

Air Permit Review

Region: Asheville Regional Office
County: McDowell
NC Facility ID: 5600164
Inspector's Name: Brendan Davey
Date of Last Inspection: 11/05/2010
Compliance Code: 3 / Compliance - inspection

Permit Issue Date:

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): Baxter Healthcare Corporation Facility Address: Baxter Healthcare Corporation 2859 Old Linville Road Marion North Cove, NC 28752 SIC: 4961 / Steam Supply NAICS: 22133 / Steam and Air-Conditioning Supply Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: NSPS: NESHAP: 40 CFR 63, Subparts ZZZZ and JJJJJ PSD: PSD Avoidance: NC Toxics: 112(r): Other:
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 5600164.11A Date Received: 12/28/2010 Application Type: Renewal/Modification Application Schedule: TV-Renewal Existing Permit Data Existing Permit Numbers: 05600/T11 and 01915R19 Existing Permit Issue Date: 05/03/2010 Existing Permit Expiration Date: 06/30/2011
Ricky Styles Manufacturing Supervisor (828) 756-4946 2859 Old Linville Road Marion, NC 28752	Mike Howell Plant Manager (828) 756-6530 65 Pitt Station Road Marion, NC 28752+1390	Anita Jensen Manager, Environmental, Health, & Safety (828) 756-6734 65 Pitt Station Road Marion, NC 28752	
Review Engineer: Jenny Kelvington Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 05600/T12 Permit Issue Date: Permit Expiration Date:	

I. Purpose of Application

This permitting action is a renewal and modification of an existing Title V permit for Baxter Healthcare Corporation (Baxter) pursuant to 2Q .0513 and 2Q .0516. Baxter's existing Title V permit (**05600T11**) was issued on May 3, 2010, and is currently scheduled to expire on June 30, 2011. Their renewal application was received on December 28, 2010, three days prior to the December 31, 2010 deadline. Therefore, their existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until that time. In addition to renewing their permit, Baxter has requested the consolidation of Air Quality Permit Nos. 01915R19 and 05600T11 into a single Title V permit No. 05600T12. Baxter purchased adjacent Suez Energy BioPower, Inc. – North Cove in 2010 and amended the Title V permit on May 3, 2010 to reflect the ownership change. Lastly, Baxter is requesting that carpet waste be removed as a permitted fuel for wood-fired boiler WBES-1.

II. Facility Description

Baxter manufactures sterile intra-venous (IV) solutions for use in the medical industry. The facility stamps bags from PVC sheets, labels the bags for content, extrudes the fill tube (from PVC), extrudes an overwrap

(from HDPE), and fills the bags with several different types of IV (salt/sugar/medication/water) solutions. Steam for the facility is supplied primarily by a wood fired boiler, formerly owned by Suez Energy. In addition to wood, the boiler is permitted to burn carpet waste and on-site generated used oil.

III. Last Five Years Permit and Compliance History

Baxter Healthcare and Former Suez Energy Combined

Baxter Healthcare was assessed a civil penalty for eight VE emission violations occurring on 8/16/10 and 9/24/10.

11/05/10 Mr. Brenden Davey (ARO) performed the most recent facility inspection. At the time of this inspection, the facility appeared to be operating in compliance with all air quality requirements.

10/04/10 NOV/NRE issued for four VE emission violations occurring 9/24/10. Resolved 11/5/10.

08/19/10 NOV/NRE issued for four VE emission violations occurring 8/16/10. Resolved 11/5/10.

05/03/10 Permit 05600T11 issued for the ownership change from Suez Energy to Baxter Healthcare

Baxter Healthcare Prior to Acquisition of Suez Energy

12/11/09 Permit 01915R19 renewed.

04/02/07 Permit 01915R18 issued for the removal of a larger No. 6 fuel oil-fired boiler (ID No. 1; 22.9 mmBtu/hour) and the addition of two smaller NSPS affected No. 2 fuel oil-fired boilers (ID Nos. 8 and 9; 11.8 mmBtu/hour each).

