

|                                  |   |                       |
|----------------------------------|---|-----------------------|
| STATE OF CONNECTICUT             | ) | ORDER No. 2015001DEEP |
|                                  | ) |                       |
| vs.                              | ) |                       |
|                                  | ) |                       |
| PLAINFIELD RENEWABLE ENERGY, LLC | ) |                       |

### CONSENT ORDER

- A. With the agreement of Plainfield Renewable Energy, LLC ("Respondent"), the Commissioner of Energy and Environmental Protection ("Commissioner") finds the following:
1. The Respondent is a Connecticut limited liability company that owns property located at 12 Mill Brook Road, Plainfield, Connecticut shown on Map No. 10, Block No. 30 as Lot 32 in the Plainfield, Connecticut Tax Assessor's Office which is more fully described in Volume 444 at page 287 in the Land Records of the Town of Plainfield, Connecticut (the "Site").
  2. The Respondent constructed a 37.5 megawatt biomass-fired fluidized bed gasification power plant at the Site (the "Facility") and began commissioning and start-up on August 26, 2013 and began commercial operations on December 12, 2013. The Respondent is restricted to use of biomass and biodiesel as fuels for the fluidized bed gasification power plant. The power plant has the potential to emit nitrogen oxides ("NOx") and carbon monoxide ("CO") emissions greater than 50 tons per year.
  3. The Respondent maintains and operates the following associated process equipment: a material handling system, fluidized bed, staged gasification/boiler system, steam turbine, fire pump engine, emergency engine, and air pollution control equipment.
  4. Pursuant to Section 22a-174-3a of the Regulations of the Connecticut State Agencies (the "Regulations"), the Respondent operates the power plant and certain associated process equipment referenced in paragraphs A.2. and A.3. of this Consent Order pursuant to Operating Permit No. 145-0049 ("NSR Permit").
  5. Pursuant to Sections 22a-208a of the Connecticut General Statutes and 22a-209-4 of the Regulations, on June 12, 2009, the Commissioner issued Solid Waste Facility Permit No. 1090904-PCO to the Respondent, authorizing the operation of a biomass wood gasification plant at the Site ("Solid Waste Permit").

Date Issued: July 10, 2015

6. Because the Respondent's potential NOx and CO emissions are 50 tons or more per year, the Respondent is a Title V source as defined in Section 22a-174-33 of the Regulations. On June 24, 2014, the Respondent applied for a Title V Operating Permit within ninety (90) days of receipt of a written request from the Connecticut Department of Energy and Environmental Protection (the "Department"), pursuant to Section 22a-174-33(f) of the Regulations.

*Air Program Violations – failure to comply with Fuel Quality Protocol and NSR Permit*

7. Pursuant to Parts I.B. & VII.F of the NSR Permit, the Respondent shall comply with the "Biomass Wood Supply Quality Control Procedures" and the "Operating, Sampling & Testing Requirements Volume Reduction/Facilities Generating C&D Wood Chips for Delivery to PRE" documents dated January 18, 2008 ("Fuel Quality Protocol").
8. The Respondent shall accept only biomass that meets the fuel quality criteria set forth in the Fuel Quality Protocol. The Respondent submitted laboratory test results showing that the biomass composited as required by the Fuel Quality Protocol for the months of January, February and March 2014 exceeded the fuel quality criteria set forth in the Fuel Quality Protocol. Based on the laboratory test results dated February 28, 2014 and March 14, 2014, the biomass composited between the January 2014 and March 2014 time period had concentrations of arsenic that exceeded the 20 ppm limit, mercury that exceeded the 0.2 ppm limit, lead that exceeded the 250 ppm limit, titanium that exceeded the 300 ppm limit & non-wood materials that exceeded a 1% dry weight limit. As a result, the Respondent failed to comply with the fuel quality criteria set forth in the Fuel Quality Protocol and violated Parts I.B. & VII.F. of the NSR Permit.
9. Consequently, on June 2, 2014, the Department issued Notice of Violation #17202 for violations of Parts I.B. & VII.F. of the NSR Permit.
10. On March 4, 10, 11, 12 and 19, 2014, the Department conducted compliance inspections at the Facility and determined that the material storage building and the material handling system were not constructed in accordance with the NSR Permit. Additionally, the Department determined that the Respondent maintained and operated a 157 HP fire pump engine and a 150KW emergency engine that were not included in the NSR Permit application.
11. Pursuant to Subsections 22a-174-3a(j) and (k) of the Regulations, the Facility is subject to the implementation of Best Available Control Technology ("BACT") and the Prevention of Significant Deterioration ("PSD") because it is a new major stationary source with potential SOx, NOx, VOC, CO and PM-10 emissions above the significant emission rate thresholds contained in Table 3a(k)-1 of Subsection 22a-174-3a(k) of the Regulations.
12. On March 19, 2014, the Department inspected the Facility and determined that the premises' BACT and PSD evaluation failed to incorporate emissions from the sources referenced in paragraph A.10 of this Consent Order pursuant to Subsections 22a-174-3a(j) and (k) of the Regulations. As a result, the Department determined that the Respondent violated Subsections 22a-174-3a(j) and (k) of the Regulations.
13. Whereas, the Facility is a major stationary source of NOx emissions and the fire pump and emergency engine referenced in paragraph A.10. of this Consent Order have potential NOx emissions not accounted for

in the NSR Permit, the Respondent is required to reduce potential NOx emissions at the facility or obtain emission reduction credits as required by Subsection 22a-174-3a(l)(4) of the Regulations that equal the amount of potential emissions from the fire pump and emergency engine referenced in paragraph A.10 of this Consent Order.

14. On March 19, 2014, the Department inspected the facility and determined that the Respondent failed to purchase appropriate emission reduction credits to offset the potential emissions from the fire pump and emergency engine as required by Subsection 22a-174-3a(l)(4) of the Regulations. As a result, the Department determined that the Respondent violated Subsection 22a-174-3a(l)(4) of the Regulations.
15. Consequently, on June 2, 2014, the Department issued Notice of Violation #17199 for violations of Subsections 22a-174-3a(j), (k) and (l)(4) of the Regulations.
16. On August 29, 2014, the Respondent submitted supplemental BACT and LAER evaluations for the Department's review and approval.

*Air Program violations – failure to comply Section 22a-174-18 of the Regulations*

17. Pursuant to Subsections 22a-174-18(c)(1)(B) and (C) and 18(c)(2) of the Regulations, the Respondent shall take reasonable precautionary measures to prevent particulate matter from becoming airborne and crossing the Facility's property line.
18. On February 24, 2014, March 4 and 19, 2014 and April 2 and 22, 2014, the Department inspected the Facility and determined that particulate matter emanated from the Facility and crossed the Facility's property line. Specifically, the Department observed particulate matter emanating from the material handling system, material storage areas, ash handling area and the wood supplier unloading areas. As a result, the Department determined that the Respondent violated Subsections 22a-174-18(c)(1)(B) and (C) and 18(c)(2) of the Regulations.
19. Consequently, on May 28, 2014, the Department issued Notice of Violation #17200 for violations of Subsections 22a-174-18(c)(1)(B) and (C) and 18(c)(2) of the Regulations.
20. On February 4, 2015 and March 10, 2015, the Department inspected the Facility in response to public complaints of dust and odor and determined that particulate matter from the Respondent deposited off-site onto properties located on Norwich Road. The Department further determined the Respondent caused particulate matter to travel beyond the Facility's property line, at or near ground level, in violation of Subsection 22a-174-18(c)(2)(A) of the Regulations. The Department made Facility representatives aware of this at the time of inspection.

*Air Program Violations – failure to comply with NSR Permit's NOx emission limit.*

21. Pursuant to Part V. of the NSR Permit, the Respondent shall operate the fluidized bed while burning biodiesel fuel below the NOx emission limit of 16 pounds per hour.
22. Based on a review of the emissions test results obtained from the NOx emissions test that was conducted on April 21, 2014, the Respondent exceeded the permitted NOx emissions limit of 16 pounds per hour for

biodiesel fuel. Results from emissions testing on April 21, 2014, indicated that NOx emissions were 23.27 pounds per hour. As a result, the Department determined that the Respondent violated Part V. of the NSR Permit.

23. Pursuant to Part VI. of the NSR Permit, the initial performance test shall include the baseline operating parameters of all air pollution control equipment listed in Appendix E of the NSR Permit.
24. Based on a review of the results from the March 2014 and April 2014 emissions tests, the Department determined that the Respondent failed to monitor and record (i) the pressure drop across the multi-cyclone; (ii) the urea injection rate into the selective non-catalytic reduction; and (iii) the lime injection rate into the bed of the fluidizer. The Respondent's failure to monitor or record these operating parameters prohibits the Respondent from establishing a proper operating baseline for the associated pollution control equipment. Because the Respondent failed to obtain the operating parameters during the March 2014 and April 2014 tests, the Department determined that the Respondent violated Part VI. of the NSR Permit.
25. On January 20, 2015, the Department issued Notice of Violation #17505 to the Respondent for violations described in paragraphs A.21. - A.24. of this Consent Order.
26. By virtue of the above, the Respondent has violated Parts I.B., V., VI., VII.F. & VIII.G. of the NSR Permit and Subsections 22a-174-3a(j), (k) and (l)(4) and 22a-174-18(c) of the Regulations.
27. In response to the violations referenced in paragraphs A.7. - A.9. and A.26. of this Consent Order, the Respondent submitted a revised Fuel Quality Protocol dated September 5, 2014 for the Commissioner's review and written approval.
28. In response to the violations referenced in paragraphs A.17. - A.19. and A.26. of this Consent Order, the Respondent implemented dust control measures. The Department determined during the February 4, 2015 and March 10, 2015 inspections that the Respondent had not demonstrated compliance with Subsections 22a-174-18(c)(1)(B) and (C) and (c)(2) of the Regulations.
29. In response to the violations referenced in paragraphs A.21. , A.22 and A.25. of this Consent Order, the Respondent submitted a report of the transient emission data dated February 26, 2015 for the Department's review and approval.
30. In response to the violations referenced in paragraphs A.23. - A.26. of this Consent Order, the Respondent submitted a compliance document dated February 19, 2015 for the Department's review and approval.

#### *Solid Waste Program Violations*

31. On March 4, 2014, the Department's Bureau of Materials Management and Compliance Assurance, Waste Engineering and Enforcement Division ("WEED") staff conducted an inspection of the Facility. Based on that inspection and subsequent file review, the Department found that the Respondent:
  - a. On several occasions, failed to follow the Respondent's fuel supplier pre-qualification procedures by accepting wood fuel derived from construction and demolition waste materials and/or clean/recyclable wood which exceeded the acceptable limits as required by Subsection

22a-209-4(e) of the Regulations and the Solid Waste Permit, paragraphs no. A.2, A.4., A.9., and C.2.;

b. On several occasions, failed to timely report to the Department, after receiving notification, that the Respondent's approved wood fuel supplier's quarterly composite sample laboratory analytical results had exceeded the acceptance limits as required by Subsection 22a-209-4(e) of the Regulations and, permit to Construct and Operate No. 1090904-PCO, paragraphs no. A.2, A.4., A.9., and C.2.; and

c. On several occasions, failed to ensure that the Respondent's approved wood fuel suppliers are collecting weekly samples of their sorted and chipped wood fuel for quarterly composite sampling and analysis as required by Subsection 22a-209-4(e) of the Regulations and, permit to Construct and Operate No. 1090904-PCO, paragraphs no. A.2, A.4., A.9., and C.2..

