

Mr. Peter Weatherbee-Planning Board Chairman
Mr. Dean Bennett – Community Development Director
Town of Hampden
106 Western Avenue
Hampden, Maine 04444

RE: Review of Air Quality Emissions for the Fiberight Project and Its Applicability to Hampden's Site Review Requirements

Dear Hampden Planning Board Members:

I attended the Planning Board (PB) meeting of April 13, 2016, held for the purpose of conducting the Site Plan Review Application for the MRC/Fiberight project. I was not afforded by the Board the opportunity to discuss my concerns and those of other Hampden residents about the project's release of excessive air emissions based on the data provided by CES, Inc., the applicants' engineers. They submitted the original Air Permit Application (APA) on June 15, 2015 and numerous supplementals since then. As has been noted by the PB Chairman on a couple of occasions, information that has been submitted to the Maine Department of Environmental Protection (DEP) is not subject to /or available for Board purview unless it is actually submitted to them. For that reason, I am including the weblink to the Maine DEP site for the original June 15, 2015 APEA (http://www.maine.gov/dep/projects/mrc/applications/04-2015-06-24-MRC-Fiberight_Air%20Emissions%20License%20Application.pdf) as it serves as the centerpiece for my technical analysis of the quantity of pollutants projected to be emitted from the proposed facility in Hampden using the applicant's own data in that submittal and subsequent ones. In particular, the Planning Board should review the Appendix 1 in the Air Permit Application, and the emissions data tables in the permit, and finally the proposed pollution controls (or lack thereof). Fiberight's Air Permit Application is directly relevant to the Planning Board responsibilities' that all projects before it must comply with the Town's Zoning Ordinance. It is my contention and those of other technical, legal and environmental organizations that with the applicants' proposed combustion/gasification in two Hurst boilers of by-product wastes from their enzymatic hydrolysis process (which the applicant has variously called fermentate, non-hazardous secondary material (NHSM) and now term Post Hydrolysis Solids (PHS)), that the applicant and their consultants CES, Inc. have,

- 1) submitted confusing and/or incomplete information in their original and supplemental air permit application information,
- 2) have drawn inaccurate conclusions as to which permitting level their project falls under, specifically as to whether their project is in fact a Major Source of conventional pollutants (carbon monoxide and sulfur dioxide) and various Hazardous Air Pollutants (HAPs) which include, but are not limited to the release of mercury, hydrochloric acid, and arsenic, (possibly dioxin), and
- 3) because of the inaccurate conclusions they have drawn in #2 above from data the applicant themselves supplied in the original/supplemental information (again drawing your attention to Appendix 1 of the June 15, 2015 Air Permit Application from CES) that the applicant/engineers are providing inadequate Best Available Control Technology (BACT) to protect the residents of Hampden from toxic air emissions from the proposed Fiberight facility.

At the April 13th, 2016 Planning Board meeting, I submitted a technical report which focused on the above 3 points. I was not afforded the opportunity to expound upon the issues contained in that analysis which had originally been submitted to the Maine DEP on March 23, 2016. In that report, I used the data that the applicants submitted to 1) demonstrate that when using the appropriate emissions factors for carbon monoxide, annual emissions are 2.73 times higher than what CES used and puts just one of the Hurst boiler over 122.25 tons per year (tpy) of carbon monoxide and is a "Major source" and not a "Minor" one; 2)

conservative calculations presented for the Hazardous Air Pollutant (HAP) hydrochloric acid indicate that uncontrolled emissions of HCl will total 118.4 tpy, which exceeds the 10 tpy limit and the 25 tpy limit for all HAPS, thus making the project a "Major HAP source", 3) applying the emission factors supplied by the applicant for the toxic air pollutant mercury, we find in 2 separate permit application submittals (June 15, 2015 AEPA- Appendix 1 and Dec. 14, 2015 BACT Analysis rev. 2- Appendix 1), that the Hampden project exceeds the statutory limit of **25 pounds per year** by nearly 36%, for a total mercury release to the atmosphere of **33.9 pounds per year**, (If one uses the listed emission factor for mercury in Table 3 for the so-called NHSM, the Mercury releases would be even higher and calculated to be **67.8 pounds per year** or 171% above the annual limit of 25 pounds), and 4) based on the data provided by the applicant, there is a potential for 57.6 tons per year of the odorous compound sulfur dioxide to be emitted each year from the two boilers because there are NO acid emissions controls proposed by Fiberight for the Hampden facility.

I do appreciate the fact that the Board included my March 23rd technical analysis in the Public Hearing minutes for the meeting of April 13, 2016. I had hoped that the analysis would have led to some sort of response from Hampden's air quality engineer from Woodard and Curran, Ms. Christie Bishop at the May 11th meeting of the PB. But again, as with the first PB meeting, the focus was on traffic and odor issues. I was limited to referencing the odors that will be emanating from the incoming trucks in the queue, and the outgoing trucks if they have not been "deodorized like those at Juniper Ridge Landfill", and referencing the odors inherent in releases of sulfur dioxide, hydrochloric acid from the boilers that have no acid gas controls. I also inquired as to whether the Woodard and Curran engineers have asked the applicant about the potential for releases of hydrogen sulfide (with its characteristic rotten egg odor) from the Pressure Swing Absorption unit used to prepare the methane from the Anaerobic Digestion (AD) system for commercial sale.

The PB has clear jurisdiction under the Hampden zoning ordinance and the engineers of Woodard and Curran have technical oversight responsibility to protect the air quality in Hampden when an applicant has submitted a project for Site Plan Review. The Fiberight project has significant impacts beyond just odor and traffic that relate to surface water, groundwater and air quality. In my May 19th, 2016 technical analysis/submittal to the PB of some surface and groundwater quality issues regarding the Fiberight project, I cited the portion of the Zoning Ordinance that warranted PB review and response by the applicant. That same section of the ordinance pertains to air emission issues raised in my March 23rd analysis, and this critique of Fiberight's Site Plan Review Application.

Specifically, page 31 – "Standards Governing Site Plan Review" of the Hampden Zoning Ordinance in Section 4.1.7.13 states:

The proposed use, buildings, and site development shall have no unreasonable adverse effect on surface water quality, ground water quality, ground water quantity, soil quality, or **air quality** [emphasis added].

In addition, page 35- "Standards Governing Conditional Use Permits", the Planning Board must ensure that the proposed use meets the standard set forth in Section 4.2.3.4, which states:

The proposed use will not cause unreasonable noise, odors, dust, gas, fumes, smoke, light or other annoying or **dangerous emissions** [emphasis added]. In making its determination, the board shall require the applicant to demonstrate that none of the foregoing will interfere with the peaceful use and enjoyment of residential properties located in the area of the proposed use.

