



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE
A STATIONARY SOURCE

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

Owner/Operator: Styron LLC
Address: 1761 Route 12, Gales Ferry, CT 06335
Equipment Location: Boiler House, 1761 Route 12, Gales Ferry, CT 06335
Equipment Description: Wickes E7C #4 Boiler equipped w/ TODD low NO_x Burner

Town-Permit Numbers: 092-0015
Town-Premises Numbers: 092-002
Original Permit Issue Date: 10/29/1984
Prior Permit Issue Date: 1/10/1995
Modification Issue Date: August 30, 2010
Expiration Date: None

/s/ Anne Gobin for
Amey Marrella
Commissioner

August 30, 2010
Date

NAME CHANGED TO:

TRINSEO, LLC

Engineer: BEA MILNE Date: 7/22/15

PERMIT FOR FUEL BURNING EQUIPMENT

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF AIR MANAGEMENT

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. Equipment Design Specifications

1. Fuel Types: Natural Gas, #2 Fuel Oil (as back up)
2. Maximum Fuel Firing Rates: 55,980ft³/hr(Natural Gas), 415 gal/hr (#2 Fuel Oil)
3. Maximum Gross Heat Input (MMBTU/hr): 57.1(Natural Gas), 57.7 (#2 Fuel Oil)

B. Control Equipment Design Specifications

1. Low NO_x Burner
 - a. Make and Model: TODD Model #V4851G0XXX
 - b. Guaranteed NO_x Emission Rate (lb/MM BTU): 0.06(Natural Gas), 0.10(#2 Fuel Oil)
 - c. Guaranteed CO Emission Rate(ppmv):150 (Natural Gas & #2 Fuel Oil)

C. Stack Parameters

1. Minimum Stack Height (ft): 57
2. Minimum Exhaust Gas Flow Rate at Maximum Rated Capacity(acfm): 17,000 (Natural Gas), 16,845(#2 Fuel Oil)
3. Stack Exit Temperature (°F): 356
4. Minimum Distance from Stack to Property Line (ft): 600

PART II. OPERATIONAL CONDITIONS

A. Equipment

1. Maximum Fuel Consumption over any Consecutive 12 Month Period: 490,384,800 ft³ (Natural Gas), 985,915 gal (#2 Fuel Oil)
2. Maximum Fuel Sulfur Content (% by weight, dry basis):<0.2

FIRM NAME: Styron LLC

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PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring

1. The Permittee shall use a non-resettable totalizing fuel metering device to continuously monitor fuel feed to this permitted source.

B. Record Keeping

1. The Permittee shall record the monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding (for each fuel) the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.
3. The Permittee shall keep all records required by this permit for a period of no less than five years.
4. The Permittee shall make and maintain records of all tune-ups, repairs, replacement of parts and other maintenance.

C. Reporting

1. The Permittee shall make available to the commissioner, any and all records required by this permit, upon request.

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS

- A.** The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- B.** The Permittee shall properly operate the control equipment at all times that this equipment is in operation and emitting air pollutants.

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PART V. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

A. Criteria Pollutants

1. Natural Gas:

<u>Criteria Pollutants</u>	<u>lb/hr</u>	<u>lb/ MMBtu</u>	<u>TPY</u>
PM-2.5	0.43	0.007	1.86
PM-10	0.43	0.007	1.86
SOx	0.03	0.001	0.15
NOx	3.48	0.06	15.24
VOC	0.31	0.005	1.35
CO	7.2	0.12	31.54
Pb	2.80E-05	4.90E-07	1.23E-04

2. #2 Fuel Oil:

<u>Criteria Pollutants</u>	<u>lb/hr</u>	<u>lb/ MMBtu</u>	<u>TPY</u>
PM-2.5	0.10	0.002	0.12
PM-10	0.42	0.007	0.49
SOx	11.79	0.2	14
NOx	5.76	0.1	6.84
VOC*	0.08	0.001	0.1
CO	7.13	0.12	8.47
Pb	5.23E-04	9.06E-06	6.21E-04

3. Maximum Allowable Emissions:

<u>Criteria Pollutants</u>	<u>TPY**</u>
PM-2.5	1.86
PM-10	1.86
SOx	14
NOx	15.24
VOC	1.35
CO	31.54
Pb	6.21E-04

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PART V. ALLOWABLE EMISSION LIMITS, continued

** Emission limits are combined worst case for each pollutant for this unit, using either Natural Gas or #2 Fuel Oil.

- B. Hazardous Air Pollutants:** This unit shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA Section 22a-174-29. **[STATE ONLY REQUIREMENT]**
- C. OPACITY:** This unit shall not exceed 10% opacity during any six minute block average as measured by 40 CFR 60, Appendix A, Reference Method 9.

Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

1. NO_x, CO (Natural Gas & #2 Fuel Oil): Manufacturer's Data
2. PM-10/PM-2.5, SO_x, VOC, Pb (Natural Gas): AP-42, 5th Edition, Vol. 1, July 1998, Table 1.4-2
3. PM-10/PM-2.5 (#2 Fuel oil): AP-42, 5th Edition, Vol. 1, September 1998 Table 1.3-6
4. SO_x (#2 Fuel oil): AP-42, 5th Edition, Vol. 1, September 1998, Table 1.3-1
5. VOC (#2 Fuel oil): AP-42, 5th Edition, Vol. 1, September 1998, Table 1.3-3
*VOC represents Nonmethane TOC (NMTOC)

The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART VI. STACK EMISSION TEST REQUIREMENTS (Applicable if -X- Checked)

Stack emission testing shall be performed in accordance with the Emission Test Guidelines available on the DEP website:

<http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav GID=1619>.

Initial stack testing shall be required for the following pollutant(s):

None

PM SO_x NO_x CO VOC Opacity

Other (HAPs): _____, _____,

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PART VII. SPECIAL REQUIREMENTS

- A.** (for non-emergency use) **STATE ONLY REQUIREMENT:** The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4.
- B.** The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times. (Applicable if -X- checked)

40 CFR Part 60, Subpart: Db Dc GG A

None

PART VIII. ADDITIONAL TERMS AND CONDITIONS

- A.** This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- B.** Any representative of the DEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C.** Nothing in this permit 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 violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- D.** This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.

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PART IX. ADDITIONAL TERMS AND CONDITIONS, continued

- E.** This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- F.** Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom 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 that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, 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 section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- G.** Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H.** The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I.** Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

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NSR Engineering Evaluation
 CT Department of Environmental Protection
 Bureau of Air Management

Administrative Information

Date Applications Received: 5/14/2009
SIMS Nos: 200901360 and 200901361
EPE Nos: 22585 and 22586

Applicant Information

Company Name: Styron LLC
Equipment Location: 1761 RT 12, Gales Ferry, CT 06335
Mailing Address: 1761 RT 12, Gales Ferry CT 06335
Contact Person: Mr. Cecil J. Redd
Contact Title: Responsible Care Leader
Contact Phone Number: 860 447-7369

Evaluation Information

Date Prepared: 5/19/2010
Prepared By: Ms. Soumya Kallath, SK

Permit Information

Permit Nos: 092-0015 and 092-0020
Equipment Description: Wickes E7C #4 and E7D #3 Boilers equipped w/ TODD low NOx Burners

Choose a Permit Type:

- | | |
|---|--|
| <input type="checkbox"/> Single Unit | <input checked="" type="checkbox"/> Multiple Units |
| <input type="checkbox"/> New NSR at a Major Source | <input type="checkbox"/> New NSR at a Minor Source |
| <input type="checkbox"/> Non-Minor Modification at a Major Source | <input type="checkbox"/> Non-Minor Modification at a Minor Source |
| <input type="checkbox"/> Minor Modification at a Minor Source | <input checked="" type="checkbox"/> Minor Modification at a Major Source |
| <input type="checkbox"/> Revision | |

Part 1: Discussion

On May 14, 2009, The DOW Chemical Company Submitted an application package to modify NSR Permit Numbers 092-0015 and 092-0020 which were issued for two Wickes Boilers equipped with TODD low NOx Burners at their Allyn's Point Plant in Gales Ferry, Connecticut. The original operating permits for the boilers were issued in 1984. They were reissued in 1995. This facility currently operates under Title V Permit Number 092-0024-TV and a renewal application for the Title V permit has been submitted to the Department.

The purpose of this modification is to fix calculation errors in the existing permits and replace out-of date AP-42 emission factors with current AP- 42 factors. No physical or operational changes to the permits are requested at this time. Both boilers burn Natural Gas as a primary fuel and Fuel Oil No. 2 as back up fuel. Since the latest permits were issued on January 10, 1995, emissions from these boilers were calculated using the Compilation of Air Pollutant Emission Factors-Fourth Edition, July/1993. Emission rates of criteria pollutants- PM -2.5, PM-10 and VOC are being updated using the current AP-42 emission factors, 5th Edition, Vol.1. NOx, SOx and CO emissions remain the same because the emission rates for NOx and CO are the manufacture guaranteed rates and the SOx emission factor hasn't changed from the AP-42, 4th edition. Heat Input values were recalculated using a higher heating value.