32. On June 19, 2014, WEED issued Notice of Violation No. WSWDS14037 for the violation cited in paragraph A.31.a. of this Consent Order.

33. On June 25, 2014, WEED issued Notices of Violation No. WSWDS14039 and No. WSWDS14040 for the violations cited in paragraphs A.31.b. and A.31.c. of this Consent Order, respectively.

34. On July 23 and July 25, 2014, the Respondent submitted three (3) documents to the Department in response to the Notices of Violation identified in paragraphs A.32. and A.33. of this Consent Order.

35. On September 5, 2014, the Respondent submitted a revised Fuel Quality Protocol in accordance with the Department's direction and the Solid Waste Permit.

36. By virtue of the above, Respondent has violated the Solid Waste Permit and Section 22a-209-4 of the Regulations.

37. By agreeing to the issuance of this Consent Order, the Respondent admits no liability for the matters addressed herein, and makes no admission of fact or law with respect to the matters addressed herein, including the specific allegations set forth above, other than the facts asserted in paragraphs A.1. through A.6.

B. With the agreement of the Respondent, the Commissioner, acting under §§22a-6, 22a-171, 22a-174, 22a-177, 22a-178, 22a-208, and 22a-225 of the Connecticut General Statutes orders the Respondent as follows:

1. Within sixty (60) days after issuance of this Consent Order, the Respondent shall submit to the Department an NSR permit modification application to address the violations described in paragraphs A.8. - A.10., A.12. - A.15., A.18. - A.20. and A.23. - A.26. of this Consent Order (the "NSR Permit Modification").

2. Unless another time frame is specified or agreed to in writing by the Department, within ten (10) days of the Respondent's receipt of a written request from the Commissioner for information necessary for the Commissioner's review and written approval of the NSR Permit Modification, the Respondent shall provide such requested information to the Department.
3. Within sixty (60) days after issuance of this Consent Order, the Respondent shall submit for the Commissioner's review and written approval a compliance plan and time schedule to correct the violations referenced in paragraphs A.21., A.22. and A.25. of this Consent Order.
4. Within sixty (60) days after issuance of this Consent Order, the Respondent shall submit for the Commissioner's review and written approval a dust mitigation plan and schedule to address the violations referenced in paragraphs A.18. - A.20. of this Consent Order.
  - a. Upon receipt of the Commissioner's approval of the dust mitigation plan and schedule, the Respondent shall comply with the approved dust mitigation plan and schedule.
  - b. Until the Respondent's corrective actions result in the prevention and abatement of the violations referenced in paragraphs A.18. - A.20. of this Consent Order to the Commissioner's satisfaction, the Respondent shall submit a written supplemental plan and schedule for the implementation of additional corrective action. The Respondent shall submit the plan and schedule within thirty (30) days of receipt of written notice from the Commissioner that additional corrective action is required. The plan and schedule shall be subject to the Commissioner's review and written approval and/or amendment. The Respondent shall complete all additional corrective actions according to the schedule approved by the Commissioner.
5. Emissions testing. On or before December 31, 2015, the Respondent shall perform an air emissions test pursuant to Part VI. of the NSR Permit and submit approvable results representative of the actual emissions of hazardous air pollutants listed in Part V. of the NSR Permit.

Respondent shall submit to the Commissioner for review and written approval an Intent To Test ("ITT") protocol prior to conducting such emissions testing. The ITT protocol shall include at least:

- a. The Department's Bureau of Air Management Test Form No. 1, "Intent to Test";
- b. A detailed description of all aspects of facility operations (e.g., type and quantity of raw materials utilized) and of any air pollutant control equipment in use which may affect emissions testing results, and how and when such information will be monitored;
- c. A detailed description of each emissions testing methodology to be utilized, provided that all such methodologies shall conform to those approved by the U.S. Environmental Protection Agency and the Commissioner; and
- d. A description of each discharge point at which emissions testing is to be conducted.

6. Respondent shall comply with the amended Fuel Quality Protocol (the "Amended Fuel Quality Protocol") attached hereto as Attachment "A".
7. Recycling Audit: Respondent shall conduct a comprehensive recycling review of their offices to evaluate compliance with Connecticut's recycling laws set forth in Section 22a-241b(d) of the Connecticut General Statutes.
  - a. On or before ninety (90) days after the issuance of this Consent Order, the Respondent shall submit for the Department's review and the Commissioner's written approval a business recycling profile documenting the management of recyclable materials. An example profile is included as Attachment "B" to this Consent Order.
8. Status of Notice of Violation No. WSWDS14037. This Consent Order supersedes Notice of Violation No. WSWDS14037.
9. Status of Notice of Violation No. WSWDS14039. This Consent Order supersedes Notice of Violation No. WSWDS14039.
10. Status of Notice of Violation No. WSWDS14040. This Consent Order supersedes Notice of Violation No. WSWDS14040.
11. Status of Notice of Violation No. 17199. This Consent Order supersedes Notice of Violation No. 17199.
12. Status of Notice of Violation No. 17200. This Consent Order supersedes Notice of Violation No. 17200.
13. Status of Notice of Violation No. 17202. This Consent Order supersedes Notice of Violation No. 17202.
14. Status of Notice of Violation No. 17505. This Consent Order supersedes Notice of Violation No. 17505.
15. Civil Penalties. Civil penalties for violations identified in this Consent Order are not being assessed in this Consent Order. The Commissioner reserves the right to assess civil penalties for these violations as authorized by law.
16. Full compliance. Respondent shall not be considered in full compliance with this Consent Order until all actions required by this Consent Order have been completed as approved and to the Commissioner's satisfaction. The Commissioner agrees to provide the Respondent with a copy of the certificate of compliance issued pursuant to Sections 22a-225(e) and 22a-178(g) of the Connecticut General Statutes, or other written confirmation of the Respondent's compliance with the Consent Order when the Commissioner deems that the Respondent has completed its obligations under the Consent Order.
17. Approvals. Respondent shall use best efforts to submit to the Commissioner all documents required by this Consent Order in a complete and approvable form. If the Commissioner notifies Respondent that any document or other action is deficient, and does not approve it with conditions or modifications, it is

deemed disapproved, and Respondent shall correct the deficiencies and resubmit it within the time specified by the Commissioner or, if no time is specified by the Commissioner, within 30 days of the Commissioner's notice of deficiencies. In approving any document or other action under this Consent Order, the Commissioner may approve the document or other action as submitted or performed or with such conditions or modifications as the Commissioner deems necessary to carry out the purposes of this Consent Order. Nothing in this paragraph shall excuse noncompliance or delay.

18. Definitions. As used in this Consent Order, "Commissioner" means the Commissioner or a representative of the Commissioner.
19. Dates. The date of "issuance" of this Consent Order is the date the Consent Order is deposited in the U.S. mail or personally delivered, whichever is earlier. The date of submission to the Commissioner of any document required by this Consent Order shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this Consent Order, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is deposited in the U.S. mail or is personally delivered, whichever is earlier. Except as otherwise specified in this Consent Order, the word "day" as used in this Consent Order means calendar day. Any document or action which is required by this Consent Order to be submitted or performed by a date which falls on a Saturday, Sunday or a Connecticut or federal holiday shall be submitted or performed by the next day which is not a Saturday, Sunday or Connecticut or federal holiday.
20. Certification of documents. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this Consent Order shall be signed by Respondent or, if Respondent is not an individual, by Respondent's chief executive officer or a duly authorized representative of such officer, as those terms are defined in §22a-430-3(b)(2) of the Regulations of Connecticut State Agencies, and by the individual(s) responsible for actually preparing such document, and Respondent or Respondent's chief executive officer and each such individual shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law."
21. Noncompliance. This Consent Order is a final order of the Commissioner with respect to the matters addressed herein, and is nonappealable and immediately enforceable. Failure to comply with this Consent Order may subject Respondent to an injunction and penalties.
22. False Statements. Any false statement in any information submitted pursuant to this Consent Order may be punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.
23. Notice of transfer; liability of Respondent. Until Respondent has fully complied with this Consent Order,



Respondent shall notify the Commissioner in writing no later than 15 days after transferring all or any portion of the Facility, the operations, the Site or the business which is the subject of this Consent Order or after obtaining a new mailing or location address. Respondent's obligations under this Consent Order shall not be affected by the passage of title to any property to any other person or municipality.

24. Commissioner's powers. Except as provided hereinabove with respect to payment of civil penalties, nothing in this Consent Order shall affect the Commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for past, present, or future violations of law. If at any time the Commissioner determines that the actions taken by Respondent pursuant to this Consent Order have not successfully corrected all violations, fully characterized the extent or degree of any pollution, or successfully abated or prevented pollution, the Commissioner may institute any proceeding to require Respondent to undertake further investigation or further action to prevent or abate violations or pollution.
25. Respondent's obligations under law. Nothing in this Consent Order shall relieve Respondent of other obligations under applicable federal, state and local law.
26. No assurance by Commissioner. No provision of this Consent Order and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by Respondent pursuant to this Consent Order will result in compliance.
27. Access to site. Any representative of the Department of Energy and Environmental Protection may enter the Facility without prior notice for the purposes of monitoring and enforcing the actions required or allowed by this Consent Order.
28. No effect on rights of other persons. This Consent Order neither creates nor affects any rights of persons or municipalities that are not parties to this Consent Order.
29. Notice to Commissioner of changes. Within 15 days of the date Respondent becomes aware of a change in any information submitted to the Commissioner under this Consent Order, or that any such information was inaccurate or misleading or that any relevant information was omitted, Respondent shall submit the correct or omitted information to the Commissioner.
30. Notification of noncompliance. In the event that Respondent becomes aware that it did not or may not comply, or did not or may not comply on time, with any requirement of this Consent Order or of any document required hereunder, Respondent shall immediately notify by telephone the individual identified in the next paragraph and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. Within five (5) days of the initial notice, Respondent shall submit in writing the date, time, and duration of the noncompliance and the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and Respondent shall comply with any dates which may be approved in writing by the Commissioner. Notification by Respondent shall not excuse noncompliance or delay, and the Commissioner's approval of any compliance dates proposed shall not excuse noncompliance or delay unless specifically so stated by the Commissioner in writing.

31. Submission of documents. Any document required to be submitted to the Commissioner under this Consent Order shall, unless otherwise specified in writing by the Commissioner, be directed to:

Mr. Seng Phouthakoun  
Department of Energy and Environmental Protection  
Bureau of Air Management  
Engineering & Enforcement Division  
79 Elm Street  
Hartford, Connecticut 06106-5127

Mr. Stan Gormley  
Department of Energy and Environmental Protection  
Bureau of Materials Management & Compliance Assurance  
Engineering & Enforcement Division  
79 Elm Street  
Hartford, Connecticut 06106-5127

Respondent consents to the issuance of this Consent Order without further notice. The undersigned certifies that he/she is fully authorized to enter into this Consent Order and to legally bind the Respondent to the terms and conditions of the Consent Order.

Plainfield Renewable Energy, LLC

Signature: \_\_\_\_\_

*Scott T. McKillip*

Type Name: Scott T. McKillip

Type Title: President

Date: July 6, 2015

Issued as a final order of the Commissioner of the Department of Energy and Environmental Protection.