02/06/07 NOV issued for failing to submit a quarterly report in a timely manner. Resolved.

Former Suez Energy Facility

05/22/07 Stack Testing Performed for the wood-fired boiler.

11/15/06 Permit 05600T10 issued a name change from Trigen-BioPower to Suez Energy BioPower.

07/13/06 Permit 05600T09 renewed.

IV. Emissions Summary

Synthetic Minor Air Quality Permit No. 01915R19 Facility Wide Emissions¹

Pollutant	2008 Actual Emissions (tpy)	Potential Emissions as Limited by Synthetic Minor Condition (tpy)	Potential Uncontrolled Emissions (tpy)
TSP	0.18	< 100	126.7
PM ₁₀	0.11	< 100	112.2
PM _{2.5}	0.09	< 100	93.3
SO ₂	1.55	< 100	1225.7
NO _x	1.31	< 100	2211.2
CO	0.18	< 100	471.8
VOC	44.97	< 100	104.4
HCl	< 0.01	< 0.01	< 0.01

Title V Air Quality Permit No. 05600T12 Facility Wide Emissions

Pollutant	2009 Actual Emissions (tpy)	Potential Emissions as Limited by PSD Avoidance and Controls (tpy)	Potential Uncontrolled Emissions (tpy)
TSP	58.46	< 250	> 250
PM ₁₀	58.46	< 250	> 250
PM _{2.5}	58.46	< 250	> 250
SO ₂	0.99	1.5	17.8
NO _x	103.89	161.2	> 250

¹ The emissions table is copied from the Permit Review for the Renewal of the Synthetic Minor Permit dated 12/11/09.

Pollutant	2009 Actual Emissions (tpy)	Potential Emissions as Limited by PSD Avoidance and Controls (tpy)	Potential Uncontrolled Emissions (tpy)
CO	161.17	< 250	> 250
VOC	4.9	7.6	12.1
HCl	3.8	5.5	> 10

Combined R19 and T12 Permits

Pollutant	Actual Emissions (2008 for R19 sources and 2009 for T12 sources) (tpy)	Potential Emissions As Limited/Controlled by the Existing TV and 300 Permits (tpy)	Potential Uncontrolled Emissions (tpy)
TSP	58.7	<205.1	> 250
PM ₁₀	58.6	<205.1	> 250
PM _{2.5}	58.6	<198.4	> 250
SO ₂	2.6	< 250	> 250
NO _x	105.2	<261.2	> 250
CO	162.5	< 350	> 250
VOC	5.1	< 107.6	116.5
HCl (largest HAP)	3.8	5.5	>10
Total HAPs	9.8	17.5	>25

V. Permit Modifications/Changes and ESM Discussion

The following table describes the modifications to the current permit as part of the renewal process.

Page No.	Section/Condition No.	Description of Change
--	Throughout	Updated dates and permit revision number.
3	List of Permitted Sources	Added 4 boilers, 8 generators, and 1 cyclohexanone bonding process, 1 PVC extruder die cleaning oven controlled by a water spray trap and condenser, and isopropyl alcohol cleanup operations to the list of permitted sources. Removed carpet waste as a permitted fuel for boiler WBES-1
4.	2.1.A.1	Removed the emission limit for carpet waste firing Renewed the requirement to test boiler WBES-1 once during the permit cycle and required test results to be submitted by September 30, 2012.
N/A	Former 2.1.A.4	Moved the PSD avoidance condition to Section 2.2.A.1
N/A	Former 2.1.A.5	Eliminated the State-Only requirements for toxic air pollutants associated with firing carpet waste in the wood-fired boiler.
6-7	2.1.A.4	Eliminated the pressure drop across the multicyclone and scrubber as indicator parameters for compliance assurance monitoring (CAM) and kept the scrubber water flowrate as the sole CAM indicator.
8-10	2.1.B.	Added the TV permit requirements for the two No. 6 fuel oil fired boilers and the two No. 2 fuel oil fired boilers.
11-14	2.1.C.	Added the TV permit requirements for the eight peak shaving/emergency generators including the GACT ZZZZ requirements.
15	2.1.D.	Added the TV permit requirements for the cyclohexanone bonding process and isopropyl alcohol cleanup operations.
16-17	2.1.E.	Added the TV permit requirements for the PVC extruder die cleaning oven and associated water spray trap and condenser.