Finally, page 38 - "Performance Standards" for conditional use permits, we find that Section 4.4.1 pertaining to Odorous Matter in the zoning ordinance stipulates that:

The emission of odorous or toxic matter [emphasis added] in such quantities as to be readily detectable at any point along lot lines so as to produce a public nuisance or hazard is prohibited. Such activities as might produce such emission, or which might produce smoke, dust, or other

particulate matter, shall comply with applicable minimum Federal, State and local requirements and detailed plans for abatement shall be submitted to the code enforcement officer for approval before a building permit is granted. Violations of this standard shall be considered a public nuisance.

In all cases, the burden of proof is on the applicant to demonstrate compliance with the above provisions! In the opinion of many residents of Hampden and the surrounding towns, other technical and environmental experts, and legal advisors, the PB and the town's engineers at Woodard and Curran have a clear obligation to require the applicant to respond to the issues of concern to demonstrate that the Fiberight project will **not** adversely effect (sic) the "air quality", **not** release "dangerous emissions", and **not** produce and release any "emission of odorous or toxic matter".

I followed up on April 19th, 2016 with the Maine DEP inquiring as to what Fiberight and its' consultants position is on the whole matter of Major vs. Minor air emission permitting category that the Hampden project falls under. That correspondence is found as Attachment A in this submittal to the Planning Board. (The April 19th inquiry includes the March 23 technical analysis as Attachment 1).

On April 29th, I followed up on some further errors and omissions by Fiberight and its consulting engineers to the Maine DEP and the report/analysis is provided to the Planning Board in Attachment B. The title of the analysis is "Fiberight Projects Failure to Demonstrate Its Post Hydrolysis Solids is Eligible for Non-Waste Status at the Federal and State Level". As the title suggests, I have identified the failure of the applicants to demonstrate that the boilers that are generating the odors, hazardous and toxic air emissions also do not qualify as combustors of a non-waste (secondary or otherwise) but are really commercial industrial incinerators of solid wastes and are thus applicable to the Federal EPA regulations that apply to the Fiberight project and furthermore, that Fiberight has failed to submit the appropriate permit to have its solid waste considered for beneficial use as a fuel under Maine's 06-096 CMR Chapter 418 regulatory program. The applicants and their consulting engineers at CES have not responded in a timely manner to the issues that I have raised and it seems to be simply trying to "run out the clock" and secure site plan review approval without responding to these technical and legal issues.

The Hampden Planning Board can not simply defer the matters raised (in the preceding paragraphs and in Attachments A and B) as a Maine DEP matter. Clearly, this is not acceptable and is not an option when the technical expertise is available to analyze the data/information that I have presented at the local level given the caliber of Town engineers. As I noted above, the burden is on the applicant to respond to the legitimate issues raised. Not coincidentally, but clearly concurrent in a legal sense, there is a responsibility of the town to have these questions fully reviewed and resolved before the Site Plan Review is deemed complete by the Planning Board.

The Hampden peer review teams have been silent on these environmental issues to date with their focus on odor and traffic. I am prepared to sit down with the appropriate parties to discuss the matters raised above and to fully discuss the nature of the questions and other relevant matters raised in Attachments A and B so that the applicants can be held accountable for the data submitted and so that the project meets the requirements of the Zoning Ordinance standards for the Town of Hampden.

Sincerely,

Keith Bowden

Keith Bowden
Cc: Bill Lippincott

Attachment A

April 19, 2016 Memo to Maine DEP - RE: Fiberight Project in Apparent Violation of Part 115 Air Emission Levels for a "Minor" Source as Determined By Applicant's Potential to Emit Calculations

April 19, 2016

Ms. Julie Churchill
Maine Department of Environmental Protection
Regulatory Assistance Small Business Ombudsman
17 State House Station
Augusta, Maine 04333-0017

Ms. Lynn Muzzey
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

Re: Fiberight Project in Apparent Violation of Part 115 Air Emission Levels for a "Minor" Source as Determined By Applicant's Potential to Emit Calculations

Nearly one month ago, on March 23, 2016, I submitted to the Department a report titled "Part 3: Critical Technical Analysis of Errors, Omissions and Inconsistencies found in the MRC/Fiberight Air Emissions Permit Application and Air Permit Report and deliverables from CES on the Hampden, Maine Project." For convenience, I have included that critique as Attachment 1 to this correspondence. I should also note that Ms. Churchill was able to get my report posted on the DEP website in a little over an hour after she received it and stated the following to me in her acknowledgement of that submittal:

"I also sent your comments to the co-applicants: MRC and Fiberight. I recommended they review your comments and provide a written response."

There is no indication in the ensuing weeks that CES has, on behalf of the applicants, responded to Ms. Churchill's recommendation. All we have that remotely resembles a response to the air permitting issues I raised is another permutation to their previously submitted Potential to Emit (PTE) calculations dated April 8th, 2016. It should be noted that this is the 6th modification of the PTE calculations to the original application submitted on June 15, 2015. Thus, it appears NOT to be connected to my March 23 critical analysis, for which the DEP recommended the applicants respond to.

If the April 8th cover letter constitutes the sum total of what the DEP recommended the applicants respond to, then in a legal setting, any reasonable person would have no choice but to conclude that "the defendant is not responsive to the question". It is obvious that the applicant can't answer the rather technically simple questions that I asked. They now want to claim that all PTE calculations (revised) should be based on the AP- 42 Emissions Factors found in Section 1.6 Wood Residue Combustion in Boilers. The applicant says, and I quote: "Fiberight believes these emissions factors to be the most applicable published emission factors to predict emissions from the combustion of post hydrolysis solids (PHS)".

In essence, Fiberight says: **ignore the actual analyses of PHS solids we have done in the past, as it is not representative of PHS**, and inexplicable says: **accept new actual analyses run on PHS** from their Lawrenceville, Virginia facility. So reject old data from Lawrenceville, Va samples produced by enzymatic hydrolysis in 2011 or 2012, and samples produced around Dec. of 2014 and accept the **one new set of numbers analyzed for concentrations of chemical contaminants and ultimate fuel analysis generated in 2016**. The applicant goes on to say, quote:

"The results of these analyses will be used to demonstrate that the unfired PHS material is similar to contaminant concentration and BTU content of biomass. Upon receipt and review of these laboratory analytical results, Fiberight will

submit the results to MDEP to validate the selection of biomass emission factors used to calculate the PTE for the facility”.

This seems disingenuous given that the conclusion precedes the proof and is directly contradicted by the current data that they asked the Department to consider!

How generous of the applicant to continue to pay to run tests until it gets the numbers it HOPES will keep them from turning their “Minor” project in Hampden into a Major Source of air emissions under Chapter 115 rules of the State of Maine. Actually, one should conclude that they are using the additional testing commitment as a temporary tactic in hopes that the DEP will issue a draft air permit before the numbers come in.