*Michael J. Sullivan*

Michael J. Sullivan  
Deputy Commissioner  
Department of Energy and Environmental Protection

*July 10, 2015*

\_\_\_\_\_  
Date

TOWN OF PLAINFIELD

LAND RECORDS

MAILED CERTIFIED MAIL,

RETURN RECEIPT REQUESTED

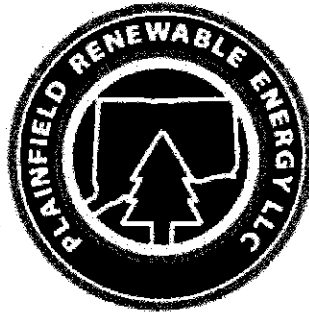
Certified Document No. 94 148 10200829668595063

Attachment A

Fuel Quality Control Plan

# **Biomass Wood Supply Quality Control Protocol**

## **Plainfield Renewable Energy LLC**



January 18, 2008  
Updated November 30, 2009  
Updated October 11, 2013  
Updated June 2, 2015

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## 1. Introduction

Plainfield Renewable Energy LLC ("PRE") owns and operates a 37.5 MW (net) biomass fluidized bed gasification power plant in Plainfield, CT. The Connecticut Department of Energy and Environmental Protection ("CTDEEP") issued to PRE its original Permit to Construct and Operate (PCO-1090904 or a subsequent replacement permit, hereinafter the "Permit") two (2) operational units on June 12, 2009: (1) a volume reduction plant and (2) a power block facility. Construction was completed in 2013. This document outlines PRE's multi-level fuel quality management plan to monitor, control, and report upon fuel quality and suppliers for the facility (the "Protocol"). This approach is detailed in the following sections and summarized as follows:

1. PRE will pre-qualify each supplier of biomass ("Wood Fuel") before accepting deliveries. The applicable pre-qualification approach is a function of the type of Wood Fuel to be produced by each supplier (see Table 1 below), taking into consideration issues of concern that may apply to each;
2. Each facility that produces qualifying Wood Fuel derived from construction and demolition debris ("C&D") must also comply with the requirements of "Exhibit 1: Operating, Requirements; Volume Reduction / Facilities Producing Regulated Wood Fuel For Delivery to PRE";
3. PRE will conduct on-going monitoring of Wood Fuel quality from each Regulated Wood Fuel Producer and of Wood Fuel processed at the facility.

## 2. Definitions

**As-Fired Fuel:** As-Fired Fuel for this Protocol means the Wood Fuel blend that is being actively fed to the gasification unit with the facility's conveyor system.

**Acceptance Limit:** Is the concentration value of a particular chemical constituent identified in Table 2 of this document.

**Clean Wood:** Clean Wood [as defined in Section 22a-208a-1 of RCSA] means any wood which is derived from such products as pallets, skids, spools, packaging materials, bulky wood waste, or scraps from newly built wood products, provided such wood is not treated wood as defined in section 22a-209a of the General Statutes, or demolition wood.

**Clean/Recycled Wood:** Clean Wood or Recycled Wood (hereinafter "Clean/Recycled Wood") as used herein means any Clean Wood, Recycled Wood, or combination thereof.

**Land Clearing Debris:** Land Clearing Debris means trees, stumps, branches, or other wood generated from clearing land for commercial or residential development, road construction, routine landscaping, agricultural land clearing, storms, or natural disasters.

**Other Clean Wood:** other types of properly sized, clean, uncontaminated wood materials, such as sawdust, chips, bark, tree trimmings or other similar materials.

**Prohibited Items:** Prohibited Items covered in PRE's fuel specification include those materials prohibited by the definition of Regulated Wood Fuel. Examples of prohibited items include plastics, plaster, gypsum, asbestos, asphalt shingles, Treated Wood, and glass.

**Recycled Wood:** Recycled Wood means any wood or wood fuel which is derived from such products or processes as pallets, skids, spools, packaging materials, bulky wood waste or scraps from newly built wood products, provided such wood is not treated wood.

**Regulated Wood Fuel:** Regulated Wood Fuel [as defined in Section 22a-209a(a)(4) of CGS] means processed wood from construction and demolition activities, which has been sorted to remove plastics, plaster, gypsum wallboard, asbestos, asphalt shingles and wood which contains creosote or to which pesticides have been applied or which contains substances defined as hazardous waste under CGS Section 22a-115.

**Regulated Wood Fuel Producers:** Regulated Wood Fuel Producers are suppliers that process construction and demolition materials to produce acceptable Regulated Wood Fuel meeting PRE's specifications as detailed in this document and Exhibit 1.

**Residue:** Residue means all solid waste (as defined in Section 22a-207 of CGS), other than any recovered materials, remaining after handling and processing of the incoming waste stream.

**Treated Wood:** Treated Wood [as defined in Section 22a-209a(a)(2) of CGS], means wood which contains an adhesive, paint, stain, fire retardant, pesticide or preservative.

**Wood Fuel:** Wood Fuel means ground wood pre-processed to the PRE specifications which can include either: (a) Clean/Recycled wood, Land Clearing Debris, Other Clean Wood; (b) Regulated Wood Fuel; or (c) a mixture of the foregoing.

**Wood Fuel Monitor:** The individual engaged by PRE and approved by CTDEEP pursuant to the Permit.

**Wood Fuel Deviation:** A Wood Fuel Deviation includes any of the following conditions:

- If at any time the applicable statistical rolling average for any Regulated Wood Fuel Producer or the as-fired Wood Fuel is determined to exceed the Acceptance Limit for one or more constituents;
- If at any time a Wood Fuel sample is determined to exceed twice the Acceptance Limit using the methods outlined in Section 6 for one or more constituents;

No laboratory result showing a Wood Fuel Deviation or an exceedance of any Acceptance Limit shall be considered a violation, provided PRE complies with its notification and corrective action response obligations as outlined herein.

### 3. Summary of PRE Wood Fuel Streams

The following are Wood Fuel types received at the facility:



**Table 1: Wood Fuel Streams**

| <b>Wood Fuel Type</b>       | <b>Description/Example</b>  |
|-----------------------------|---|
| <b>Land Clearing Debris</b> | chipped trees, stumps, branches or brush  |
| <b>Clean/Recycled Wood</b>  | chipped pallets, skids, spools, packaging materials, bulky wood waste or scraps from newly built wood products                                |
| <b>Regulated Wood Fuel</b>  | processed and chipped wood recovered from construction and demolition materials   |
| <b>Other Clean Wood</b>     | other types of properly sized, clean, uncontaminated wood materials, such as sawdust, chips, bark, tree trimmings or other similar materials. |

#### 4. PRE Fuel Supplier Pre-Qualification Procedures

PRE will follow a defined fuel supplier pre-qualification process, as applicable to each of the various types of Wood Fuel that are identified in Table 1 above and which are to be delivered by potential suppliers. PRE may elect to reach agreement upon commercial terms and enter into fuel supply agreements with suppliers prior to and subject to successful completion of the PRE supplier pre-qualification procedures. However, the pre-qualification procedures specified below will be followed prior to PRE's receipt of Wood Fuel at the facility from each supplier.

##### **A. Source: Land Clearing Debris and/or Other Clean Wood**

Suppliers of this category of Wood Fuel are expected to be comprised of parties such as:

- Municipal Operations (Public Works Operations, Parks Departments & Residents);
- Regional/State Agencies & Authorities;
- Tree Trimming/Utility Services;
- Developers and Land clearing Contractors; and,
- Forestry Management Professionals.

It is expected that most suppliers in this category of Wood Fuel will not have permitted volume reduction or recycling facilities and Wood Fuel may often not be generated at fixed locations, but produced at the location where the wood is harvested.

If a fixed facility location is involved, PRE will visit the site and inspect the nature of the operation and type of materials being handled. For all suppliers, PRE will discuss the following items, which will be incorporated into contract arrangements as appropriate with the potential supplier:

- Source of Wood Fuel
- How wood is stored, if at all, prior to processing(chipping) and delivery to PRE
- Method used to size reduce wood to meet PRE's specifications
- Review of PRE's list of Prohibited Items
- Implementation of a fuel supply agreement that identifies the type of Wood Fuel eligible for delivery by the supplier; and,
- Provided the potential supplier, its wood source and method of operations all comply with the above provisions, it will be allowed to commence deliveries.

## **B. Source: Clean/Recycled Wood**

Suppliers of this wood fuel category are comprised of parties such as:

- Utilities and utility contractors;
- Wood products manufacturers; and,
- Municipal and private entities holding individual and general permits (permittees) for facilities such as transfer stations, Volume Reduction Facilities ("VRFs"), and similar facilities.

The majority of Clean/Recycled Wood suppliers operate at fixed locations. Further, some but not all of the suppliers will be permittees of solid waste facilities approved by the CTDEEP or another state. PRE's prequalification process for these potential suppliers is as follows:

- 1) The supplier will provide PRE with a written description of its wood stream, wood screening, wood handling and management operations;
- 2) Copies of solid waste permits, registrations, and related documents including O&M plans will be provided to PRE for its review;
- 3) Copies of any enforcement actions and compliance audits/inspections within the most recent five (5) years and related response and resolution materials.
- 4) The PRE Wood Fuel Monitor will visit the potential Wood Fuel supplier during the pre-qualification stage. Each such visit shall include an inspection of the processing system and sampling of Wood Fuel proposed to be delivered to PRE's facility and shall be conducted to ensure that:
  - a) Each sample collected is representative of the Wood Fuel that the supplier is proposing to deliver to PRE; and,
  - b) A minimum of three samples are taken from wood originating from a different source or geographic origin as audited by the PRE Wood Fuel Monitor.  
Demonstration of separate sources may include information such as interviews of supplier representatives, direct observations of truck deliveries to the supplier facility, and/or review of scale/origin records at the Clean/Recycled Wood supplier's facility. Such reviewed delivery records may be considered confidential by the PRE Wood Fuel Monitor and for his/her use only, and not distributed to other parties. If the PRE Wood Fuel Monitor cannot reasonably audit the source data on a best efforts basis, then such samples shall be collected either on separate visits or otherwise to properly characterize variability and consistency in the Wood Fuel produced at the candidate supplier's location. The PRE Wood Fuel Monitor shall explain the basis for such determination. Each sample so collected shall be submitted by the PRE Wood Fuel Monitor for analysis as specified below under Table 2; and,
- 5) PRE may implement a fuel supply agreement that identifies the type of Wood Fuel eligible for delivery by the supplier including delineation of Prohibited Items, and the party will be allowed to commence deliveries provided that:
  - a) The laboratory results from the samples taken during the Wood Fuel Monitor's visit in B.4) above, confirm the Clean/Recycled Wood Fuel meets the Acceptance limits in Table 2 (i.e., the average concentration of each parameter is less than or equal to the subject Acceptance Limit) and is consistent with Clean/Recycled Wood;
  - b) PRE and the Wood Fuel Monitor are satisfied that the prospective supplier's facility and process are deemed capable of providing compliant Wood Fuel on an on-going basis; and,

- c) The review of the supplier's compliance record as applicable to matters related to production of acceptable Wood Fuel supports allowing PRE to implement a fuel supply agreement with the party. Where no record of compliance audits or inspections (such as out-of-state facilities or facilities with a general permit) is available or provided by the prospective supplier the Wood Fuel Monitor shall consider applicable Clean/Recycled Wood Fuel compliance issues in its review of the facility operation.

