Region that,

“The [Massachusetts] Department [of Environmental Protection] has reviewed the proposed permit and has determined that certain conditions of the permit listed below are more stringent than necessary to achieve compliance with sections 208(e), 301, 302, 303, 306, and 307 of the Federal Act, and with the provisions of the Massachusetts Clean Waters Act, M.G.L. c.21, ss. 26-53, and regulations promulgated thereunder. The permit conditions are sufficient to comply with the antidegradation provisions of the Massachusetts Surface Water Quality Standards [314 CMR 4.04] and the policy [October 21, 2009] implementing those provisions.

- The acute tests are not indicative of the actual instream conditions. MassDEP and the facility have conducted instream chronic and acute tests which documented no evidence of instream acute toxicity. Therefore, the acute whole effluent toxicity (WET) testing required in Part I.A.1 should be replaced with more frequent chronic testing at 6 tests per year.” (Exhibit B, brackets in original, emphasis added)

The Region failed to adequately consider Barnhardt’s and the State’s comments on this issue. The Region committed clear error through its assertions that the empirical data was not a valid indicator of acute toxicity. The sole basis for the Region’s

assertion was that “the biological tests were performed more than two miles downstream”. (Response to Comments, p. 18, emphasis added). In fact, the downstream sampling was performed only 1/4 mile, or 400 meters, downstream of the discharge point, 1/10<sup>th</sup> the distance asserted by the Region. Contrary to the Region’s assertion, the sampling was in very close proximity to the discharge point and was a valid indicator of the lack of acute toxicity. EPA committed clear error in dismissing Barnhardt’s and the State’s biological data.

In addition, the Region has performed and/or witnessed dye testing of the North River and the discharge. The dye testing proved rapid and complete mixing and dispersion of the effluent in the receiving water. As a result, the conditions pertaining to acute toxicity are not present in this case. The immediate and complete mixing indicates that the appropriate parameter is chronic testing, not acute testing. The Region should have factored in attenuation and dilution based upon the dye testing and other empirical data regarding the biology of the river. (See also, Comment No. 5 in the Response to Comments.)

The State’s policies authorize the use of chronic testing without acute testing, as well as the incorporation of a mixing zone and the excursion of water quality criteria, provided that the zone and excursion do not interfere with the existing or designated uses of the segment. (See State’s Certification, Exhibit B; State Implementation Policy for Mixing Zones, January 8, 1993, attached hereto as Exhibit E.) It was clear error and an abuse of discretion for EPA to assert that the recommendation in the State’s Certification letter was not a “valid option” and not allowed under State standards. (Exhibit B; Response, p. 18-19) The State is in a superior position to the Region to determine, as it did in its Certification letter, that the State’s recommendation *would be*

a *valid option* under State regulations and policies. It was error for the Region to not defer to, and instead overrule, the State in a matter concerning the interpretation of State policies and regulations.

There is no evidence in the record that the operation of Barnhardt's discharge has caused impact to aquatic life or other beneficial uses; or interfered with the migration, free movement or populations of aquatic life; or, created nuisance conditions or otherwise diminished the existing or designated uses of the river disproportionately. The Region should have established a mixing zone as well as eliminated or established acute toxicity limits consistent with Barnhardt's qualifications with the State policy on mixing zones and the non-impact of Barnhardt's discharge on the biological integrity of the river.

In its Response to Comments, the Region failed to duly consider and failed to articulate a rational basis for not considering the long-established biological integrity of the river as well as the non-impact of Barnhardt's discharge on the biological integrity of the river. The Region also failed to articulate a basis for its decision to not exercise discretion, in conjunction with the State, to allow dilution and a mixing zone relative to Barnhardt's discharge. In addition, where the State's 2005 biomonitoring data demonstrates that Barnhardt's discharge does not have a toxic effect on receiving waters, the Region failed to articulate a complete, proper basis for disregarding Barnhardt's proposed use of the *Daphnia Magna* (*D. Magna*) species for determining the acute toxicity limit. The State's 2005 biomonitoring data, which was not available at the time of the prior permit issued on March 26, 2001 and modified on August 17, 2004, supported an exception to "anti-backsliding" provisions, as allowed pursuant to 33 USCS §1342(o)(2)(B) and 40 CFR 122.44(l)(i). The Region failed to articulate a



complete, proper basis for disregarding a less stringent, yet protective, effluent guideline relative to acute toxicity.