18	2.2.A.	Added regulatory summary table for facility wide emission sources.
18-19	2.2.A.1	Added PSD Avoidance Condition for all facility wide combustion sources. Removed the facility wide VOC emission limit.
19	2.2.A.2	Added requirement to permit toxic air pollutant emissions prior to exceeding a TPER.
20	2.2.A.3	Added a major source avoidance condition.
20	2.2.A.4	Added 112r avoidance condition limiting the usage, storage, and handling of ammonia and chlorine.
21-22	2.2.B	Added GACT JJJJJ requirements for the facility boilers.
24-33	3.0	Updated General Conditions to the latest version 3.4.

V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0402, Sulfur Oxides

15A NCAC 2D .0503, Particulates from Fuel Burning Indirect Heat Exchangers

15A NCAC 2D .0504, Particulates from Wood Burning Indirect Heat Exchangers

15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes

15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources

15A NCAC 2D .0521, Control of Visible Emissions

15A NCAC 2D .0524, New Source Performance Standards

15A NCAC 2D .0530, Prevention of Significant Deterioration (Avoidance)

15A NCAC 2D .0535, Excess Emissions Reporting and Malfunctions

15A NCAC 2D .0958, Work Practices for Sources of Volatile Organic Compound Emissions

15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions

15A NCAC 2Q .0317, Avoidance Conditions for PSD (15A NCAC 2D .0530)

15A NCAC 2Q .0711, Toxic Air Pollutant Emissions Limitation Requirement

40 CFR Part 68 Section 112(r), Limitation to Avoid Clean Air Act Section 112(r) Requirements

The following conditions in Air Quality Permit No. 01915R19 no longer apply:

15A NCAC 2Q .0315, Synthetic Minor Facilities

15A NCAC 2Q .0611, Water Spray Secondary Trap and Condenser Requirements

15A NCAC 2Q .0701, Toxic Air Pollutant Applicability

The following conditions will be added to the combined permits:

15A NCAC 2Q .0317, Avoidance Condition for MACT (15A NCAC 2D .1111)

15A NCAC 2Q .1111, Subparts ZZZZ and JJJJJ

A. Wood-fired boiler

Emission Source ID	Emission Source Description	Control System ID	Control System Description
WBES-1 CAM	One water tube design wood-fired boiler with an overfire air system (162.9 million Btu per hour maximum heat input capacity) – [On-site generated used oil may also be burned in this boiler]	WSCD-2 and MCCD-1	One variable throat venturi-type wet scrubber (300 gallons per minute liquid injection rate) installed in series with one multicyclone (132 nine inch diameter tubes)

Boiler Observations Recorded During 2/11/2010 Inspection by Mr. Brendan Davey (ARO):