### **C. Source: Regulated Wood Fuel**

Suppliers of Regulated Wood Fuel or mixtures of this and other types of acceptable Wood Fuel are expected to be facilities such as transfer stations or Volume Reduction Facilities (VRFs) permitted by CTDEEP or another state.

The pre-qualification process for Regulated Wood Fuel Producers and their facilities is as follows:

- PRE will provide each potential Regulated Wood Fuel Producer with a copy of Exhibit 1, and meet with a management representative of the potential Regulated Wood Fuel Producer to review the requirements enumerated therein and their methods for compliance;
- Each potential Regulated Wood Fuel Producer will be required to provide PRE with:
  - A description of its operations/facility plan for handling, sorting, and preparing acceptable Regulated Wood Fuel from C&D debris, including;
    - a description of its sorting approach;
    - description of storage approach;
    - description of employee training and monitoring;
    - steps to be taken to screen out unacceptable materials including prohibited wood materials such as treated wood;
    - facility management structure and staffing;
    - description of the process employed to ensure Prohibited Items are removed/excluded from the Regulated Wood Fuel;
    - method of delivering Wood Fuel to PRE; and,
    - discussion of sources of material to the facility and related matters.
  - A copy of all current permits for the operation and management of the facility.;
  - Copies of any enforcement actions and compliance audits/inspections within the most recent five (5) years and related response and resolution materials.
- Review of PRE's list of Prohibited Items;
- PRE's Wood Fuel Monitor will inspect the facility and review the following:
  - Consideration of the processing and sorting approach and its capacity to allow for segregation of acceptable from unacceptable wood materials. PRE shall give a preference to Regulated Wood Fuel Producers with a positive-pick approach to selecting wood for processing and delivery to PRE's facility. Where a negative-pick approach is to be utilized, additional review and consideration shall be given to the party's ability to satisfactorily meet PRE's standards on a consistent basis;
  - Consideration of space for storage of the acceptable Wood Fuel supply, and suitability of the facility layout to allow the Regulated Wood Fuel Producer to segregate the Wood Fuel from Prohibited Items;
- PRE's Wood Fuel Monitor will visit the potential Regulated Wood Fuel Producers not less than three (3) times. Each visit shall include an inspection of the processing system

and sampling of Wood Fuel proposed to be delivered to PRE's facility and shall be conducted to ensure that:

- Each sample collected is representative of the Regulated Wood Fuel that the Regulated Wood Fuel Producer is proposing to deliver to PRE.
- A minimum of six total samples are taken from wood originating from a different source or point of origin.. The PRE Wood Fuel Monitor will evaluate the source or point of origin of wood for each sample. This may include information such as verbal discussion with supplier representatives, visual observation of truck deliveries to the supplier facility, and/or review of scale/origin records at the Regulated Wood Fuel Producer's facility. Such reviewed delivery records may be considered confidential, for the use of the Wood Fuel Monitor only, and not available for distribution to other parties. If six different sources cannot be verified by the PRE Wood Fuel Monitor using best efforts to achieve this goal, then the samples will each be taken on different visits or otherwise to properly characterize variability and consistency in the Wood Fuel produced at the candidate supplier's location. The PRE Wood Fuel Monitor shall explain the basis for such determination.
- Each sample is submitted for analysis as specified in Table 2.
- PRE will receive guidance from the PRE Wood Fuel Monitor regarding the qualification status of each Regulated Wood Fuel Producer.
- PRE may implement a fuel supply agreement that identifies the type of Wood Fuel eligible for delivery by the Regulated Wood Fuel Producer including delineation of Prohibited Items, and the Regulated Wood Fuel Producer will be allowed to commence deliveries provided that:
  - The laboratory results for six consecutive samples confirm the Wood Fuel meets the Acceptance Limits in Table 2 (i.e., the average concentration of each parameter is less than or equal to the subject Acceptance Limit and none of the six samples exceeds two times the subject Acceptance Limit).
  - PRE and the Wood Fuel Monitor are satisfied that the prospective Regulated Wood Fuel Producer's facility and process are deemed capable of providing compliant Wood Fuel on an on-going basis; and,
  - PRE and the Wood Fuel Monitor's review of the Regulated Wood Fuel Producer's compliance record as applicable to matters associated with production of acceptable Wood Fuel supports allowing PRE to implement a fuel supply agreement with the party. Where no record of compliance audits or inspections (such as for out-of-state facilities or facilities with a general permit) is available or provided by the prospective Regulated Wood Fuel Producer the Wood Fuel Monitor shall consider applicable Wood Fuel compliance issues in its review of the facility operation.

## **5. Quality Control Procedures During Delivery & Operations**

In order to monitor quality of the Wood Fuel received at the facility, PRE and the Regulated Wood Fuel Producers shall perform the activities outlined in the following subsections.

### **A. Each Regulated Wood Fuel Producer**

After the pre-qualification process for Regulated Wood Fuel Producers is completed, ongoing requirements will include:

- Regulated Wood Fuel Producers are to notify PRE of any proposed and/or subsequent change in their process flow or operating system. Such changes will be evaluated by the PRE and the Wood Fuel Monitor and may require a Regulated Wood Fuel Producer to undergo the sampling regimen associated with pre-qualification of the facility, or confirmation of the original qualification;
- Regulated Wood Fuel Producers are to provide PRE with copies of any new, renewed, or modified permits;
- Regulated Wood Fuel Producers shall provide PRE with any and all of the following during the term of supply arrangements;
  - copies of on-going compliance audits and/or inspections
  - copies of any compliance actions taken by applicable regulatory agencies
  - copies of any responses to such compliance issues or actions
- PRE's Wood Fuel Monitor will conduct random on-going unannounced inspections of all qualified Regulated Wood Fuel Producers not less than once each quarter to insure that operations have remained consistent with the pre-qualification process, the requirements of Exhibit 1 "Operating, Requirements For Facilities Producing Regulated Wood Fuel For Delivery to PRE." For any Regulated Wood Fuel Producer who remains in conformance with PRE's Acceptance Limits (i.e., a Regulated Wood Fuel Producer's rolling statistical average for all parameters is less than or equal to PRE's Acceptance Limits) for four consecutive quarters, PRE may petition CTDEEP for a reduction in the unannounced inspection frequency.
- The Wood Fuel Monitor inspection reports will be submitted to CTDEEP on the fifteenth day of each month (next business day if the fifteenth is on a weekend or legal holiday).

#### **B. Deliveries Received At the PRE Facility**

PRE will implement and maintain an on-going Wood Fuel sampling and quality control program at its facility as follows:

1. Only approved suppliers that have completed PRE's prequalification process as described above will be granted access to the facility for Wood Fuel deliveries.
2. PRE will review incoming Regulated Wood Fuel deliveries for conformance with its commercial agreement with the individual suppliers. This review process will include a visual inspection and a grab sample of each load delivered by Regulated Wood Fuel Producers to be included in a weekly composite sample for each Regulated Wood Fuel Producer.
3. Visual inspections will be performed by trained PRE fuel yard personnel for Regulated Wood Fuel deliveries. Visual inspections will focus on identification of any of the following unacceptable materials or conditions:
  - a. Regulated Wood Fuel that contains non-wood content greater than 1% (by volume) – defined as plastics, plaster, gypsum board, asbestos, asphalt shingles, and glass. Non-wood content does not include dirt or metal fasteners.
  - b. Regulated Wood Fuel that appears to have been treated with or containing:
    - i. Food waste
    - ii. Creosote
    - iii. Chromated Copper Arsenate (CCA)
    - iv. Pesticides; and,

- v. Hazardous waste per CGS §22a-115.
- c. Should PRE staff determine that the inbound load fails to meet the visual inspection criteria noted in items 3.a and 3.b above, the load will be rejected. Rejected loads will be returned to the Regulated Wood Fuel Producer.
- d. PRE will develop a form to be completed by qualified wood fuel personnel to document the minimum visual inspection criteria and results.
- 4. The Regulated Wood Fuel Producer grab samples from each delivered load will be further composited by PRE (segregated by individual Regulated Wood Fuel Producer) and submitted to a laboratory accredited by the State of Connecticut Environmental Laboratory Certification Program. Samples will be analyzed and the results evaluated as follows for each Regulated Wood Fuel Producer:
  - a. Following pre-qualification, weekly samples will be analyzed pursuant to the specification in Section 9 hereof. During this time, Regulated Wood Fuel Producers will be expected to maintain rolling averages for their representative data set at or below the Acceptance Limits for three consecutive months and will not be placed on probation unless their rolling average exceeds the Acceptance Limits.
  - b. For the next nine (9) months, monthly samples will be analyzed pursuant to the specification in Section 9 hereof for Arsenic, Chromium, Lead, Mercury, non-wood content, and any other specific parameters of concern identified by PRE or the Wood Fuel Monitor during the initial three months. On the last month of each quarter, the samples will be analyzed for all parameters identified in Section 9. Regulated Wood Fuel Producers will be managed as outlined in Section 7 coincident with the start of this nine month period.
  - c. Following twelve (12) months of such sampling and analysis as described in 4.a and 4.b above, monthly samples will be analyzed only for Arsenic, Chromium, Lead, Mercury, non-wood content and other specific parameters of concern as identified by PRE or the Wood Fuel Monitor based upon a review of the first twelve months of data. If Should a Regulated Wood Fuel Producer's 80% UCL for those parameters continue to be less than or equal to the Acceptance Limits for a second year, PRE may reduce the composite analysis to quarterly.
- 5. The Regulated Wood Fuel Producer review and sampling process is designed to:
  - a. Evaluate consistency of the Regulated Wood Fuel deliveries by each Regulated Wood Fuel Producer;
  - b. Evaluate consistency with Acceptance Limits (See Table 2). If the average concentration for each parameter is less than or equal to the Acceptance Limit, the Wood Fuel conforms to PRE's Acceptance Limits.
  - c. Provide on-going oversight of Regulated Wood Fuel Producers as a supplement to the prequalification process; and
  - d. Monitor and develop a trend of each Regulated Wood Fuel Producer's average concentration of each parameter tested in PRE's incoming Regulated Wood Fuel.
- 6. PRE will walk off a minimum of 5% of deliveries or a minimum of six loads whichever is greater from vendors who have recently qualified as a Regulated Wood Fuel Producer. The Regulated Wood Fuel from these suppliers will also have been sampled and tested by certified analytical laboratories prior to being approved for provisional delivery to PRE. This provisional period shall extend for two weeks after preliminary qualification or until the minimum loads have been inspected.

7. A grab sample will be obtained from individual loads and inspected to identify Prohibited Items using the methods and criteria outlined above. Non-conforming loads will be re-loaded into the truck and returned to the Regulated Wood Fuel Producer.

### **C. As-Fired Fuel**

Daily samples (one or more when the facility is operating) of the Wood Fuel will be taken by PRE from the in-feed conveyor system as Wood Fuel is being delivered to the power block unit. Such daily samples will be combined to form a weekly composite sample. No samples are required to be taken on days that do not qualify as an operating day (24 hours of operation from midnight to midnight).

Each month a representative portion of one PRE weekly composite sample will be subjected to analysis as discussed below under Table 2 for the full suite of parameters. The other PRE weekly samples in any calendar month will be analyzed for Arsenic, Chromium, Lead, Mercury, and non-wood content. The sample results will be combined and reported as an average each month, with the statistical 80% UCL of the data set tracked in order to implement actions outlined in Section 7.D when appropriate.