The applicant has mounted a wholly inadequate defense of its AEPA in light of my March 23rd, 2016 analysis of the data they submitted to the Department. Thus, the applicant has ignored the critique of their own report/data submittal that clearly shows the:

1. project exceeds the 100 ton per year air emissions limit for **Carbon Monoxide** for the Hurst Boilers,
2. flue gas from the boilers will discharge the Hazardous Air Pollutant (HAP) **Chlorine** in excess of the 10 ton per year (tpy) limit for a single chemical compound and in fact exceeds the 25 ton per year limit for all HAPS, and that the Hampden project is a “Major Source” of Hazardous Air Pollutants,
3. Statutory limit for **Mercury** under 38 MRSA ¶ 585-B set at 25 pounds per year is exceeded, requires specific emissions controls under the Best Available Control Technology (BACT) requirements and places the project under “Major Source” requirements.

Using the applicant's own data, (not the new data that in the applicant's mind, the Maine DEP should somehow embrace), the **Hampden project is a Major air pollutant source that requires a new round of air permit application submittals.** Unless the applicant can demonstrate that the data previously submitted is somehow not-representative (in clear violation of the disclosures by the signatories), and that the new analyses are conducted in a manner that now does produce a representative sample, then this accommodation by the Department is both unwarranted and contestable.

The complex positions/contortions/arguments by the applicants to deny that the Hampden project is a “Major” polluter are not credible and fly in the face of some interpretations of “Occam's Razor”. “The simplest explanation for some phenomenon is more likely to be accurate than the more complicated explanations”. The simplest explanation of the Fiberright project in Hampden is as a MAJOR air pollution source, but that the applicant does not want this fact known until it recruits a sufficient number of communities for its own financial gain.

Sincerely,

Keith A. Bowden

Keith A. Bowden
Resident – Town of Orrington

kab: attachment

**Part 3: Critical Technical Analysis of Errors, Omissions and Inconsistencies found
in the MRC/Fiberight Air Emissions Permit Application and Air Permit
Supplemental Reports & Deliverables from CES on Hampden. ME Project**

What follows is a review of some of the errors, omissions, unclear and contradictory statements in the review of the June 15, 2015 Air Emissions Permit Application (AEPA) and the various supplementals over the ensuing months.

1. **Applicant's Information:** In 2 separate permit application submittals (Original June 15, 2015 AEPA-Appendix 1) and Dec. 14, 2015 BACT Analysis rev. 2- Appendix 1), the applicant provides 20 pages of info titled Non-Waste Determination Application for Non-hazardous Secondary Material – Fermentate from a Cellulosic Ethanol Plant Pursuant to 40 CFR Section 241.3, Standards and Procedures for Identification of Non-Hazardous Secondary Materials (NHSM) and dated 6/7/2013.

But on page 2 of the June 15, 2015 "Attachment C BACT Analysis" and page 3 of text of the December 14, 2015 "BACT Analysis rev. 2" the applicant state:

"Fiberight has submitted a Non-waste Determination Application for Non-Hazardous Secondary Material (NHSM) to the United States Environmental Protection Agency (EPA) in reference to the **Post-Hydrolysis Solids (PHS) fuel**. (emphasis added) The application ... to demonstrate the **PHS fuel** (emphasis added) meets the legitimacy criteria and is not a solid waste".

Technical Review: A review of all the information in the two appendices is clearly important to the applicant for the air emission application, but should certainly be confusing to the general public and this reviewer. The NHSM application referenced in this AEPA is for a project in Iowa for "fermentate" from a ethanol plant". We know from submittals by the Town of Orrington (October 27, 2015 – Solid Waste Permit Application Review of the Fiberight Project, etc.) and reviews by me on February 1, 2016 and February 29, 2016) that ethanol is not part of the Hampden project. The applicant has yet to provide responses to the October 2015 or February 29, 2016 reviews nor have they answered questions that were contained therein. In addition, a response is clearly warranted to the following:

- 1.1. What is the basis for implying in the two BACT analysis appendices that "fermentate from a cellulosic ethanol plant" is the same as "Post Hydrolysis Solids".
 - 1.2. What is "fermentate" in relation to the Maine project?
 - 1.3. Does the information from Fiberight to the EPA and/or subsequent email exchanges state that fermentate is PHS? Can Fiberight provide all correspondence (up to the current month) associated with this NHSM application?
2. **Applicant's Information:** Pending response to questions raised in the Technical Review - section 1 above, let's accept the idea put forth by the applicant that "fermentate" is the same as PHS. Now look at the Fiberight data submitted to the EPA in the application, and accept the criteria Fiberight put forth that PHS fuel is something that various customers would use in their combustion units. On "page 34-Summary" of the NHSM application, Fiberight states that their fermentate/PHS material:

"is similar in content to more widely used fuels, and emissions from its burning should be similar as well. Tables are included in this document that compares both constituents with other fuels, and likely air emissions. Emission factors for criteria pollutants are likely to be similar to the burning of wood or bagasse. Metals emissions were calculated directly from analyses of the NHSM for metals content. Neither the criteria nor hazardous waste pollutants are much different from those emitted from wood, bagasse, coal, TDF, and so on. The material has a

significant heating value, similar to bagasse and wood and as such, should be harvested to produce renewable energy. With its fuel made from what would otherwise be waste, Fiberight is at the forefront of cellulosic ethanol production technology."

Later on page 38 in the document, Fiberight presents Table 1 titled "Comparison of Fermentate to Common Fuels". The NHSM heading in the table has a notation/superscript "o" next to it, but has no explanation as to the meaning of the note. It appears that the data in this column is an actual analytical test result run on "fermentate". Fiberight then declares:

"As the table shows, the fermentate has similar composition to the other commonly used fuels. Moisture is comparable with wood or bagasse, and the carbon and hydrogen components are similar to wood. In fact, the composition of the residuals is most similar to wood. ... Therefore, to estimate emissions from burning the material we have used EPA's AP 42 criteria pollutant emission factors for wood. There is robust data for the emission factors for wood, which is not the case for biomass or paper mill sludge."

Technical Review: Accepting Fiberight's declaration that "fermentate/PHS" is the same as wood and that the Maine DEP should accept using the emission data it provides them, let us look at such data in Table 2, titled Emission Factors for Criteria Pollutants for Coal and Wood, found on page 41 of the Fiberight NHSM Non-Waste application. In all cases (except for sulfur dioxide/oxides of sulfur – SO_x), we see Fiberight using the same emission factor value for its fermentate/PHS/NHSM as the data listed for wood. Thus, using Fiberight's own argument it made to the EPA and Maine DEP, the appropriate emission factors to use, for example, for carbon monoxide is from wood. The value which is listed is 0.60 pounds of CO/mm Btu of heat input from the combustion unit. So, in the case of the Hampden project, Fiberight should apply that factor to the Hurst Boilers combusting PHS. Yet, CES ignores the very data it has submitted on Fiberight's behalf and instead uses a factor of 0.22 pounds of CO/mm Btu of heat input in the Boiler Performance Summaries.

