

## 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	Kimberly-Clark Corporation	
Address	58 Pickett District Road, New Milford, CT 06776	
Equipment Location	58 Pickett District Road, New Milford, CT 06776	
Equipment Description	Solar Titan 130 Combustion Turbine #2	
Town-Permit Numbers	130-0071	
Premises Number	0006	
Stack Number	0036	
Modification Issue Date	March 20, 2017	
	August 15, 2012	
Prior Permit Issue Dates	March 30, 2010	
	October 9, 2007	
Expiration Date	None	

<u>/s/Anne Gobin for</u> Robert J. Klee Commissioner <u>March 20, 2017</u> Date 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. General Description

The equipment subject to this permit consists of a Solar Titan 130 Combustion Turbine. Control equipment includes low  $NO_x$  burners and oxidation catalyst. This equipment is part of the combined heat and power (CHP) project at the New Milford Mill.

## **B.** Equipment Design Specifications

- 1. Turbine
  - a. Maximum Natural Gas Firing Rate<sup>1</sup> (Mcf/hr): 171.412
  - b. Maximum Gross Heat Input (MMBtu/hr)<sup>1</sup>: 174.84
  - c. Nameplate Capacity (MW): 14.986

<sup>1</sup> at ISO conditions: 288 Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.

## C. Control Equipment Design Specifications

- 1. Low NO<sub>x</sub> Burner
  - a. Make and Model: Solar Turbine Titan 130 Burners
  - b. Guaranteed NO<sub>x</sub> Emission Rate (ppmvd @ 15% O<sub>2</sub>): 15
- 2. Oxidation Catalyst
  - a. Make and Model: BASF Modular Homogeneous Catalytic Oxidizer
  - b. Design Removal Efficiency:  $\geq$ 90% (CO),  $\geq$ 85% (VOC)

#### D. Stack Parameters

- 1. Minimum Stack Height (ft): 78 (main stack) and 85 (bypass stack)
- 3. Minimum Exhaust Gas Flow Rate at 100% load (acfm): 177,009
- 4. Minimum Stack Exit Temperature at 100% load (°F): 425
- 5. Minimum Distance from Stack to Property Line (ft): 394 (main stack) and 249 (bypass stack)

## PART II. OPERATIONAL CONDITIONS

### A. Equipment

- 1. Turbine
  - a. Fuel Type: Natural Gas
  - b. Maximum Natural Gas Consumption over any Consecutive 12 Month Period (MMcf): 1502

#### PART III. ALLOWABLE EMISSION LIMITS

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

#### A. Short Term Emission Limits

These short term emission limits do not apply during periods of startup and shutdown, unless otherwise noted.

- 1. Criteria Pollutants
  - a. Turbine

Pollutant	lb/hr	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu
PM	1.44		0.0082
PM10	1.44		0.0082
PM <sub>2.5</sub>	1.44		0.0082
SO <sub>2</sub>	0.245		0.0014
NOx <sup>1</sup>	9.68	15.0	0.0554
VOC 1	0.161		
CO 1	0.982		

<sup>1</sup> - Except during periods of startup and shutdown, when the event based emission limits apply.

#### B. Startup and Shutdown Emission Limits

Pollutant	Startup (Ib/event)	Shutdown (lb/event)
NOx	2.1	2.4
VOC	1.68	1.80
СО	19.56	21.0

- 1. Startup: The period of time from initiation of combustion firing until the combustion turbines reaches steady-state operation and until the control equipment attains its normal operating temperature and steady-state operation. Duration of startup shall not exceed 20 minutes.
- 2. Shutdown: The period of time from the initiation of the shutdown process of the combustion turbine until the point at which the combustion process has stopped. Duration of shutdown shall not exceed 20 minutes.
- 3. The Permittee shall minimize emissions during periods of startup and shutdown by the following work practices and time constraints:
  - a. The oxidation catalyst shall not be bypassed during startup or shutdown; and
  - b. Emissions during these periods shall be counted towards the annual emission limits stated herein.

## C. Annual Emission Limits

Pollutant	tons per 12 consecutive months	
PM	6.31	
PM10	6.31	
PM <sub>2.5</sub>	6.31	
SO <sub>2</sub>	1.07	
NO <sub>x</sub> <sup>1</sup>	42.4	
VOC <sup>1</sup>	0.705	
CO 1	4.30	

<sup>1</sup> - Includes steady-state, startup and shutdown emissions.