Following twelve months of sampling and analysis for the full suite of parameters, PRE may seek CTDEEP's authorization to implement a revised analytical regimen together with its rationale for reducing the number of parameters tested and/or the schedule of testing of parameters.

### **D. Ash Residue**

PRE will sample and analyze the ash residue produced by the facility on a quarterly basis (bottom ash and fly ash) for total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Ash samples will be analyzed by a laboratory certified by the State of Connecticut Environmental Laboratory Certification Program using EPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. PRE will obtain representative samples distributed over a minimum of 3 consecutive operating days with a minimum of two (2) samples collected per day. Ash residue Toxicity Characteristic Leaching Procedure sample results will be evaluated using the 80 percent UCL vs. EPA's TCLP concentration limits for the 8 RCRA metals. Provided such sampling and testing demonstrates the ash residue is not deemed hazardous for four consecutive quarterly test events, PRE may request elimination of this sampling.

## **6. Wood Fuel Quality Data Validation, Collection, & Evaluation**

Results from the weekly composite sample will be used as part of each Regulated Wood Fuel Producer's statistical data set unless there is a change to the processing methods and management systems as determined and documented by PRE and the PRE Wood Fuel Monitor.

**Wood Fuel Deviation** - In order to confirm any laboratory test result including a potential Wood Fuel Deviation, PRE may elect to have additional aliquots of the un-analyzed portion of a sample (note: sample is in lab custody and the aliquots are taken by lab analysts) analyzed by the lab for any constituent of concern. In such event, PRE shall instruct the lab to obtain and analyze four additional aliquots. The statistical average of the original result and all subsequent aliquot results for that sample shall be used to determine whether there was a Wood Fuel Deviation. The average of all results will

be used in determining subsequent actions with the Regulated Wood Fuel Producer. If required based on final sample results, PRE will take corrective action as defined in Section 7.

PRE will maintain a master data set with analytical data from every Regulated Wood Fuel Producer and for the as-fired Wood Fuel. The record keeping will identify the current Regulated Wood Fuel Producer and as-fired Wood Fuel rolling averages and 80% UCL of the mean concentration.

**Determination of Statistical Data Set Start Date** – The statistical data set start date for each Regulated Wood Fuel Producer will be selected by the PRE Wood Fuel Manager in conjunction with the PRE Wood Fuel Monitor. This date will be based on the latest process change made by the Regulated Wood Fuel Producer (e.g., the time when the supplier increased labor to improve their biomass sorting, modified the physical equipment used in the sorting process, improved their training and or labor qualifications, adjusted their management oversight programs, or modified incoming waste streams (by deciding to avoid demolition of buildings with known lead or pressure treated wood content, etc.)), or re-engagement sampling. As a result, the Regulated Wood Fuel Producer 80% UCL for their data set will best represent the biomass being currently delivered to PRE. The date that the statistical data set begins will be clearly identified in the master data set. In general, the start date will not be re-set unless triggered by a documented process change event or suspension in deliveries and re-testing by the PRE Wood Fuel Monitor.

**Removal of Outliers** – The sample results in the statistical data set will be examined to determine if any Outliers are present (as determined by EPA's ProUCL software or equivalent). If so, these results will be discussed with the PRE Fuel Monitor and the C&D Wood Fuel Producer to confirm the result is an Outlier and document the basis for that determination. Basis for removal of any Outliers will be reported to CTDEEP along with the basis for the Outlier determination. If the sample result is a non-recurring issue and determined to be an Outlier, the result will not be used in the Regulated Wood Fuel Producer's statistical data set.

## **7. Deviation Actions, Probation, Suspension & Re-Engagement**

PRE shall use the following approach in combination with laboratory data to manage deliveries from Regulated Wood Fuel Producers:

### **A. Probation**

After the initial 3 month period following qualification, a Regulated Wood Fuel Producer will be placed on probation for either of the following conditions:

- A composite sample result greater than two times the Acceptance Limit for one or more constituents;
- The Regulated Wood Fuel Producer's data set exceeds the 80% UCL for any constituent, but the data set rolling average for all constituents is nonetheless lower than or equal to the Acceptance Limit.

In this case, PRE shall:

1. Notify the Regulated Wood Fuel Producer of the probation condition together with information regarding the constituent of concern;
2. Notify CTDEEP of the results within 15 days of receiving the laboratory results together with a summary of PRE's response;
3. Instruct the Wood Fuel Monitor to perform an unannounced visit to the facility to inspect and observe operations and document any corrective actions, including re-



- training at a minimum and any other modifications that may be made by the Regulated Wood Fuel Producer;
4. Collect daily samples of Regulated Fuel deliveries from that Regulated Wood Fuel Producer. These samples will be collected from every load to form the weekly composite sample but during probation the samples will be combined every three days of active deliveries into composites to analyze for constituents of concern. This sampling and analysis will continue for a minimum three (3) week period; and
  5. Continue to receive Regulated Wood Fuel from the Regulated Wood Fuel Producer during this probationary period

Laboratory results from the probation period will be used to determine whether the probationary period will expire, or be converted to a suspension, as follows:

- Upon completion of three weeks of sample results that do not have any constituents above the Acceptance Limits, the probation shall be lifted
- If subsequent sample results indicate a Wood Fuel Deviation, the Regulated Wood Fuel Provider shall be suspended as outlined below.

A Regulated Wood Fuel Producer may be placed on probation a maximum of two times in any given six month period. Further probationary events that may occur within this timeframe will be managed as a suspension.

### ***B. Suspension of Deliveries***

After the initial three (3) month period following qualification a Regulated Wood Fuel Producer will be placed on probation if it is determined to have a Wood Fuel Deviation event where the rolling average exceeds the Acceptance Limit for any constituent. In this case, deliveries of Regulated Wood Fuel from the Regulated Wood Fuel Producer will be suspended and PRE will notify CTDEEP of the results within 15 days of receiving the lab report.

### ***C. Re-Engagement***

For any Regulated Wood Fuel Producer that is suspended, a re-engagement process will include the following steps:

1. PRE's notice to the Regulated Wood Fuel Producer of the constituents of concern and reason for suspension;
2. The Regulated Wood Fuel Producer shall complete a review of its process to re-achieve compliance and notify PRE of the steps it has taken.
3. Once PRE is reasonably satisfied that the Regulated Wood Fuel Producer has addressed the issues related to the suspension, PRE shall instruct the Wood Fuel Monitor to perform a re-engagement review of the Regulated Wood Fuel Producer's operations. The re-engagement review shall include:
  - a. Visit to the site;
  - b. Review of the Regulated Wood Fuel Producer's operation and steps taken to correct the shortfall in performance; and,
  - c. Taking of at least three separate samples that the Wood Fuel Monitor deems as having originated from separate sources or taken on different days. Such samples shall be subjected to the laboratory analysis outlined in Section 9 hereof.
4. Provided the statistical average of the laboratory results from the sampling comply with the Acceptance Limits, together with the Wood Fuel Monitor's review of the Regulated

Wood Fuel Producer's actions at their facility, deliveries of such Wood Fuel may be re-started.

#### **D. As-Fired Wood Fuel Deviation Actions**

PRE will take actions below in the event that the data set for PRE's as-fired Wood Fuel sampling protocol exceeds the 80% UCL of any constituent as compared to the applicable Acceptance Limits:

1. Reduce the ratio of Regulated Fuel to other Wood Fuel (Clean/Recycled, Land Clearing Debris, and Other Clean Wood) in the as-fired fuel mix to the level mathematically required to achieve compliance levels.
2. Increase the as-fired sampling protocol. PRE will collect daily as-fired fuel samples (when the unit is operational) that are combined into a composite sample every three (3) days for analysis of the individual constituent(s) of concern. In the event that the results from these composites indicate any further as-fired Wood Fuel Deviation, PRE will continue to modify the fuel ratios as appropriate.
3. As-fired fuel mixing will return to standard protocols once the composite results from such sampling are within Acceptance Limits.

#### **8. Reporting & Record Keeping**

PRE shall perform and maintain the following:

1. The results of all inspections and laboratory analysis performed on samples collected by PRE at its facility and supplied by Regulated Wood Fuel Producers These records will be maintained at PRE's facility for a period of not less than five (5) years. Any result that does not comply with the stipulated Acceptance limits (i.e., the average concentration for any parameter exceeds the Acceptance limit in Table 2.) will be reported to CTDEEP within fifteen (15) days following PRE's receipt of such test report. Such reporting will also contain PRE's plan for corrective action.
2. PRE will maintain a file system that contains the information obtained from suppliers including the materials associated with the pre-qualification process and subsequent permit and compliance information. Records will be on a 5 year retention schedule.
3. Not less than twice per year, PRE will provide the CTDEEP with a report prepared by an independent Connecticut Licensed Professional Engineer approved by the CTDEEP of its efforts to monitor fuel quality (known hereafter as the "PRE Wood Fuel Monitor"), which report shall include: a.) a review of sampling and testing information received from Regulated Wood Fuel Producers; b.) the results of its own Wood Fuel quality reviews, sampling, and testing pursuant to this Protocol; c.) a conclusion regarding the conformance of the fuel stream with these requirements based upon the information available; and, d.) a review of the number of tons of Wood Fuel both received and processed at the facility, including a breakdown of incoming Wood Fuel by regulatory category.

#### **9. Laboratory Analysis**

Except as provided elsewhere or as otherwise approved by CTDEEP, following is a description of the laboratory tests for Regulated Wood delivered to PRE and the Wood Fuel delivered to the gasification power block unit under this document. All Chemical Laboratory Analyses must

be performed by a laboratory accredited by the State of Connecticut Environmental Laboratory Certification Program. See Table 2 for laboratory analysis and Acceptance Limits for Regulated Wood or a mixture of such Regulated Wood Fuel.

PRE's chosen laboratory(ies) shall maintain unanalyzed portions of samples until either 30 calendar days after lab report preparation or any subsequent confirmation analysis requested by PRE is completed.

CTDEEP may approve an increase in any Acceptance Limit and/or elimination of any parameter to be tested after one year of operating data has been obtained and upon request by PRE together with the supporting information and justification for such modifications.

**Table 2: Laboratory Analysis & Acceptance Limits**

| Analytical Test   | Test Method <sup>1</sup> | Acceptance Limits             |
|---|--------------------------|-------------------------------|
| Arsenic, Total For Clean/Recycled Wood Fuel and Regulated Wood Fuel | 6010                     | Less than 50 ppm <sup>2</sup> |
| Arsenic, Total As-Fired Wood  | 6010                     | Less than 20 ppm              |
| Cadmium, Total  | 6010                     | Less than 20 ppm              |
| Chromium, Total   | 6010                     | Less than 200 ppm             |
| Lead, Total   | 6010                     | Less than 250 ppm             |
| Mercury, Total  | 7141                     | Less than 0.2 ppm             |
| Selenium, Total   | 6010                     | Less than 20 ppm              |
| Silver, Total   | 6010                     | Less than 100 ppm             |
| Titanium, Total   | 6010                     | Less than 300 ppm             |
| Zinc, Total   | 6010                     | Less than 200 ppm             |
| Pesticides, Total <sup>3</sup>                                      | 8081A                    | Not Detected at 160 ppb       |
| Herbicides, Total <sup>4</sup>                                      | 8151A                    | Not Detected at 500 ppb       |
| Polychlorinated Biphenyls (PCBs), Total <sup>5</sup>                | 8082                     | <20 ppm <sup>6</sup>          |
| O, M, & P Cresols.  | 8270                     | 4,000 ppm for each            |
| Plastics  |                          | Less than 1% dry weight       |
| Chlorine (total)  | EPA Method 330.5         | Less than 0.15% dry weight    |
| Total Non-Wood other than dirt and metal fasteners                  |                          | Less than 1% dry weight       |

<sup>1</sup> All Chemical Laboratory Analyses must be performed by a laboratory certified by the State of Connecticut Environmental Laboratory Certification Program. All analyses must be performed in accordance with EPA's *Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods, SW-846, as revised* or CTDEEP-approved equivalent.