The Region also did not correctly incorporate discharge and river flow volumes in evaluating toxicity and dilution factors. For instance, the Region improperly utilized the *lowest* figures pertaining to river flow and the *highest* possible figures pertaining to effluent in performing its dilution factor calculations. Those calculations are in error. Instead of a dilution factor between 4-5, as calculated by the Region, the dilution factor would likely be between 10-20 using realistic, reasonable figures. This higher dilution factor supports Barnhardt's and the State's position that the discharge limit should be based on chronic testing and not acute testing. The Region also failed to establish a schedule, including interim limits, reasonably calculated to permit Barnhardt an opportunity to achieve compliance.

Because the Region erred in establishing the acute toxicity limit, as set forth above, the Region also erred in seeking to require Barnhardt to "develop and implement" BMPs to "reduce and/or eliminate" the acute toxicity of the discharge. It was error for the Region to attempt to require Barnhardt to implement costly measures to reduce or eliminate acute toxicity, where the empirical data and the Certification from the State demonstrate that Barnhardt's discharge does not cause toxic effects in the receiving water. The Region erred in imposing BMPs that are predicated on discharge limits that are not supportable.

Based on the foregoing, the Board should determine that the acute toxicity limits and BMPs in the Permit should be eliminated, or significantly modified, to reflect limits and methodologies proposed by Barnhardt and the State in its certification. In the alternative, the Board should remand the matter to the Region to adopt, or consider

adopting, the foregoing modifications. Barnhardt reserves the right to supplement this petition in response to any response or information provided by the Region, State or any other person.

## 2. Nitrogen

Barnhardt appeals the Permit's new limit that reduced nitrogen discharge from 66 lbs/day to 42 lbs/day, and the Permit's new requirements to "develop and implement site specific BMPs in order to reduce and/or eliminate the source(s) of nitrogen at the facility" ("Nitrogen BMPs") and "implement the recommended operational changes in order to maintain the existing mass discharge loading of total nitrogen." (Permit Parts I.A.1, I.C.1.e., and I.C.2, respectively.) Barnhardt contends that the Region misinterpreted and misapplied the assumptions, standards, and conclusions of the underlying Total Maximum Daily Load ("TMDL") study that was conducted for the Long Island Sound in southern Connecticut and New York on which the Region relied to regulate Barnhardt's facility in northern Massachusetts. The Region inappropriately exercised discretion in the manner in which it considered the TMDL study in imposing the nitrogen limits and BMPs. This is an important matter of policy affecting the public, where EPA seeks to impose costly and technologically challenging, if not infeasible, requirements on out-of-basin discharges located in states (e.g., Massachusetts, New Hampshire, Vermont) far upstream from the area for which the TMDL was established (e.g., the Long Island Sound in Connecticut and New York).

In summary, Connecticut and New York jointly developed a TMDL for nitrogen, to address conditions in Long Island Sound, which TMDL the Region approved in April

2001.<sup>2</sup> The TMDL set a framework for reducing nitrogen in the Long Island Sound by, inter alia, reducing out-of-basin discharges by an aggregate of 25%. The states of Connecticut and New York stated that this 25% reduction was a reasonable amount based on their experience that *publicly owned treatment works* (“POTW”) could make such reductions inexpensively through the implementation of various technological processes, as retrofits to existing sewage treatment plants. The Region, in its approval of the TMDL, stated that the 25% reduction was reasonable based on Connecticut’s and New York’s experience with POTWs.