#### D. Hazardous Air Pollutants

This equipment 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]

- E. Demonstration of compliance with the above emission limits may be met by calculating the emission rates using stack test data for this source or if none is available, emission factors from the following sources:
  - NO<sub>x</sub>, VOC and CO: Manufacturer's data
  - PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>: Compilation of Air Pollutant Emission Factors, AP-42, fifth edition, Section 3.1, April 2000
  - NO<sub>x</sub>, VOC and CO (during startup/shutdown): Part III.B of this permit

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 IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

#### A. Monitoring

- 1. The Permittee shall use individual non-resettable totalizing fuel metering devices or billing meters to continuously monitor fuel feed to the turbine.
- 2. The Permittee shall continuously monitor and continuously record the oxidation catalyst inlet temperature (°F). The Permittee shall maintain this parameter within the range recommended by the manufacturer to achieve compliance with the emission limits in this permit.
- 3. The Permittee shall perform inspections of the oxidation catalyst as recommended by the manufacturer.
- 4. The Permittee may elect not to monitor the total sulfur content of the natural gas, in accordance with 40 CFR §60.4365 Subpart KKKK, if the potential emissions do not exceed 0.060 lb SO<sub>2</sub>/MMBtu. This demonstration may be made using the purchase contract specifying that the fuel sulfur content for the natural gas is less than or equal to

20 grains of sulfur/100 standard cubic feet and results in potential emissions not exceeding 0.060 lb  $SO_2/MMBtu$ . This determination shall be done on an annual basis pursuant to 40 CFR §60.4415 Subpart KKKK.

## B. Record Keeping

- 1. The Permittee shall keep records of monthly and consecutive 12 month fuel consumption of the turbine. The consecutive 12 month fuel consumption shall be determined by adding 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 calculate and record the monthly and consecutive 12 month PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC, and CO emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.

Emissions during startup and shutdown shall be counted towards the annual emission limitation in Part III.C of this permit.

3. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the turbine or any malfunction of the air pollution control equipment. [40 CFR §60.7(b)]

Such records shall contain the following information:

- a. type of event (startup, shutdown or malfunction);
- b. equipment affected;
- c. date of event;
- d. duration of event (minutes); and
- e. total NO<sub>x</sub>, VOC and CO emissions emitted (Ib) during the event.
- 4. The Permittee shall keep records of the inspection and maintenance of the turbine and oxidation catalyst. The records shall include:
  - a. the name of the person;
  - b. the date;
  - c. the results or actions; and
  - d. the date any parts or catalyst is replaced.
- 5. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

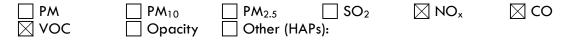
## C. Reporting

- 1. The Permittee shall notify the commissioner in writing of any exceedance of an emissions limitation or operating parameter, and shall identify the cause or likely cause of such exceedance, all corrective actions and preventive measures taken with respect thereto, and the dates of such actions and measures as follows:
  - a. For any hazardous air pollutant, no later than 24 hours after such exceedance commenced; and
  - b. For any other regulated air pollutant or operating parameter, no later than ten days after such exceedance commenced.

- 2. The Permittee shall notify the commissioner in writing of any malfunction of the turbine or the air pollution control equipment. The Permittee shall submit such notification within ten days of the malfunction. The notification shall include the following:
  - a. a description of the malfunction and a description of the circumstances surrounding the cause or likely cause of such malfunction; and
  - b. a description of all corrective actions and preventive measures taken and/or planned with respect to such malfunction and the dates of such actions and measures.
- 3. The Permittee shall submit all reports to the commissioner as required pursuant to RCSA §22a-174-22(I) and 40 CFR §60.4375(a).

## PART V. STACK EMISSION TEST REQUIREMENTS

- A. Stack emission testing shall be performed in accordance with the <u>Emission Test Guidelines</u> available on the DEEP website.
- **B.** Stack emissions testing shall be required for the following pollutant(s):



1. During stack emissions testing, the manufacturer's performance data curve may be used to determine the Maximum Heat Input as follows:

 $MMBtu/hr = 191.75875 - 0.4843899T - 0.0022815(T-53.5)^2 + 0.0001127(T-53.5)^3$ 

where T = ambient temperature (°F)

- **C.** The Permittee shall submit test results within 60 days after completion of testing.
- D. NO<sub>x</sub> performance testing shall be performed in accordance with 40 CFR §60.4400 Subpart KKKK. Performance testing is required annually. If the NO<sub>x</sub> emission result from the current performance test is less than or equal to 18.75 ppm @ 15% O<sub>2</sub>, subsequent performance test frequency may be reduced to every two years.
- **D.** Recurrent stack testing for CO and VOC shall be conducted within five years from the date of the previous stack test to demonstrate compliance with their respective limits.
- E. Stack test results for all pollutants shall be reported units of lb/hr. NO<sub>x</sub> emissions shall also be reported in units of ppmvd @ 15% O<sub>2</sub> and lb/MMBtu.

#### PART VI. 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 operate and maintain this equipment, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

**C.** The Permittee shall properly operate the control equipment at all times that this equipment is in operation and emitting air pollutants.