As you know, for regulatory permitting purposes, potential new source facilities are categorized as "minor sources" if they have the potential to emit (PTE) less than 50 tons per year (TPY) of volatile organic compounds (VOC), 10 TPY of a single Hazardous Air Pollutant (HAP), or 25 TPY of all HAPS combined or under 100 TPY of any other regulated pollutant, like carbon monoxide. Sources with the PTE in excess of these thresholds are regulated as "major sources"

- 2.1. Why isn't CES/Fiberight being consistent in its argument the fermentate/PHS/NHSM is wood and thus using the 0.6 factor for PHS that the NHSM application presents?
- 2.2. Applying the 0.6 factor would increase the CO emissions by 2.73 times and puts the CO annual emissions for just one of the Hurst boilers from the Dec. 14, 2015 value of 44.78 TPY to over 122.25 TPY.
- 2.3. Using CES/Fiberight's own argument's and data it supplied to the DEP, why isn't the Hampden project considered a Major Source of air emissions for CO under Chapter 115 rules for its' AEPA.
- 2.4. What is the meaning of the NHSM heading in the table that has a notation/superscript "o". Is this an actual test result conducted on "fermentate" prior to 2013?
- 2.5. What justification does the applicant have for cherry picking data it has submitted for regulatory review? Even if the applicant averages the CO emission factor from the manufacturer's (Hurst) and the figure from the NHSM application, the Hampden project will exceed the 100 TPY limit as it applies to Maine DEP Chapter 115 and is therefore a "Major Source".

3. Applicant's Information: In Table 1 of the Appendix 1 NHSM titled "Comparison of Fermentate to Common Fuels" on page 38 we find that it lists Chlorine at 0.2% by weight as a component in their "fermentate" /NHSM/ PHS material. (Until the applicant answers the question 2.5 above, one does not know for sure if this result is for an actual fermentate sample.)

Technical Review: Since no chlorine values are listed for wood, let us accept the chlorine number provided by the applicant as an actual test result for chlorine levels in Fiberight's PHS. The implication is that the Hurst gasifying boilers in Hampden would have emissions of hydrogen chloride in its stack gasses. Municipal Solid Waste (MSW) is known to contain chlorine from a wide variety of sources as this element is ubiquitous. If Fiberight responds to Question 2.5 above and we find that the data listed in the table is for actual fermentate/PHS, the Maine DEP must conclude that the HAP hydrogen chloride will be released untreated to the atmosphere. Conservative calculations presented below of this HAP indicate that uncontrolled emissions of HCl will exceed the 10 TPY limit for this compound and the 25 TPY limit for all HAPS. As with the carbon monoxide emission calculations presented above, one must conclude that the Hampden project is a Major Source of air pollutants and requires a more extensive review, including additional opportunities for input from the public and the EPA. The hydrogen chloride calculations, using the Fiberight data presented in the two BACT submittals are as follows:

For the two Hurst boilers, using CES supplied estimates found in the BPS are 6.57 tons/hr of 50% PHS solids fed per boiler. Assuming the Chlorine value in Table 1 is on a dry weight basis, hydrogen chloride, the calculation is as follows: $0.2 \text{ \# Cl}/100 \text{ \# dry PHS} \times (36.45 \text{ \# HCl}/35.35 \text{ \# Cl}) \times (6.57 \text{ tons wet PHS}/\text{boiler-hr}) \times (0.5 \text{ \# dry PHS}/1.0 \text{ \# wet PHS}) \times 2 \text{ Boilers} \times 8760 \text{ hr/year} = 118.35 \text{ ton HCl per year in flue gas.}$

Even if only 1/3 of the available Chlorine is converted to HCl, the Hampden project is over the 10 TPY limit for a single HAP and over the 25 TPY limit for all HAPS. CES/Fiberight calculated only 7.1 TPY of all HAPS, but did so by NOT including Chlorine, in spite of data supplied by the applicant in both BACT submittals. To insure that the PTE is limited to less than 10 TPY from all HAPS, they will need some sort of injection system in the gasifiers to control HCl. A limestone injection system would convert the HCl to a particulate salt depending upon the sorbent used. It is unknown whether the Hurst gasifier boilers for the Hampden can accommodate an in-duct sorbent injection system. The bag house currently planned would have to be sized to handle the added particle loading of the HCl control measures.

- 3.1. Will the applicant provide clear and compelling data refuting the presence of HAPS chlorine from past analytical test data submitted in the two Maine BACT applications for the AEPA for Hampden?
 - 3.2. Will the Maine DEP reject the AEPA submitted by the applicant as not meeting the criteria of a Minor Source of air emissions nor complying with the regulator requirements of Chapter 115 for Best Available Control Technology or Maximum Available Control Technologies (MACT), as appropriate with respect to HAPS?
 - 3.3. Will Fiberight be required to demonstrate compliance by the DEP with any HCl limits with something like a FTIR spectrometry system for Continuous Emission Monitoring (CEM) of HCl on each boiler?
 - 3.4. Given the technical analysis provided above, is not the Fiberight project in Hampden a "Major Source of HAP" subject to EPA Region 1 permitting and oversight?
4. **Applicant's Information:** In Table 1 of the Appendix 1 NHSM titled "Comparison of Fermentate to Common Fuels" on page 38, the applicant provides what appears to be an actual emission factor for the element mercury, (chemical symbol Hg) in their "PHS" material. The emission factor provided for mercury is 3.96 E-05 pounds per million BTU of heat input for the boiler.

Technical Review: There is a statutory limit for the HAP mercury under 38 MRSA ¶ 585-B at 25 pounds per year (ppy). Applying the emission factor supplied by the applicant in 2 separate permit application submittals (June 15, 2015 AEPA- Appendix 1 and Dec. 14, 2015 BACT Analysis rev. 2- Appendix 1), we find that the Hampden project exceeds the statutory limit by nearly 36%. The calculation is as follows:

Boiler Heat input of 48.87 mm Btu/hour/boiler x 2 boilers x 0.0000396 # Hg/mm Btu/hr x 8,760 hrs per year = 33.91 pounds Hg per year or 35.6 % above the 25 #pound/year limit.