Parameter	Observations
General/Boiler plate	<p>This boiler is an E. Keeler Company fixed-grate boiler. The grates have small holes through which the undergrate air travels. Soot is not blown and the grates are manually raked every 8 hours. The tubes are cleaned on outages.</p> <p>The boilerplate indicated: Manufactured 1972, E. Keeler Co., and 120,000 lb steam/hr. An extra overfire air system (side wall) was installed in December 2000. The company had only front and rear wall. The fuel is pushed into the boiler by air pressure. This is a watertube type boiler. An additional boiler plate for 12/12/85 indicates the date the boiler was installed on site.</p>
Visible emissions	The visible emissions after steam plume dissipation were approximately 0-5% opacity. Mr. Styles indicated the low opacity observed was likely due to the use of aged wood.
Steam flow	56,000-76,000 lbs/hr. The company tries to keep the steam load above 36,000 pounds per hour to keep opacity in check. The Baxter facility typically has lower steam demand on weekends.
Steam pressure	201 psi
MC pressure drop	2.7 inches instantaneous (2.1 at gauge) and 2.2 inches 1 hr average <i>3.4 to 3.7 inches of water (1 hour average) (last stack test on 5/22/07)</i>
MC condition	The multicyclone appeared to be free of leaks and in proper working condition. The hoppers were warm to touch, and the rotary valves were operating. Flyash is re-injected after it is screened to remove sand and smaller ash. There was not much ash visibly collecting in the reject pile. Mr. Styles indicated this is reduced during lower load conditions.
Scrubber pressure drop	6.2-6.3 inches 1-hr average, 6.0-6.6 inches instantaneous (5.5 at gauge)(60 samples taken per hour for the hourly average) <i>8.1 inches of water average (last stack test on 5/22/07)</i>
Scrubber water flow	376-429 gpm 1-hr average, 455-523 gpm instantaneous (460 at gauge) (60 samples taken per hour for the hourly average) <i>670 gpm average (last stack test on 5/22/07)</i>
Scrubber condition	The scrubber appeared to be free of leaks and in proper working condition. There were no leaks observed. Makeup water is added to the pond, near the water intake, from the ID fan cooling system. Dirty water was observed being discharged into the pond. From the previous inspection: <i>A portion of the scrubber gas escapes the cyclonic collector through an overflow pipe to the scrubber sump in between the two settling ponds. Low opacity visible emissions and steam were observed at this location during the last inspection. Tony Leopard indicated he would look into this matter in an e-mail dated 6/19/08. Makeup water (mentioned above) is also added to this overflow pipe to enter the scrubber sump.</i> The pipe has now been modified to include a trap and no visible emissions were observed during this inspection at the scrubber pond.
Scrubber throat setting	According to Mr. Styles, the throat width is not adjusted and has been at the same setting for years during normal weekday steam load, but may be adjusted on weekends during low load. The throat has six spray nozzles on either side. The water feed pipes were warm to touch.
Fuel feed rate	57.9% chain feeder (2 feeders) at 23/20 hertz.
Furnace Air	-0.12 furnace draft; 48% overfire damper and 59% distribution air; 0.8 inch undergrate air.
Flue gas oxygen	9.6%
Wood/Air ratio	55.8%
Boiler outlet temp	549 Deg F
Fuel being fired	The facility was firing a ratio of 2 parts green wood to 1 part dry wood. The wood is mixed by a front end loader and put in a feed hopper by a front end loader. The wood as fired is typically 35-40% moisture. The BTU content of the fuel is not typically measured – only during stack tests.