Significantly, the 25% reduction was not established as a formal allocation but, according to the Region, as a “reasonable assumption” for aggregate reductions. Also, the reduction was predicated on cost and economic data from the retrofit of existing POTWs, and not on cost data from the possible retrofit of industrial facilities such as Barnhardt’s facility. Significantly, the Region failed to refer to any study demonstrating that it is reasonable to apply an across-the-board 25% reduction, based on POTW research, to industrial facilities such as the Barnhardt facility. The Region committed error in purporting to rely on the TMDL, which itself is predicated on data specific to POTWs, in reducing the limit of Barnhardt’s nitrogen discharge and imposing an on-going BMP requirement (on top of the reduced limit) to reduce or eliminate sources of nitrogen. (As discussed below, the Region also erred in calculating the reduction of Barnhardt’s limit.)

A cotton fiber processing plant such as Barnhardt’s does not add or utilize nitrogen in its treatment process. As such, there is no external “source” of nitrogen for

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<sup>2</sup> A TMDL has not been established for nitrogen in the applicable Connecticut River watershed in Massachusetts.

Barnhardt to reduce or eliminate. In fact, nitrogen is integral to Barnhardt's raw material and product, namely, the seeds and fiber of the cotton plant undergoing processing. Unlike the low cost retrofits available at POTWs in Connecticut and elsewhere, there is no similar low cost nitrogen removal retrofit available to cotton fiber facilities such as Barnhardt's facility. It was error for the Region to assume the existence of such a retrofit, and, further, to not provide for comment or implementation a feasible schedule to provide Barnhardt with an opportunity to try to establish compliance with the requirements. It was also error for the Region to apply assumptions and standards applicable to POTWs to Barnhardt's facility. Accordingly, it was error for the Region to impose the reduced nitrogen limits and BMPs as set forth in the Permit.

In addition to the errors cited above, and while reserving all rights, Barnhardt contends that the Region committed error by seeking to reduce Barnhardt's nitrogen limit by *approximately 33%* (from 66 lbs/day to 42 lbs/day), which unreasonably exceeded the 25% reduction mentioned in the TMDL and the Region's approval of the TMDL in 2001. The Region also committed an error of law and procedure and deprived Barnhardt of due process, by failing to disclose the proposed 33% reduction in nitrogen limits in the draft permit, and not revealing the excessive reduction until after the Permit was issued. Barnhardt was deprived of the opportunity to review and comment on the proposed reduction.

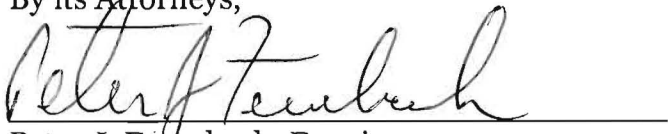
The Region also erred by seeking to require Barnhardt, in addition to the excessive reduction in the nitrogen limit, to "develop and implement" BMPs to "reduce and/or eliminate the source(s) of nitrogen at the facility", and to "implement operational changes" to maintain the existing nitrogen loading, with annual reports to the Region on the implementation. As set forth above, the "source" of nitrogen is the

cotton product itself, not any chemicals that Barnhardt adds to its process. Thus, the "source" can not be removed or eliminated. In addition, any additional reduction in allowable nitrogen discharge should occur only after the issuance of a new draft permit, upon the expiration of the subject Permit, with new public comment, and should not be required on an on-going, annual basis as set forth in the Permit conditions under appeal.

### **Conclusion**

Based upon the foregoing, Barnhardt respectfully requests that the Board modify, or remand to the Region to modify, the Permit to (1) remove or re-establish the acute toxicity limit and Toxicity BMPs to reflect that Barnhardt's discharge does not impair the receiving waters, and (2) remove or re-establish the ammonia nitrogen limit and Nitrogen BMPs to reflect conditions applicable to Barnhardt's facility and process and out-of-basin discharges, pursuant to the TMDL, all as set forth hereinabove.

BARNHARDT MANUFACTURING COMPANY  
By its Attorneys,



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