<sup>2</sup> ppm = parts per million

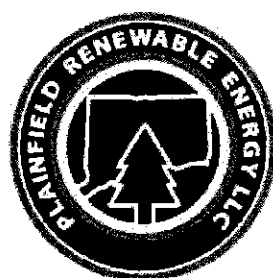
<sup>3</sup> Only tested if the wood source suggests it may have been exposed to pesticides.

<sup>4</sup> Only tested if the wood source suggests it may have been exposed to herbicides.

<sup>5</sup> Only tested if the wood source suggests it may have been exposed to transformers, hydraulic equipment, or PCB waste oil.

<sup>6</sup> If the original source had a PCB content of >50 ppm, then the material is rejected.

## **Exhibit 1**



### **Operating Requirements For Facilities Producing Regulated Wood Fuel For Delivery to PRE**

January 18, 2008  
Updated October 2, 2013  
Updated June 2, 2015

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## 1. Background & Purpose

Plainfield Renewable Energy LLC ("PRE") owns and operates a 37.5 MW (net) biomass fluidized bed gasification power plant in Plainfield, CT. The facility was issued its original Permit to Construct and Operate (PCO-1090904) two (2) operational units on June 12, 2009: (1) a volume reduction plant and (2) a power block facility. Construction was completed in 2013.

The facility accepts and processes biomass wood from a range of sources, including: forest management residues, land clearing debris, and waste wood from municipalities and a range of industries. In addition, the facility is authorized to accept and gasify wood derived from the processing of construction and demolition debris ("C&D"). This document outlines the requirements that suppliers must meet as a condition of delivering to PRE an acceptable Wood Fuel product that is derived from C&D and also describes on-going procedures to be used in managing such supply relationships.

## 2. Before Delivering Material to PRE and After Suspension of Deliveries

C&D processing and recycling facilities ("Regulated Wood Fuel Producer") in Connecticut have primarily been permitted by the Connecticut Department of Energy & Environmental Protection ("CTDEEP") as volume reduction facilities ("VRF's"). VRF's in other states may be similarly regulated by authorized State environmental agencies.

As a prerequisite to commencing deliveries of acceptable biomass wood recovered from C&D (hereinafter "Regulated Wood Fuel") and chipped to PRE's size specification, the Regulated Wood Fuel Producer must:

1. Enter into the appropriate business agreement with PRE;
2. Implement and comply with the operating and reporting requirements specified in this plan for separating and processing Regulated Wood Fuel;
3. Provide PRE with:
  - A description of its operations/facility plan for handling, sorting, and preparing acceptable wood fuel from C&D debris, including;
    - a description of its sorting approach;
    - description of storage approach;
    - description of employee training and monitoring;
    - steps to be taken to screen out unacceptable materials including unacceptable wood materials;
    - facility management structure and staffing;
    - Prohibited Items;
    - method of delivering wood to PRE; and,
    - discussion of sources of material to the facility and related matters.
4. A copy of all current permits for the operation and management of the facility. If the Regulated Wood Fuel Producer is required to modify or alter its permit or O&M plan to accommodate shredder/chippers, or sorting equipment and/or activities in order to comply with PRE's requirements, the Regulated Wood Fuel Producer must demonstrate it has done so to the satisfaction of PRE;

5. Copies of any enforcement actions and compliance audits/inspections within the most recent five (5) years and related response and resolution materials.

PRE will not allow/suspend and/or terminate deliveries from Regulated Wood Fuel Producers not complying with these requirements. Additionally, Regulated Wood Fuel Producers will be suspended or terminated if the statistical average of any Regulated Wood Fuel parameter exceeds PRE's Acceptance Limits (See Table 2 in PRE's Biomass Quality Control Procedures). Terminated Regulated Wood Fuel Producers will be required to complete a new requalification process. Suspended Regulated Wood Fuel Producers will be required to complete a re-engagement process, including the following activities performed by PRE's Wood Fuel Monitor;

- Disclosure of steps taken to correct the issue that resulted in the suspension.
- Visual assessment of supplier wood fuel production operations,
- Collection of samples for analysis of each parameter where the parameters statistical averages is greater than PRE's Acceptance Limits (See Table 2 in PRE's Biomass Quality Control Procedures),
- The Wood Fuel Monitor will make an independent determination based on the Regulated Wood Fuel Producer's historical sample results and assessments in conjunction with the re-engagement sample results and assessment of their current production processes/controls to determine the data set used for determining the Regulated Wood Fuel Producer's parameter statistical averages. Specifically, if the Regulated Wood Fuel Producer's processes/controls have significantly changed and the historical data is not representative of their current operation a determination may be made to establish a new parameter baseline using only their re-engagement sample result(s) to determine their parameter statistical averages, and
- Preparation of a summary report of assessment results.

If the Wood Fuel Monitor's summary report indicates the Regulated Wood Fuel Producer issues have been identified and corrected, PRE may make the decision to re-commence deliveries.

### **3. Wood Fuel Requirements and Specifications**

Regulated Wood Fuel must conform with the following CTDEEP requirements and PRE Specifications in order to be acceptable for delivery to PRE:

#### **A. CTDEEP Enforceable Regulated Wood Fuel Producer Requirements:**

1. Regulated Wood Fuel shall not exceed the Acceptance Limits defined in Table 2, based on the Regulated Wood Fuel Producer's parameter average concentration being less than or equal to the subject Acceptance Limit.

PRE's Fuel Specifications (subject to change by PRE from time- to- time):

1. Regulated Wood Fuel shall not include material that was intentionally watered other than for the purpose of regulatory dust control;
2. Regulated Wood Fuel shall not include any Food Waste;

3. With regard to the size of the material, Regulated Wood Fuel delivered in a chipped or ground form shall consist, on average, of material as follows: 100% of each delivery must be of pieces less than 6 inches in any dimension, 90% of pieces must be 3 inches or less in any dimension, 85% of pieces must be greater than 1/4 inch in their smallest dimension;
4. Fines and sawdust, defined as fuel of a size of one quarter (1/4) inch or less, shall comprise no more than fifteen percent (15%), by weight, of any delivery; and
5. Regulated Wood Fuel shall have an as received higher heating value of 5000 btu/lb or greater as determined by applicable ASTM testing method.

#### **4. Regulated Wood Fuel Producer Responsibilities**

It is the responsibility of the producer of the Regulated Wood Fuel Producer to adopt operating procedures that comply with these requirements, and to perform the associated monitoring, sampling, testing and reporting activities.

Each Regulated Wood Fuel Producer is also responsible to insure the appropriate permits have been issued for the receipt, storage and processing of C&D materials at its facility(ies).

##### **A. Facility Layout, Handling/Processing Approach**

Each Regulated Wood Fuel Producer is to demonstrate to the satisfaction of PRE that its facility configuration and design does not inhibit and provides opportunities for the operating staff to reasonably perform the sorting, inspection, rejection, and screening activities called for herein under normal operating conditions, including the method of receiving and handling materials in the tipping area and production of a Regulated Wood Fuel that complies with these requirements.

It is anticipated that producers may utilize a range of separation and processing approaches, including:

- Selective separation of clean, acceptable wood on a tipping floor for grinding or size reduction and delivery to PRE;
- Selective separation of treated unacceptable wood on a tipping floor to reduce the potential for contamination of the wood fuel stream intended for delivery to PRE;
- Use of a sorting line that may involve a range of technologies (such as screening, air classification, etc.) together with manual approaches to either positive-pick acceptable wood, or positive-pick unacceptable wood to produce an acceptable wood fuel stream in combination with grinding or size reduction technology;
- Acceptance of source-separated acceptable wood, in combination with inspection and quality control procedures; or,
- A combination of the above or other acceptable approaches.

##### **B. Treated Wood Separation**

Operating procedures are to be implemented and maintained for the screening and separation of wood waste treated with creosote, pesticides or hazardous waste (as defined in Connecticut General Statutes §22a-115). Such measures are to include:



- Where appropriate to the scale of the project, inspection of demolition sites where waste is generated;
- Customer Communications;
- Personnel Training for on-site load inspection and identification;
- Manual Sorting/Segregation; and,
- On-Site Testing as discussed below.

These strategies are discussed below.

### **C. Customer Communications**

Regulated Wood Fuel Producers shall communicate with customers to determine if incoming C&D wastes are known or suspected to contain treated wood. Many types of construction, reconstruction and demolition activities may include treated wood, including activities related to decks, landscaping, retaining walls, docks or other marine environment structures, and certain utility activities may reasonably be expected to include concentrations of treated wood.

Gaining advanced knowledge of the suspected presence of treated wood will make the efforts associated with segregating treated wood more efficient, enhancing success of the operation. If customers segregate treated wood at the source of generation, the Producer shall handle such source-separated treated wood separately from the mixed C&D stream, so as to minimize the potential for including treated wood in the Regulated Wood Fuel destined for PRE.

### **D. Personnel Training**

Regulated Wood Fuel Producers must train and supervise their labor pool to insure that good separation takes place. There are several types of wood preservatives that are in use and that have been in use in the past. One of the most prevalent historical preservatives is chromate copper arsenate ("CCA"), which is reported to have comprised up to 80% of the treated wood used in residential applications as recently as 2002, and the use of which was discontinued by the wood treating industry after December 31, 2003. Some level of CCA treated wood was sold thereafter, as the remaining production worked through the retail and distribution system after 2003. Other preservatives include alkaline copper quaternary ("ACQ") and copper boron azole ("CBA"). ACQ treated wood is common in retail stores in Connecticut at this time. Florida has determined that non-arsenic treatments (meaning ACQ and CBA) used in residential applications pose little or no significant risk to the environment or human health<sup>1</sup>.

Other chemicals have been used in industrial wood treatment applications, including:

- Pentachlorophenol ("PCP") for utility poles, piling, highway posts and guardrails; and,
- Creosote for utility poles, railroad ties, highway crossing planks, panels and flanges, marine and other pilings, flooring blocks, Glulam (Glue-Laminated wood), and bridge timbers.

The primary means to identify treated industrial wood products is visual and dimensional. These materials are typically easy to identify and remove from the waste stream, and include telephone poles, bridge timbers, railroad ties, pilings and similar items. Oak and mixed hardwoods typically reflect over 90% of the treated rail crossties, switch and bridge

ties, but only just over 10% of the total treated stream. Staff is to be trained to visually identify these materials and segregate them from the C&D wastes being further processed into Regulated Wood Fuel for delivery to PRE.