## PART VII. SPECIAL REQUIREMENTS

**A.** The Permittee shall comply with all applicable sections of the following New Source Performance Standard at all times.

Title 40 CFR Part 60, Subparts KKKK and A.

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

- **B.** In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three hours, the Permittee shall immediately institute shutdown of the turbine.
- **C.** 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. [STATE ONLY REQUIREMENT]
- D. For this CHP Project, the Permittee utilized internal offsets to net out of major NSR requirements. These internal offsets were the result of the decommissioning of seven diaper machines (in 2004), decommissioning of Boiler #1 (Registration No. 130-0017) and Boiler #2 (Registration No. 130-0018), as well as modifications to Tissue Machine Hood Burner #1 (Permit No. 130-0026) and Tissue Machine Hood Burner #2 (Permit No. 130-0014). The diaper machines #1-#4 were registered sources (Registration Nos. 130-0062, -0063, -0064, -0065) and #5-#7 were exempt units. The following is a list of the scheduled milestones and dates completed.
  - 1. Combustion Turbine #2 (Permit No. 130-0071), startup April 15, 2008
  - 2. Combustion Turbine #1 (Permit No. 130-0070), startup June 25, 2008
  - Tissue Hood Burner #1 (Permit No. 130-0026), hood and burner upgrade June 14, 2008
  - 4. Tissue Hood Burner #2 (Permit No. 130-0014), hood and burner upgrade July 31, 2008
  - 5. Boiler #2, decommissioned April 15, 2008
  - 6. Boiler #1, decommissioned October 14, 2008

#### 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 DEEP 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. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.

- 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.
- E. 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."
- F. 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.
- **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.
- 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 Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.



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

Company Name:	Kimberly-Clark Corporation	Permit No.:	130-0071
Equipment Location:	58 Pickett District Road, New Milford, CT 06776	Date App Received:	5/18/2016
Mailing Address:	58 Pickett District Road, New Milford, CT 06776	SIMS No.:	201606594
Contact Person:	Ms. Sonii Kollie	Date Prepared:	10/3/2016
Contact Title:	Environmental Coordinator	Prepared By:	Dave LaRiviere
Contact Phone:	860 354 4481	Single or Multiple Units:	Single
Contact Email:	Sonii.kollie@kcc.com	Permit Type:	Minor Mod (prepaid)
Ozone:	severe non-attainment	Premises Size:	Major
PM2.5:	attainment	Equipment Size:	Major
Equipment Description	Solar Titan 130 Combustion Turbine #2	TV/GPLPE Permit No:	130-0050-TV
Step 1: Complete all the fields above			
Step 2:	Update Fields		

# **Introduction**

## **Reason for Application**

Kimberly-Clark Corporation (KCC) submitted a minor modification application for Permit No. 130-0071 to add temperature based equations for maximum heat input of the turbine and turbine with supplemental burner. There are no changes to hourly or annual emission rates.

## **Regulatory Applicability**

The proposed changes meet the criteria of RCSA §22a-174-2a(e).

## **Discussion of Modification**

The reason for this minor modification is to address potential compliance issues during periodic performance testing in achieving 90% maximum rated capacity. A temperature based performance equation for maximum heat input will be added. The equation follows:

 $MMBtu/hr = 191.75875 - 0.4843899T - 0.0022815(T-53.5)^2 + 0.0001127(T-53.5)^3$ 

where T = ambient temperature (°F)

The current permit is in an old format and has been updated to the current format with this modification. Along with this, permit clean up was performed, such as removing initial requirements that have since been met and removing MASC limits, replacing them with the current RCSA §22a-174-29 permit language.

#### Regulatory Analysis

The accepted changes do not trigger any new regulatory requirements.

#### **Public Notification**

The applicant will not be required to publish Notice of Tentative Determination in accordance with the E&E Division policy.

#### Environmental Compliance History Policy

The compliance record was reviewed in accordance with the Environmental Compliance History Policy. The applicant submitted a compliance history of the previous five years and has indicated no violations. Agency records (including the SIMS database) were reviewed for information to evaluate the applicant's compliance history (see attached). Additionally, a review of air program compliance was requested from the Enforcement Section and that response forms a part of this record.

#### Recommendation

It is recommended that KCC be granted a minor modification to Permit No. 130-0071 as detailed above.