Pursuant to RCSA Section 22a-174-2a(e)(1), DOW must apply for a new source review minor permit modification to make any change to such permit, unless such change is allowed pursuant to RCSA Section 22a-174-2a(f) or unless the change is required to receive a non-minor permit modification pursuant to RCSA Section 22a-174-2a(d)(3).

The following table shows a comparison between the existing and proposed changes in emissions.

Permit No. 092-0015										
Criteria Pollutants	Natural Gas					Fuel Oil No.2				
	Emissions lb/hr		Emissions TPY		Change in long term emissions	Emissions lb/hr		Emissions TPY		Change in long-term emissions
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed	
PM- 2.5		0.43		1.86			0.1		0.12	
PM-10	0.77	0.43	3.36	1.86		0.42	0.42	0.49	0.49	
SO _x	0.03	0.03	0.15	0.15		11.79	11.79	14	14	
VOC	0.16	0.31	0.68	1.35		0.083	0.08	0.099	0.10	

Permit No. 092-0020										
Criteria Pollutants	Natural Gas					Fuel Oil No.2				
	Emissions lb/hr		Emissions TPY		Change in long term emissions	Emissions lb/hr		Emissions TPY		Change in long-term emissions
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed	
PM- 2.5		0.36		1.58			0.09		0.12	
PM-10	0.65	0.36	2.84	1.58		0.35	0.35	0.49	0.49	
SO _x	0.03	0.03	0.12	0.12		9.89	9.88	14	14	
VOC	0.13	0.26	0.58	1.14		0.30	0.07	0.1	0.10	

The boilers do not trigger NSPS at this time because this change is not considered as a modification as defined in 40 CFR Part 60 Subpart A. All HAPs are in compliance with the Maximum Allowable Stack Concentrations (MASC) pursuant to RCSA §22a-174-29.

A screening analysis was required for the boilers as proposed permitted emissions of PM2.5 are greater than 1 TPY. The screening analysis was submitted to, reviewed and approved by Mr. Jude Catalano of the Modeling Group (Attachment).

A public notice will be required for The DOW Chemical Company pursuant to RCSA §22a-174-2a(e)(6) because this is a minor permit modification at a Title V source.

The compliance record was reviewed in accordance with the Environmental Compliance History Policy. Agency records, including the SIMS Enforcement database, were reviewed for information to evaluate the applicant's compliance history and the relevance of such history to the activity for which authorization is being sought. Additionally, a review of air program compliance was requested from the Enforcement section and that response forms a part of this record.

Based on the information submitted by the applicant, engineering evaluation and the compliance history review, it is recommended that modified permits to construct and operate two Wickes boilers be issued to The DOW Chemical Company.

/s/ Soumya Kallath
Soumya Kallath, APCE

6/2/2010
Date

Approvals:

/s/ Susan E. Amarello 6/2/10
Susan E. Amarello, Supervising APCE

/s/ Richard A. Pirolli 6/3/10
Richard A. Pirolli, Assistant Director

INTEROFFICE MEMORANDUM

TO: Richard A. Pirolli, Assistant Director
FROM: Susan E. Amarello, Supervising APCE
Soumya Kallath, APCE
SUBJECT: Styron LLC- Final NSR Permit Nos. 092-0015 and 092-0020
DATE: 08/18/2010

On May 14, 2009, The DOW Chemical Company (Dow) submitted an application package to modify NSR Permit Numbers 092-0015 and 092-0020 issued for two Wickes Boilers equipped with TODD low NOx Burners at their Allyn's Point Plant in Gales Ferry, Connecticut.

On June 4, 2010 a tentative determination was made to approve the modifications. A notice of tentative determination was published in The Day- New London on June 8, 2010. The public comment period ended on July 8, 2010. No comments were received from the public. The applicant has paid public notice (\$263.00) and permit fees (\$5000.00).

In June, 2010, Dow sold its Latex Production business at Allyn's Point Plant to Styron LLC. The aforementioned permits were included in the business transaction and as such Styron LLC applied for transferring the boiler permits from Dow to Styron. On August 18, 2010, the Commissioner approved the transfer of permits from Dow to Styron. The attached letter was received from Styron approving the boiler permit's minor modification request from Dow.

Therefore, it is recommended that the modified permit be issued to Styron LLC.

/s/ Soumya Kallath 8/19/10

Soumya Kallath, APCE

Review:

/s/ Susan E. Amarello 8/24/10

Susan E. Amarello
Supervising APCE