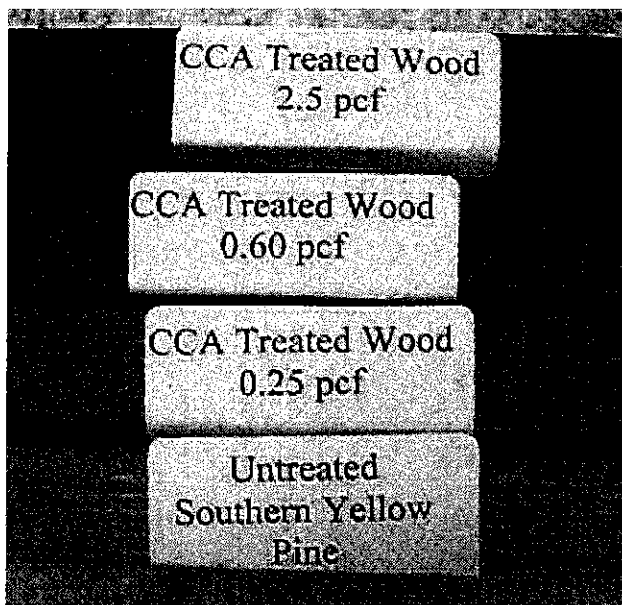
According to extensive work done in other states, and Florida in particular<sup>2</sup>, "the most common method for identifying untreated wood among treated lumber, timber and plywood is to look at the color of the wood. Untreated wood and borate-treated wood typically have a light yellow color." "Wood treated with copper, which includes CCA, ACQ and CBA treated wood varies in color from a very light green to an intense green color depending upon the amount of chemical impregnated into the wood." Further, treated wood in the C&D waste stream has been found to be mostly dimensional lumber and cutoffs<sup>3</sup>.

<sup>1</sup>"Guidance for the Management and Disposal of CCA-Treated Wood", published in draft form August 2005 by the Florida DEP, Florida Center for Solid and Hazardous Waste Management, University of Florida and University of Miami.

[http://www.dep.state.fl.us/waste/quick\\_topics/publications/shw/solid\\_waste/CCABMPDraft08-10-05.pdf](http://www.dep.state.fl.us/waste/quick_topics/publications/shw/solid_waste/CCABMPDraft08-10-05.pdf)

<sup>2</sup>See the Florida Guidance Document.

<sup>3</sup>Alternative Chemicals and Improved Disposal-End Management Practices for CCA-Treated Wood, July 7, 2000, Florida Center for Solid & Hazardous Waste Management, Report #00-03



The photo at the left is from the above referenced Florida report, and illustrates the gradations in coloring for treated wood, compared to untreated wood. Regulated Wood Fuel Producers are to train their staff in the visual identification of treated wood.

Weathered wood that has been treated with copper is reported to be converted to silver color, which is similar in appearance to untreated wood. Consequently, Regulated Wood Fuel Producers need to train staff to be particularly vigilant in segregating and not process such material for delivery to PRE as Regulated Wood Fuel if it could be treated wood. For example, much of typical treated wood components are dimensionally recognizable (decking, landscape lumber,

industrial lumber, etc.). Regulated Wood Fuel Producers shall also maintain on-site and deploy a testing methodology for quality control purposes as discussed below under "On-Site Testing Approaches".

Where possible, Regulated Wood Fuel Producers should deploy and utilize sorting staff so that more than one opportunity to identify and remove treated wood is utilized, under a multi-screening approach. Such an approach may include:

- Initial Load Inspection. Inspection of the load prior to tipping if possible, but certainly as-tipped. This may include asking the driver what his/her observations were as the box was being picked up, and certainly include trained equipment operators, gate attendants, or other "spotters".

- **Floor Inspection.** Inspection of the load as it is tipped and spread on the tip floor before storage and processing, and use of floor pickers to remove unacceptable items that will not be processed into wood fuel.
- **Sorting Line Pickers.** Inspection of wood materials on a sorting line, if utilized, where workers have the ability to examine each wood item one or more times. Regulated Wood Fuel Producers are to "positive" pick wood that is suitable for delivery to PRE.

Regulated Wood Fuel Producers are to take advantage of the full complement of operating and sorting personnel that inspect and observe materials from the point of entry into the plant, through to the final decision point for segregation of suitable Regulated Wood Fuel for further chipping and transport to PRE.

Regulated Wood Fuel Producers are also to post one or more signs in the areas where sorting is conducted to remind workers to sort out treated wood for disposition consistent with the method of operations conducted at the C&D waste processing facility, and as approved by PRE. Regulated Wood Fuel Producers may elect to utilize one of the identification technologies discussed below to assist in evaluating whether a particular sample is treated.

#### **E. Manual Sorting/Segregation**

An individual Regulated Wood Fuel Producer's configuration will impact the approach used to manually sort and segregate treated wood from non-wood and unacceptable materials in the C&D waste stream. For example, certain process arrangements may require that treated wood be removed to the extent practical before the remaining C&D waste is "processed" by the system. A processing approach may provide sorting staff with an ideal location to inspect wood materials and to segregate treated and untreated wood, preparing an acceptable stream of sorted, chipped Regulated Wood Fuel for delivery to PRE.

Each Regulated Wood Fuel Producer should consider the configuration of its facility layout and sorting system, and take advantage of each opportunity available to identify and sort for the removal and/or omission of unacceptable materials and treated wood from the Regulated Wood Fuel suitable for delivery to PRE.

#### **F. On-Site Testing**

Certain technologies have been developed that allow Regulated Wood Fuel Producers to perform further screening tests upon an individual piece of wood that is suspect to having been treated. Typically, these approaches are used for quality control, or to further review an individual piece of wood, complementing visual sorting efforts. Each such technology provides a means to help Regulated Wood Fuel Producers verify suspect or questionable materials, or to perform quality reviews on separated materials.

Producers should have available on-site one or both of the following equipment and supplies so that segregated Wood Fuel intended to be delivered to PRE can be further inspected for acceptability.

Any questionable items should be excluded in the normal practice, and only included if subjected to further screening by the Regulated Wood Fuel Producer.

### **Staining Technology**

Chemical stains have been developed by the wood treatment industry, originally to assist in checking the depth of penetration of the preservative in wood. The industry refers to these as chrome azurol, PAN indicator, and rubeanic acid. Stains detect the presence of copper based treatments, which will include CCA and also other treatments of less concern such as ACQ. After applying the stain to treated wood, a distinctive color change occurs. PAN has been identified as the preferred stain due to its short reaction time (12 seconds) and low cost. Untreated wood turns orange, and treated wood changes to a color ranging from magenta to red. Also, it should be noted that the PAN indicator discussed below can give "false" indications that wood is treated due to sealants or surface treatments, since it is primarily detecting metals. PAN will test positive for the newer copper-based treated woods, resulting in sorting out of the C&D Wood stream materials that do not contain arsenic and which some states have considered acceptable. Over time, newer stains may become available. This technology is well-suited for use in sorting small quantities or quality control purposes.

The photo above is reproduced from the above referenced Florida Guidance document. The wood on the left is untreated, and the sample on the right is treated wood, showing the effect of various stains.

### **XRF Technology**

Certain vendors also sell and rent hand-held X-ray fluorescence devices that have been used to identify arsenic in treated wood. XRF devices can also be used for quality control and validation purposes on individual pieces of wood. Contact PRE for information on these devices and vendors.

## **G. Operating Requirements for Removal of Non-Wood Materials**

Regulated Wood Fuel Producers must also remove non-wood materials from the Regulated Wood Fuel delivered to PRE, paying particular attention to remove all of the following:

- Plastics
- Plaster
- Gypsum
- Asbestos
- Asphalt shingles
- Glass and metals

One of the requirements of Regulated Wood Fuel per Connecticut law (Sec. 22a-209a) is as follows:

*"No regulated wood fuel user shall use or burn (1) regulated wood fuel which contains nonwood material, other than dirt or metal fasteners, unless such material comprises less than one per cent, by dry weight, of such regulated wood fuel or (2) any such fuel which contains more than fifteen one-hundredths of one per cent, by dry weight, total chlorine. Any sampling or analysis to determine the percentage of total chlorine or the amount of nonwood material shall be provided for by the*

*regulated wood fuel merchant and shall be certified by such merchant as having met any standards or methodologies for such sampling or analysis approved or required by the commissioner."*

In plain wording, the above law says that producers of regulated wood fuel cannot have more than 1% by dry weight non-wood material in the stream, excluding dirt or metal fasteners. Also, such regulated wood must contain less than 0.15 of 1% (or 0.15%) by weight total chlorine, as determined by laboratory analysis, discussed below.

Different Regulated Wood Fuel Producers will use different approaches to minimizing the amount of non-wood materials in the waste stream.

## **5. Regulated Wood Fuel Monitoring, Sampling & Testing**

PRE will conduct multiple qualifying sampling events at each candidate facility before deliveries can be approved and on an ongoing basis thereafter at a frequency that may change from time-to-time. Each Regulated Wood Fuel Producer is to cooperate with PRE by providing requested documentation and support PRE's efforts to inspect the facility and obtain representative samples.

PRE will sample Wood Fuel from the Regulated Wood Fuel Producer on an on-going basis and the results of such sampling may result in a Regulated Wood Fuel Producer being placed on probation or suspended from deliveries. The trigger criteria and subsequent actions for these events are outlined in the Biomass Wood Supply Quality Control Protocol.

Attachment B

Business Recycling Profile



Connecticut Department of  
Energy & Environmental Protection

## Business Recycling Profile

In Connecticut, recycling is mandatory. Connecticut General Statutes and the Regulations of Connecticut State Agencies require designated items to be recycled by **everyone**. Every resident, business, government facility, school, college, hospital, institution, etc. is required by law to recycle glass & metal food and beverage containers, plastic containers #1 and #2\*, boxboard\*, corrugated cardboard, magazines\*, newspaper, white office paper, colored office paper\*, scrap metal, Ni-Cd rechargeable batteries, used crankcase oil, lead acid batteries, leaves and grass clippings.

Recycling these items is a critical action we can all take to move the State towards achieving our recycling rate of 58% by 2024 as stated in the amended December 2006 CT State Solid Waste Management Plan. Complying with the state recycling laws has tremendous environmental benefits such as conserving natural resources, reducing pollutants emitted to our air and water, conserving energy, reducing greenhouse gas emissions, and eliminating the need for new solid waste disposal facilities.

This form is a guidance document to help businesses better manage their recycling program and increase recovery efforts. This form does not need to be submitted to the Connecticut Department of Energy and Environmental Protection (DEEP) unless it is requested, in response to an inspection and/or an enforcement action. For more recycling resources please visit our [Business Recycling Resources webpage](#).

### Part I: Company Information

|                        |  |
|------------------------|--|
| 1. Company Name:       |  |
| Mailing Address:       |  |
| 2. Recycling Contact:  |  |
| Phone(s):              |  |
| 3. Additional Contact: |  |
| Phone(s):              |  |
| City/Town:             |  |
| Title:                 |  |
| Email:                 |  |
| Title:                 |  |
| Email:                 |  |
| State:                 |  |
| Zip Code:              |  |

### Part II: Facility/Operations

|  |  |
|--|--|
| 1. Type of business:                   |  |
| 2. Number of buildings:                |  |
| 3. Total square footage of building(s) |  |
| 4. Acreage of lawn area::              |  |
| 5. Number of employees:                |  |

\*Materials will be designated recyclables in 2012.