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- 4.1 Given the technical analysis provided above, is not the Fiberight project in Hampden in violation of statutory limit for the HAP mercury under 38 MRSA ¶ 585-B set at 25 pounds per year (ppy).
 - 4.2. Can the applicant provide clear and compelling data refuting the presence of HAPS Mercury from past analytical test data submitted in the two Maine BACT applications for the AEPA for Hampden?
 - 4.3. Will Fiberight be required by the DEP to demonstrate compliance to Maine statues by providing a 90% reduction in Mercury emissions through the use of BACT or Maximum Achievable Control Technology (MACT) using such technologies as carbon injection in each boiler stack gases?
5. **Applicant's Information:** Again, In Table 1 of the Appendix 1 on page 38 the element Sulfur is listed at 0.05% by weight as a component in their "fermentate" /NHSM/ PHS material. Once again, one does not know for sure if this result is for an actual sample that Fiberight provided at the time of the NHSM application.

Technical Review: As with the carbon monoxide emission calculations, the hydrogen chloride HAPS emissions, and the Mercury emissions presented above, one must conclude that the Hampden project is a Major Source of air pollutants requiring a more extensive permit review. As with the above calculation methods, no adjustments for "operational hours" less than 8,760 hours in a year are made in the calculations. (A discussion of the confusing aspects of the applicant's use of "operational hours" for the PTE and BPS calculations in the AEPA and the supplements are discussed in the following section - #7.)

Based on the data provided by the applicant, one can calculate the "potential" tons per year of sulfur dioxide emitted each year. The resultant value equates to 57.6 TPY of SO₂ emitted from the two. The calculations are 0.05 # S/100 # dry PHS x (2 # SO₂ per # Sulfur) x (6.57 tons wet PHS/boiler-hr) x (0.5 # dry PHS/1.0 # wet PHS) x 2 Boilers x 8760 hr/year = 57.6 TPY SO₂). While well below the 100 TPY regulatory limit, the control equipment determined above for HCl would likely provide control of SO₂.

- 5.1. CES cites 10.16 TPY of SO₂ using the manufacturers' emission factors and provides no specific control of SO₂ or HCl, for that matter. Does the DEP concur with the information provided by the applicant or by this technical review of the AEPA and the supplemental information on the DEP's website?
 - 5.2. Does the Maine DEP concur that no CEMS are required for either boiler?
 - 5.3. Does the Maine DEP concur with the applicants' claim that they are under the emission threshold for HAPS and other regulated pollutants? If the applicants' conclusions and calculations are not valid, then the Maine DEP must conclude that they are a "Major Source" of air pollutants and need to be regulated as such.
- 6 **Applicant's Information:** The applicant discusses the hazardous air pollutants (HAPs) in the NHSM application includes values for emission factors In Table 3 of Appendix 1 on pages 42 – 43 titled "Emission Factors for Coal and Wood – Metals Concentration of Fermentate.". The following section is excerpted from page 39:

"For metals, we have conservatively assumed that metals in the washed pulp would not participate in the fermentation process, and would be 100% contained in the residual material. The volatility of each of the metals was then determined, and the destination (fly ash, bottom ash) was determined from research paper authored by Leslie Sloss..."

This table includes the emissions factors (EF) for HAPs elements arsenic (As), cadmium (Cd), lead (Pb) as well as, mercury (Hg), again. Table 3 provides the emission factors for the stated fuels but also includes values for Municipal Solid Wastes (MSW) combusted in boilers before pollution controls (noted as "uncontr.")

Technical Review: One of the HAPS metals (mercury) has already been discussed in Section 4 above as its emission factor (3.96 E-05 lb/mm Btu) was listed in the final row of Table 1, but a different emission factor for mercury (7.97 E-05 lb/mm Btu/hr) is listed in Table 3 for the metal found in the NHSM. If this emission factor is used to calculate the boiler's releases, the Mercury releases would be higher than determined in the above Section 4 and found to be 67.8 pounds per year or 171% above the statutory limit for Maine of 25 pounds per year.

If we calculate the other HAPs using the values provided in the Table 3 and (in the format boiler heat input x number of boilers x EF x 8,760 hours x 1 Ton/2000 # = TPY), focusing only on the data in the NHSM column, the following results were determined:

Arsenic: 0.29 tons per year (48.86 x 2 x 6.87 E-04 x 8,760 x 1/2000)
Cadmium: 0.079 tons per year (48.86 x 2 x 1.85 E-04 x 8,760 x 1/2000)
Lead: 2.49 tons per year (48.86 x 2 x 5.81 E-03 x 8,760 x 1/2000)

While the data presented by the applicant is confusing/not consistent between the 2 tables in the same application (example Mercury), the calculations in both cases show that the Hampden project has the potential to emit 171% over the Maine State limit of 25 pounds per year.

- 6.1. Given the technical analysis provided above, will the DEP conclude that the Fiberight project in Hampden, without controls to reduce pollutant levels by 90%, is in violation of the statutory limit for the HAP mercury under 38 MRSA ¶ 585-B set at 25 pounds per year (ppy)?
 - 6.2. Can the applicant explain the confusing/inconsistent data presented in the various tables submitted in the original AEPA and the various supplements that have been provided to the Maine DEP?
 - 6.3. Can the applicant provide a comparative table explaining the differences between the emission factors presented in the various NHSM tables and the emission factors used in the HAPS calculation tables submitted in BACT tables in the original AEPA and the supplemental?
7. The focus in this section of the technical analysis of the CES/MRC/Fiberight air emissions permit application is on the various values used for "operational hours of the boilers" by the applicant. This phrase seem to be different from the "hours that the facility" may be operating. This section also identifies variations in the reported "heat input" figures for the boilers (mm Btu/hr), different manufacturer emission factors (AP - 42 1.4) used at various times, the continued reference in the latest BACT analysis text (46 page supplement of Dec 14, 2015) of the boilers being fed Post Hydrolysis Solids (PHS) and "shredded wood fines" and the continued reference to "A summary of expected emissions included in **Attachment B** of the license application." If they are referencing the June 15, 2015 Attachment B, we all know that has undergone repeated modification. (After one has completed their review of the discrepancies highlighted below, and the technical analysis and arguments/issues identified above by this reviewer, a completely new/final AEPA should be submitted to the public to correct the record by the applicant.)

Applicant's Information: In the June 15, 2015 AEPA, CES/the applicant's use numerous operational hours for the Hurst boilers in order to calculate the Potential to Emit (PTE) estimates that should also be consistent with and reflected in the Boiler Performance Summary (BPS) calculation pages for the boilers.