Pollutant	Existing Permit (tpy)	Modified Permit (tpy)	Change in Emissions (tpy)
PM	6.31	6.31	0
$\mathbf{PM}_{10}$	6.31	6.31	0
<b>PM</b> <sub>2.5</sub>	6.31	6.31	0
SO <sub>2</sub>	1.07	1.07	0
NO <sub>x</sub>	42.4	42.4	0
VOC	0.705	0.705	0
СО	4.30	43.0	0

## **Emissions Change from Modification/Revision**

#### **Comments:**

<b>Review Type</b>	Conduct If	Emissions/Analysis	Dates
Refined Modeling	allowable emissions for all equipment being permitted contemporaneously exceed any of the limits to the right $\rightarrow$	$ \begin{array}{ c c c c c } PM_{10} \geq 15 \ TPY \\ \hline & SOx \geq 15 \ TPY \\ \hline & PM_{2.5} \geq 10 \ TPY \\ \hline & PM_{2.5} \geq 10 \ TPY \\ \hline & NOx \geq 40 \ TPY \\ \hline & CO \geq 100 \ TPY \\ \hline & Pb \geq 0.6 \ TPY \\ \hline & Total \ Dioxins \geq \\ 0.6E-7 \ TPY \\ \end{array} $	Date Sent: Date Approved:
Screening	allowable emissions for all equipment being permitted contemporaneously fall into any of the ranges to the right $\rightarrow$	$ \begin{array}{ c c c c c } \hline & 3 \leq PM_{10} < 15 \text{ TPY} \\ \hline & 3 \leq SOx < 15 \text{ TPY} \\ \hline & 1 \leq PM_{2.5} < 10 \text{ TPY} \\ \hline & 5 \leq NOx < 40 \text{ TPY} \\ \hline & 5 \leq CO < 100 \text{ TPY} \\ \hline \end{array} $	Date Sent: Date Approved:
Stack Height Review	screening and refined modeling are not required.	Stack Height (SH): Building Height(BH): Building Width (BW): The lesser of BH *1.3 or BW*1.3 (BL): The greater of 32.8 feet or BL (MSH): The equipment passes if SH is greater than or equal to MSH.	Date Approved:

## Ambient Air Quality Impact Analysis (Attachment L of NSR Application)

**Comments:** Refined modeling for particulate and  $NO_x$  emissions and screening for CO emissions was performed and submitted with the initial permit application. The analyses were approved on Aug 8, 2007. This modification does not change any hourly or annual emission rates.

## Permit Fee(s) (Double Click to edit)

Equipment Size	Major	O Minor
Permit Type Minor Permit Mod	•	
Permit Fee	\$3,250	ea.
Municipality	Yes	
# of Permits/Applications	1	\$3,250
Application Fee Submitted	✓ Yes	-\$940
Was Permit Fee paid with Application Fee?	✓ Yes	-2310
Additional Application Fees (\$1750 Each)		
	Quantity	
BACT Review	0	\$0
LAER Review	0	\$0
Money Owed		\$0

## **Compliance History Review**

Was the SIMS Enforcement Report run and reviewed for this applicant?	Yes
Were other bureaus contacted to resolve any outstanding enforcement actions shown in the SIMS Report?	N/A
What is the date on the Enforcement Section's review of air compliance email?	9/15/2016
Was the compliance record reviewed in accordance with the Environmental Compliance History Policy?	Yes

# **Approvals**

Based on the information submitted by the applicant, this engineering evaluation and the compliance history review, the granting of a permit is recommended for Kimberly-Clark Corporation.

## /s/Dabid LaRiviere

David LaRiviere APCE /s/Susan E. Amarello 10/6/2016

Susan E. Amarello Supervising APCE

/s/Jaimeson Sinclair 3/16/17 Jaimeson Sinclair Assistant Director



79 Elm Street • Hartford, CT 06106-5127

www.ct.gov/deep

Affirmative Action/Equal Opportunity Employer

Ms. Sonii Kollie Environmental Coordinator Kimberly-Clark Corporation 58 Pickett District Road New Milford, CT 06776

Dear Ms. Kollie:

Enclosed is a copy of your modified permit to construct and operate Solar Titan 130 Combustion Turbine #2 at the above location.

This letter does not relieve you of the responsibility to comply with the requirements of other appropriate Federal, State, and municipal agencies. This permit is not transferable from one permittee to another without prior written approval, from one location to another, or from one piece of equipment to another. The permit must be made available at the site of operation throughout the period that such permit is in effect.

Pursuant to Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA), Kimberly-Clark Corporation must apply for a permit modification/revision in writing if it plans any physical change, change in method of operation, or addition to this source which constitutes a modification or revision pursuant to RCSA sections 22a-174-1 and 22a-174-2a, respectively. Any such changes should first be discussed with Mr. David LaRiviere of the Bureau of Air Management, by calling (860) 424-4152. Such changes shall not commence prior to the issuance of a permit modification.

Sincerely,

Gary S. Rose Director Engineering & Enforcement Division Bureau of Air Management

GSR:dpl cc (via electronic mail): Robert Girard, Air Enforcement Jolene Crane, TRC

Enclosure