## Part II: Facility/Operations (continued)

|  |  |   |  |
|--|--|---|--|
| 6. Current solid waste/recycling hauler(s):<br>Name:<br>Name:<br>Name:<br><input type="checkbox"/> Check here if additional sheets are necessary, and label and attach them to this sheet. |  | Phone:<br>Phone:<br>Phone:                    |  |
| 7. Building Owner:<br>Mailing Address:<br>Phone:   |  | City/Town:<br>Email:<br>State:      Zip Code: |  |

### All Businesses Are Required to Recycle:

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <b>High Grade White Office Paper:</b> White copy paper, computer paper, office stationery, memo paper, etc.</li> <li>• <b>High Grade Colored Office Paper*:</b> Colored ledger or copy paper</li> <li>• <b>Old Corrugated Cardboard:</b> Old or discarded corrugated boxes – <i>Not waxed</i></li> <li>• <b>Boxboard*:</b> Including cereal boxes, tissue boxes, or chip board</li> <li>• <b>Old Newspaper:</b> Used or discarded newspapers</li> <li>• <b>Magazines*</b></li> <li>• <b>Plastic containers #1 (PET) and #2 (HDPE)*:</b> Bottles and containers</li> <li>• <b>Glass &amp; Metal Food and Beverage Containers</b> (including 5¢ deposit containers)</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Leaves:</b> Foliage which has fallen from trees must be recycled</li> <li>• <b>Grass Clippings:</b> Best practice is to recycle grass by leaving grass clippings on the lawn.</li> <li>• <b>Used Crankcase Oil:</b> Used crankcase oil from internal combustion engines</li> <li>• <b>Lead Acid Storage Batteries:</b> Used batteries from cars, airplanes, boats, tractors, etc.</li> <li>• <b>Scrap Metal:</b> Used or discarded items which consist predominantly of metals such as iron, aluminum, brass, copper, lead, chromium, tin, nickel, etc. or alloys of these metals, including but not limited to appliances.</li> <li>• <b>Rechargeable Batteries:</b> Nickel-cadmium (NiCd) rechargeable batteries, both those contained within appliances and those sold individually are required to be recycled after they no longer are usable.</li> </ul> |
|---|--|

In addition to the state mandated recyclables listed above, check your local ordinances to learn about additional materials your business may be required to recycle.

**58% by 2024**

\*Materials will be designated recyclables in 2012.



### Part III: Company's Current Recycling & Recovery Efforts

Please use the table below to describe your company's current recycling program. Attachments of photos or other documents are also accepted if you are requested to submit this form.

| RECYCLABLE MATERIAL   | AVG WEIGHT<br>(Indicate tons or pounds)<br>COLLECTED FOR RECYCLING<br>EACH MONTH<br>(If you do not have weight data enter the number and size of containers and collection frequency) | HOW & WHERE MATERIAL IS COLLECTED  | WHO PICKS-UP MATERIAL AND WHERE IS THE MATERIAL TAKEN FOR RECYCLING   |
|---|---|--|---|
| <b>EXAMPLE:</b><br>OFFICE PAPER<br>(White and other paper combined) | One 40-gallon wheeled cart/week   | Everyone collects at their desk, brought to central location (large wheeled cart near elevators). Janitor brings to loading dock when it is full (about once a week) | Our current trash hauler, (NAME) empties our paper recycling wheeled cart 2x/month (we call them as-needed) and material is taken to a permitted recycling facility (PERMITTEE NAME) in (TOWN). |
| Office paper (white paper)**  |   |  |   |
| Office paper (colored paper)**                                      |   |  |   |
| Newspaper**   |   |  |   |
| Other paper or mixed paper (please list types here)                 |   |  |   |

\*\* Mandatory item that everyone is required to recycle in Connecticut.

**Part III: Company's Current Recycling & Recovery Efforts (continued)**

| RECYCLABLE MATERIAL   | AVG WEIGHT<br>(indicate tons or pounds)<br>COLLECTED FOR RECYCLING<br>EACH MONTH<br>(If you don't have weight data enter the number and size of containers and collection frequency) | HOW & WHERE MATERIAL IS COLLECTED   | WHO PICKS-UP MATERIAL AND WHERE IS THE MATERIAL TAKEN FOR RECYCLING  |
|---|--|---|--|
| <b>EXAMPLE:</b><br>Old Corrugated Cardboard   | We have a 4-yard dumpster behind our main warehouse. It's picked up twice a week.  | Warehouse staff collect and flatten boxes as we go along. A small pile is created during a shift (we have 3 shifts/day). At the end of the shift an employee removes the small pile and brings to dumpster outside. | Our current trash hauler, (NAME) empties cardboard dumpster on Mondays and brings it to a properly permitted facility, (PERMITTEE NAME) in (TOWN) for recycling. |
| Corrugated cardboard**  |  |   |  |
| Boxboard**  |  |   |  |
| Magazines**   |  |   |  |
| Food and beverage containers (check all those collected for recycling)<br><input type="checkbox"/> Glass**<br><input type="checkbox"/> Metal**<br><input type="checkbox"/> Plastic 1&2**<br><input type="checkbox"/> Paper carton or (juice-type) box |  |   |  |
| Other   |  |   |  |

\*\* Mandatory item that everyone is required to recycle in Connecticut

### Part III: Company's Current Recycling & Recovery Efforts (continued)

| RECYCLABLE MATERIAL                              | AVG. WEIGHT<br>(indicate tons or pounds)<br>COLLECTED FOR RECYCLING<br>EACH MONTH<br>(if you don't have weight data enter the number and size of containers and collection frequency) | HOW & WHERE MATERIAL IS COLLECTED  | WHO PICKS-UP MATERIAL AND WHERE IS THE MATERIAL TAKEN FOR RECYCLING  |
|--|---|--|--|
| EXAMPLE:<br>Printer Toner cartridges             | We have 8 printers in our offices and generally replace/recycle 1/month   | Office manager returns all toner cartridges to Office Supply Store for a credit towards future office supplies | Use mailer envelopes that come with new toner. We mail them back to Office supply store (or they pick up with new deliveries). |
| Lead Acid Storage Batteries (car, truck, boat)** |   |  |  |
| Rechargeable Batteries**                         |   |  |  |
| Used Crankcase Oil**                             |   |  |  |
| Scrap Metal**                                    |   |  |  |

\*\* Mandatory item that everyone is required to recycle in Connecticut

**Part III: Company's Current Recycling & Recovery Efforts (continued)**

| <b>MATERIAL</b>                                  | <b>AVG WEIGHT<br/>(indicate tons or pounds)<br/>COLLECTED FOR RECYCLING<br/>EACH MONTH<br/>(if you don't have weight data enter<br/>the number and size of containers<br/>and collection frequency)</b> | <b>HOW &amp; WHERE MATERIAL IS COLLECTED</b>  | <b>WHO PICKS-UP MATERIAL AND<br/>WHERE IS THE MATERIAL TAKEN<br/>FOR RECYCLING</b>  |
|--|---|---|---|
| <i>EXAMPLE: Leaves<br/>and other yard debris</i> | N/A   | Our landscape company (NAME, TOWN) mows<br>our lawns and maintains our entry garden. They<br>remove all the materials (although grass clippings<br>are left on the lawn). | Our landscape company (NAME) takes<br>them away to a properly permitted<br>recycling facility, (PERMITTEE NAME,<br>LOCATION). |
| Leaves**   |   |   |   |
| Grass clippings**                                |   |   |   |
| Brush, stumps and<br>other yard debris           |   |   |   |
| Food waste                                       |   |   |   |
| Other  |   |   |   |
| Other  |   |   |   |

\*\* Mandatory item that everyone is required to recycle in Connecticut

**Part IV: Company's Current Waste Reduction, Reuse And Other Recovery Programs**

| WASTE REDUCTION, REUSE AND OTHER RECOVERY PROGRAMS | PROJECT DESCRIPTION   |
|--|---|
| EXAMPLE: Waste Reduction                           | Our cafeteria recently began using reusable trays and washing them instead of using Styrofoam trays which we were throwing away. We have also instituted a reusable mug program (providing a free mug to employees) to try and reduce the amount of coffee cup waste. |
| Waste Reduction                                    |   |
| Waste Reduction                                    |   |
| Other  |   |
| EXAMPLE: ReUse                                     | Our company generates approximately 10 used Gaylord containers /week that we donate to Foodshare for their produce distribution program. We also donate over stock and discontinued building supplies to the ReCONstruction Center in New Britain.                    |
| ReUse  |   |
| ReUse  |   |
| Other  |   |
| Other  |   |

## Part V: Recycling & Recovery Programs Planned

Please use the table below to describe future recycling efforts and how compliance with the mandatory items, if not already recovered for recycling, will be achieved.

| IDEA / MATERIAL   | ESTIMATED GENERATION RATE | HOW AND WHERE WILL THE MATERIAL BE COLLECTED?  | WHO WILL PICK-UP THIS MATERIAL? FINAL/END MARKET?  | WHEN WILL PROGRAM BE IMPLEMENTED?  |
|---|---------------------------|--|--|--|
| EXAMPLE:<br>Food and Beverage containers (glass, metal and plastic) | 25 gallons/month          | Will place barrel in break room; janitorial staff will empty and remove materials to a larger container on our loading dock.       | There are a lot of 5¢ deposit containers. We're looking into having a local non-profit organization collect them for free and redeem the deposits. | We will start this program by August 8, 2008 (2 weeks from now).                             |
| EXAMPLE:<br>55 gallon drums   | 10/week                   | We generate 55 gallon drums, which contained non-hazardous substances. We stockpile them outside the plant until we have 50 drums. | Working with XYZ, a company that recconditions the drums. We've found this to be more cost effective than recycling them at this time.             | We've already started collecting and expect our first pick up to be next week (June 5, 2008) |
|   |                           |  |  |  |
|   |                           |  |  |  |
|   |                           |  |  |  |

**Part V: Recycling & Recovery Programs Planned (continued)**

| IDEA / MATERIAL              | ESTIMATED GENERATION RATE | HOW AND WHERE WILL THE MATERIAL BE COLLECTED?   | WHO WILL PICK-UP THIS MATERIAL? FINAL/END MARKET?   | WHEN WILL PROGRAM BE IMPLEMENTED?                        |
|------------------------------|---------------------------|---|---|--|
| EXAMPLE:<br>5 gallon buckets | 15-30 buckets/month       | We generate buckets (contained non-hazardous substances) and cannot use them. Will raise and stack (with lids) off to side of loading dock. | We're trying to secure a connection with a local reuse center or distribute via materials exchange program. | We hope to start this program by the end of August 2008. |
|                              |                           |   |   |  |
|                              |                           |   |   |  |

**Reminder: This form is only required to be submitted when requested by DEEP.**

**When requested by DEEP**, please include photos of your recycling bins and containers and any copies of recycling/waste contract. If you have additional pages or items to help explain/show successes in your waste recycling/recovery efforts, please attach those as well including brochures, flyers, employee educational materials, etc.

**When requested by DEEP**, please submit the completed form and all Supporting Documents to:

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION  
BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE  
WASTE ENGINEERING AND ENFORCEMENT DIVISION  
79 ELM STREET, 4<sup>TH</sup> FLOOR  
HARTFORD, CT 06106-5127

PHONE: (860) 424-3365