It would be beneficial to the general public and the reviewing agency to understand the operational aspects of the two close-coupled gasifier/boilers manufactured by Hurst Boilers, Inc. that "will be used to produce steam for process and building heat and for power generation by steam turbines". (page 3 - Dec. 14, 2015 Boiler BAT Analysis Rev. 4). It appears that the applicant does not plan on providing all the energy demand for the plant, all the time from these two boilers. Fiberight has previously reported to the Maine DEP that "The amount of electricity and heat energy generated by the biomass combustion is sufficient to provide the energy demand for the plant" (See Appendix A page 7 - of "Fiberight Process Description", Memo to Karen Knuuti, Maine DEP Regional Office, from Municipal Review Committee,

September 26, 2014) and previously reviewed and highlighted included in the Town of Orrington report of October 27, 2015 on the University of Maine Forest Bioproducts Research Institute (FBRI) report on Fiberight.

Technical Review: Without a clear statement from the applicant or a specific permit condition from the Maine DEP limiting the boilers operating hours, the basis for calculating the Potential to Emit of various air pollutants should be based on the total hours available to operate the boilers in a year (8,760). Looking at the information provided in the June 2015 AEPA, CES starts with boiler operational projections for the Post Hydrolysis Solids and wood (initially) fed into the 2 Hurst gasifier boilers, with 35 days of downtime. It is not known what provisions they have, if any for steam/power/heating etc. for those down days, since no electrical supply/energy balance data has been provided by the applicants despite many requests for such data from this technical reviewer and other parties.

If we again look at the critical air pollutant, carbon monoxide that was first discussed in section 2 above and completely ignore the technical arguments that were presented to justify use of an emission factor 2.73 higher than CES used, we are left with a PTE level in June starting at 41.91 TPY per boiler. The other quantity from the remaining source of CO was listed as 0.19 TPY from the Flare unit for a total of 84 TPY of CO. As the DEP review process continued, the applicant was required to better define its emission sources/quantities under upset conditions, or to upgrade the Best Available Control Technology (BACT) to address regulatory concerns. A thermal oxidizer hybrid system (TOx) was added and the applicant stated that it would no longer be burning wood waste with the Post Hydrolysis Solids in the gasifier (presumably since it would make the boiler subject to Commercial and Industrial Solid Waste Incineration (CISWI) regulations.

Each new supplemental report published on the DEP website included revisions to the PTE and BPS calculations and resulted in increased annual total CO levels, increasing to 92.9 Tons Per Year (TPY) after the shredded waste wood component fed to the gasifier was dropped in mid-November. By the time the December 1, 2015 supplement was posted on the DEP website, CES had increased the boiler uptime to the maximum of 8,760 hours, as listed in the PTE calculation sheets for each boiler (See Deliverable 4, 2015), which, in my view is consistent with the intent of calculating the maximum potential to emit. The applicant had to again adjust emissions from the gas flares/TOx hybrid for the Anaerobic Digester operation between Dec 1, 2015 and Dec 14, 2015. The projected Flare emissions of CO shot up from 0.09 TPY to 6.91 TPY, and the Total CO emissions would have exceeded 100 TPY if the Boiler operational hours remained at the total number of available hours in a year. As a result, it appear that CES was forced to change/cut each boiler operational period from the maximum available hours in a year by 5%, and to switch fuels to natural gas only to keep the annual CO emission limit under 100 tons.

Summary tables of the various "operational hour" figures used from the original AELA submittal through to the numerous revisions that were presented on the DEP website supplements follow:

Table 1.1: Boiler Operational Hours in PTE vs. BPS Calculation Sheets

June 15, 2015 – Attach. B	PTE Boilers 7,920 hours (330 days) (No BPS provided)
Sept. 21, 2015 – Rev. 1	PTE Boilers: 7,920 hrs vs. BPS: 7,884 hours (328.5 days)
Nov. 11, 2015 – Rev. 2*	PTE Boilers: 8,760 hrs vs. BPS: 7,920 hours (330 days)
Dec 1, 2015 Deliverable 4 & 5	PTE Boilers: 8,760 hrs vs. BPS: 7,920 hours (" ")
Dec 14, 2015 – PTE Boiler 4:	8,322 hrs (346.8 days) (5% reduction in Boiler operational
hours)c.14, 2015 – BACT Rev 2	Implied 8,322 hrs, but no BPS calculation page provided.

The impact on the CO emission levels for the PTE and BPS calculation sheets are as follows, as best as one can determine with the numbers supplied (includes the variations in boiler energy input heat and manufacturers emission factors, referenced above and in the text that follows Table 1.2).

It is difficult if not nearly impossible to keep track of what operational hour figures are being used to calculate the potential to emit (PTE) values based on the various hours presented in boiler performance summaries that are the basis for the maximum PTE tables. There are no BPS calculation pages that support the 44.75 TPY CO limit for the Hurst boilers; simply a few pages in the supplemental information contained in PTE Boiler 4.pdf posted on the Maine DEP website of December 14, 2015.

There are even variations in the heat input figures for the boilers themselves (variously reported as 48.86 mm BTU/hr in the BPS pages and 48.11 mm BTU/hr in the PTE sheets of original AELA, Deliverable 4, Supplement , PTE Boiler 4 (Dec. 14, 2015). There are also examples in the permit application and the supplemental where different manufacturer emission factors are used! (See discussion that follows).

Table 1.2: Carbon Monoxide Levels in PTE vs. BPS Calculations

Date	Boiler -each PTE CO (TPY each)	PTE - Flare CO (TPY)	PTE CO Total (TPY)	Boiler-each BPS CO
June 15, 2015	41.91	0.19	84.0	NA
Sept. 21, 2015	Not Avail.(NA)	NI	NI	42.40
Nov. 11, 2015	NA	NI	NI	42.56
Dec 1, 2015	46.40	0.09	92.9	42.56
Dec 14, 2015	44.78	6.91	99.4*	44.75+
PTE at max. annual hours	47.13	6.91	104.07*	NA

Key: * with TOx emission of 2.90 TPY + = can't verify origin

As well as varying the hours, CES has also varied the Carbon Monoxide "emission factor provided by the manufacturer (AP-42 1.6)" between 10.58 lb/hr, 10.75 lb/hr on the PTE tables and 10.76 lb/hr in the BPS forms. This is important given how close the applicant is to exceeding their own calculated annual maximums.

The bottom section of Table 1.2 shows the total CO emissions if one uses the full year operating hours of 8,760 and the highest reported CO emission factor (10.76 TPY). For a single gasifier burning PHS, one gets 47.13 TPY per boiler or 94.26 TPY for both. Along with the latest values for the flare (6.91 TPY) and for the Thermal Oxidation Hybrid unit (2.90 TPY), the total PTE would be **104.07 TPY** for carbon monoxide. This exceeds the 100 TPY limit by 4.07 TPY and thus the Hampden facility, using the numbers supplied by the applicant, but CORRECTED to reflect the proper numbers, again becomes a Major Source project under Maine's Part 115 regulations for new sources.

There are even variations in the heat input figures for the boilers themselves (variously reported as 48.86 mm BTU/hr in the BPS pages and 48.11 mm BTU/hr in the PTE sheets of original AELA, Deliverable 4, Supplement, PTE Boiler 4 (Dec. 14, 2015). There are also examples in the permit application and the supplemental where different manufacturer emission factors are used! (See earlier discussion).

7.1 Does the Maine DEP recognize all of the various errors and confusing figures that are in the public domain?

-
- 7.2 Given the technical review above, will the DEP require the applicant to resubmit a completely new/final AEPA with the accurate calculation sheets submitted, with the correct heat input numbers, the correct emission factors, and a clear statement of boiler operational hours so that a correct/understandable record is available to the public?
- 7.3 While one may conclude that these differences seem small and insignificant, they are not insignificant. Using the applicant's own figures, it is apparent that the potential to emit limit of 100 or more tons of CO will bring the project into the category of a Major Source of air pollutants. Does the Maine DEP conclude the same?

April 29, 2016

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Maine Department of Environmental Protection
Regulatory Assistance Small Business Ombudsman
17 State House Station
Augusta, Maine 04333-0017

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Re: Fiberight Projects Failure to Demonstrate Its Post Hydrolysis Solids is Eligible for Non-Waste Status at the Federal and State Level

This document is the fourth in the series of technical reviews of the information contained in the permit applications for the Fiberight, LLC and the Municipal Review Committee (MRC) for the proposed solid waste processing facility in Hampden. (Project number DEP# S-022458-WK-A-N).

The focus of this critical analysis is on the Fiberight projects failure to demonstrate its Post Hydrolysis Solids (PHS) is eligible for non-waste status, at either the federal or state level. CES failed to adequately make that case in its original Air Emission License/Permit Application that was initially submitted on June 15, 2015. They attempted to demonstrate eligibility by referencing the Federal EPA Non-hazardous Secondary Materials (NHSM) rule in 40 CFR Part 241, which allows certain "solid wastes" that are Resource Recovery and Conservation Act (RCRA) non-hazardous materials to be managed as "fuels" under certain conditions (legitimacy criteria 40 CFR 241.3 et. seq.).

I have had first hand, technical experience in producing PHS via enzymatic hydrolysis in a laboratory environment and at a semi-production mill level at the former Old Town Fuel and Fiber (OTFF) hardwood pulp mill operation in Old Town, Maine. We used the very same enzyme (Novozymes Company C-Tec 3) on washed, clean cellulose fibers generated from hardwood trees (birch, maple, poplar, etc.) and produced sugars and a very, small particle sized, amorphous liquefied material/by-product of that operation. Fiberight utilizes the same enzyme for hydrolysis to sugars of their old, recovered, used, short paper fines recovered from municipal solid waste (MSW). The result is a highly contaminated (as their own test numbers show), very fine particle, amorphous, liquefied material/by-product they call Post Hydrolysis Solids. This material does not, in my understanding, satisfy the NHSM requirements.

Applicant's Position: CES has, on behalf of the applicant repeatedly adhered to their position that:

- 1) "technical data" for a mothballed project in Iowa (EPA Region 7) as it pertains to whether "fermentate" fed to boilers
- 2) was the same as "wood",

3) indicated PHS material is not deemed a "solid waste", but simply a secondary material fuel derived from MSW,

4) boilers combusting the PHS is therefore exempt from designation/consideration/regulation under the more stringent Commercial Industrial Solid Waste Incinerator (CISWI) facility rules,

5) all the previously cited positions are not only accurate, but now also apply to a different project (no production of ethanol and no commercial sale of post hydrolysis solids as proposed in Iowa), in a different state (now in Maine) and under a different federal environmental permitting jurisdiction (EPA Region 1) and, finally,

6) Fiberight is therefore not subject to any other Maine rules or regulations regarding their PHS material. In all my years of involvement in technical projects, I have never witnessed such a convoluted string of "if this, then this, than this".

Technical Response: Just recently on February 8, 2016, the EPA issued its final NHSM rules. The EPA determined that "Paper recycling residuals (PRR) generated from the recycling of recovered paper, paperboard, and corrugated container and combusted by paper recycling mills whose boilers are designed to burn solid fuels" is not a solid waste under RCRA, and is not required to meet the Clean Air Act (CAA Section 129 emission standards for the incineration units. (Final Rule: Additions to List of Categorical Non-Waste Fuels Docket # EPA-HQ-RCRA-2013-0110). One would think Fiberight would want to embrace and offer as "proof" that their PHS fuel is not a "solid waste". Of course, Fiberight is not a paper recycling mill, but a MSW processing facility and CES has not presented a valid argument that PHS is NOT a "solid waste".

Without getting too deep into the technical weeds, **let me provide the technical basis for why PHS is not the same as wood as Fiberight has previously claimed, and should therefore be treated as solid waste unless and until emission factors are provided that support their position that this is a fuel.** The main components of tree wood and higher plants, grasses, straw, grains, etc. are cellulose, hemicelluloses, lignin and extractives. The carbohydrate polymers of cellulose and hemicelluloses are polysaccharides that can be hydrolyzed into sugars. Lignin can be considered as the "glue" that helps hold the (hemi) cellulose fibers together in the original plant/tree. Cellulose is a long chain of many molecules and can be expressed by the chemical formula $(C_6H_{10}O_5)_n$, where n can be up to 10,000 units that are linked together. Chemical pulping, like OTFF used to do, removes the vast majority of hemicelluloses, lignin and the extractives leaving relatively long wood fibers of cellulose that can end up making a fairly strong sheet of finished paper. Newspaper fibers are made with cellulose fibers by a different pulp grinding process that can leave in a lot more of the lignin, hemicelluloses in the pulp used to make the newsprint, and the cellulose fibers are shorter/weaker.

The MSW that Fiberight will process into a wet pulp for enzymatic hydrolysis is going to have a mixture of the short and long cellulose fibers of various diameters and lengths. Whether long fibers like OTFF's or short fragments/fibers like Fiberight's pulp, the Novozymes enzyme breaks the cellulose chains into many individual, unstable, cellulose molecules. The exposed, molecular bonds are now available to link to the water molecule (H_2O), which makes a single glucose/sugar molecule with the formula $C_6H_{12}O_6$ (thus the term enzymatic hydrolysis). Even starting with OTFF's long, individual hardwood cellulose pulp, once the Novozymes enzyme sees the cellulose chains, a

very small particle sized, amorphous liquefied material/by-product is produced that has no similarity to the long woody cellulose pulp fibers before hydrolysis takes place.

Again, speaking from experience, one can hardly get a pinch of this PHS-like material that was produced at OTFF. We had great difficulty in screening, straining the PHS material. Even with centrifuging the PHS equivalent material, it was still 70-75% water and amorphous/hard to consolidate. Fiberight is using the enzyme for hydrolysis on old, recovered, used, short paper fines recovered from MSW and the PHS particle size is likely to be even smaller, amorphous and harder to consolidate than Old Town's.

PHS is clearly not at all like wood with its combination of cellulose, hemicelluloses, lignin and various extractives. It is of a completely different composition, chemical make-up, texture, filterability, handling capability, BTU content, particle size, etc. Unlike the OTFF woody hardwood cellulose pulp, the MSW derived cellulose pulp starts out highly contaminated with soluble and insoluble chemicals/compounds. These constituents in Fiberight's PHS will produce boiler stack emissions of various Hazardous Air Pollutants like Mercury, Hydrogen Chlorine, etc. (as found and reported by me in prior submittals on March 23 and April 19, 2016 using Fiberight's own test numbers). **What about the other potential chemical compounds such as Dioxins/Furans that have been detected in MSW in the past? Is Fiberight going to include a full complement of test results, including dioxin and furans, a full Toxic Characteristic Leaching Potential (TCLP) analysis of the dried solids or PHS ash from the Pilot Plant in Lawrenceville, Virginia?**

Applicant's Position: Fiberight initiated the EPA Region 7's NHSM process back in 2012 to obtain acknowledgement, approval or some sort of a "comfort letter" that would allow them to proclaim their PHS is a "non-waste". I have confirmed that they have taken the same approach for their other, comparable project, and according to EPA staff in Region 7 (Ms. Deborah Bredhoft) and EPA headquarters in Washington, DC (Mr. Jesse Miller), Fiberight has failed repeatedly to respond to their requests for additional information to satisfy the criteria that the PHS material achieve "non waste" fuel status. Despite this chronic failure to affirmatively demonstrate satisfaction of the NHSM standard, CES seems to be holding out hope that a retest, (based on their recent April 8th, 2016 PTE report) of the PHS sample material from the pilot plant in Virginia to analyze for concentrations of chemical contaminants and BTU content of biomass will help them. This entirely new basis will effectively invalidate their existing NHSM determination (probably moot given Fiberight's failure to respond to the EPA). It remains to be seen whether their new NHSM self-determination will provide sufficient information to allow that DEP Air Bureau to regulate the material as a fuel. This puts Fiberight back to square one for its Air Permit application and a portion of the Solid Waste Permit application.

Technical Response: It is disturbing that Fiberight has failed to respond to the Federal EPA. It is, perhaps, more disturbing to contemplate that their failure to respond is based on the fact that their data does not support their self-determination. There are criteria/requirements for qualifying their PHS under the NHSM regulations – these requirements are intended to protect the public health and the environment. Why is Fiberight not required to justify its self determination when it has been asked to do so by the EPA? It is apparent to me, based on the data and my experience, that their PHS does not qualify for "non-waste" status. Given the data, and the fact that Fiberight has not yet submitted anything justifying the treatment of the PHS as fuel, the

default position simply must be that the PHS should be deemed a solid waste for the purpose of federal air regulations. Further, an NHSM determination does not absolve Fiberight from compliance with the State of Maine requirements for solid waste – treatment of the PHS as fuel under the air statutes does not change the status of the material as solid waste under state laws. Therefore, regardless of the NHSM issue, Fiberight is required to obtain a determination that the PHS is being beneficially used as a fuel. Maine does have in its solid waste permitting program a Beneficial Use Determination (BUD) process. Why or how can the State somehow exempt Fiberight from those requirements?

I have some specific expertise in the area of what constitutes a beneficial use of paper mill residuals, predominately from recycled paper mills. In the fall of 1995, I completed a study of 56 paper mills for the New York State Energy Research and Development Authority (NYSERDA) and the New York State Department of Economic Development (NYDED). The title of the report was "Beneficial Uses of the Paper Mill Residuals for New York State's Recycled-Paper Mills." An excerpt of the abstract follows:

This report evaluates the New York paper mill industry in terms of the productive management and treatment of solid wastes. It identifies current efforts by recycling mills to beneficially use paper mill residuals (often called sludge) and suggests additional options that should be considered by the industry in general and individual mills in particular. It also examines the regulations and economics affecting the mills and suggests actions that could improve the industry's ability to convert wastes to value-added products... State agencies are urged to support these efforts, encourage the development and commercialization of new beneficial use technologies, and reduce regulatory barriers whenever possible".

That report played a role in the 56 paper mills in New York State receiving a more favorable reception when individual companies approached the Department of Environmental Conservation (the New York equivalent to the Maine Department of Environmental Protection) with requests that their residuals be considered as a beneficially reused material and not deemed a solid waste subject to more stringent regulation. A recent review on the DEP website shows 16 paper mills locations/facilities were granted BUD's for their residuals (short-paper fibers & sludges) and an additional 16 facilities are beneficially using those materials. Uses include topsoil, landfill cover, mulch, land application, insulation, soil conditioning, animal bedding, cat litter, worm bedding, a cement additive, building blocks and panels, and fuel. The single BUD for the dried papermill residuals used as a fuel is for a corrugated boxboard facility recovering energy directly from combusting the cellulose fiber, (not as a post hydrolysis solids as Fiberight is proposing).

It is interesting to note that the Federal NHSM Program recently (February 8, 2016) shifted towards a categorical approach with respect to recognition of recycled paper mill residuals being declared a non-hazardous, non-waste secondary material. I was recommending that the NYSDEC take that approach 21 years earlier with respect to the category of recycled paper mill residuals and the need for the regulators to support/utilize their existing beneficial use programs.

To reiterate what I stated earlier, Fiberight is NOT a paper recycling mill, but a MSW processing facility and I conclude that CES and Fiberight have not presented a valid argument or sufficient data that their PHS is not a "solid waste". I also believe that Fiberight is not exempt from Maine's BUD program. Even if the NHSM self-determination

were to stand without justification, the applicant must go through the state administered process of having a beneficial use determination made on the PHS solids that it proposes to burn as a fuel.

As with my March 23 & April 19, 2016 correspondence to the Department on the apparent violation of the Part 115 Air Permit submittals, and the complex positions/contortions/arguments to deny that the Hampden project is a "Major" polluter, the applicant continues to tell the public that their PHS is not a "solid waste" being incinerated in a boiler and that they have made the appropriate permit submittals. This is simply not true, and I have a real concern that the applicant is dodging its responsibility to provide data and otherwise appropriately respond to the regulators with the information they require to make their permitting decisions, so that the weaknesses in their proposal are not generally known until it recruits a sufficient number of communities to the detriment of those communities and the larger community of Maine.

Sincerely,

Keith A. Bowden

Keith A. Bowden