Parameter	Observations																															
Recent Stack Testing	<p>Testing conducted 7/26/02:</p> <table border="1"> <thead> <tr> <th>POLLUTANT</th> <th colspan="3">RESULT</th> <th>PSD THRESHOLD</th> </tr> </thead> <tbody> <tr> <td>CO</td> <td>0.41 lb/mmBtu</td> <td>57.1 lb/hr</td> <td>250 TPY*</td> <td rowspan="3">250 TPY</td> </tr> <tr> <td>NO_x</td> <td>0.26 lb/mmBtu</td> <td>37.2 lb/hr</td> <td>163 TPY*</td> </tr> <tr> <td>VOC as methane</td> <td>0.02 lb/mmBtu</td> <td>2.34 lb/hr</td> <td>10 TPY*</td> </tr> <tr> <td>HCl</td> <td colspan="2">1.35 lb/hr</td> <td>0.009 lb/mmBtu</td> <td rowspan="3"></td> </tr> <tr> <td>Formaldehyde</td> <td colspan="2">0.104 lb/hr</td> <td>0.00074 lb/mmBtu</td> </tr> <tr> <td>Acetaldehyde</td> <td colspan="2">0.011 lb/hr</td> <td>7.77E-05 lb/mmBtu</td> </tr> </tbody> </table> <p>*Based on operating 8760 hours per year.</p> <p>Testing conducted 4/12/01: FPM 0.145 lb/mmbtu, CPM 0.003 lb/mmbtu, TPM 0.148 lb/mmbtu vs. a limit of 0.375 lb/mmbtu.</p> <p>Testing conducted 5/22/07: FPM 0.121 lb/mmbtu, CPM 0.0067 lb/mmbtu, TPM 0.13 lb/mmbtu vs. a limit of 0.38 lb/mmbtu. Scrubber pressure drop averaged 8.1 inches and scrubber flow rate averaged 670 gallons per minute.</p>	POLLUTANT	RESULT			PSD THRESHOLD	CO	0.41 lb/mmBtu	57.1 lb/hr	250 TPY*	250 TPY	NO _x	0.26 lb/mmBtu	37.2 lb/hr	163 TPY*	VOC as methane	0.02 lb/mmBtu	2.34 lb/hr	10 TPY*	HCl	1.35 lb/hr		0.009 lb/mmBtu		Formaldehyde	0.104 lb/hr		0.00074 lb/mmBtu	Acetaldehyde	0.011 lb/hr		7.77E-05 lb/mmBtu
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2D .0504 - Particulates from Wood Burning Indirect Heat Exchangers

This regulation limits particulates from fuel combustion based on the following equation:

$$E = 1.1698 * Q^{-0.2230} = 1.1698 (162.9)^{-0.2230} = 0.375 \text{ lbs/million Btu}$$

Where: E = Allowable particulate emission rate (pounds per million Btu)
Q = Maximum facility wide heat input rate from wood combustion (million Btu/hour)

The existing permit required the Permittee to conduct a one-time test of the boiler at the end of a cleaning cycle when only one settling pond was operating as a worst case scenario and submit test results no later than July 12, 2007. The facility performed the testing on May 22, 2007 and submitted the results in a timely manner. The stack test demonstrated compliance with the emission limitation with total particulate matter (PM) at 0.13 lbs total PM/mmBtu of heat input. The permit will require one PM stack testing within 12 months of the date the renewal is issued.

To meet the emission limitation, particulate emissions are controlled by one venture scrubber (**ID No. WSCD-2**) in series with one multicyclone (**ID No. MCCD-1**). The permit will continue to require inspections and maintenance for the scrubber and multicyclone to ensure compliance. The facility maintains a pressure drop indicator on the scrubber and performs at least one monthly external visual inspection of the system ductwork and material collection unit for leaks and an annual internal inspection of the multicyclone's structural integrity and the scrubber's spray and other internal components to detect clogging or corrosion damage. The pressure drop across the scrubber is maintained at a minimum of 1.5 inches of water. These requirements will continue after the permit is renewed. Compliance is expected.

2D .0516: Sulfur Dioxide from Combustion Sources

Sulfur dioxide emissions are limited to 2.3 pounds per million Btu heat input. No monitoring, recordkeeping, or reporting is required because wood is inherently low in SO₂ emissions. Compliance is indicated.

2D .0521: Control of Visible Emissions

Visible emissions from are limited to 20 percent opacity when averaged over a six-minute period except not more than once in any hour and not more than four times in any 24-hour period. Baxter is required to daily monitor visible emissions in comparison to normal and either take appropriate action to correct the above normal emissions or demonstrate in accordance with 15A NCAC 2D .2610 (Method 9), the percent opacity is below 20% opacity. In 2010, NC DAQ observed visible emissions from the wood-fired boiler in excess of the opacity limit on two separate occasions as shown in the photographs below.

- **Visible Emission Observation on 9/24/2010**



- **Visible Emission Observation on 8/16/2010**



Two Notice of Violation/Notice of Recommendation for Enforcement letters dated August 19, 2010 and October 4, 2010 were sent to the company regarding excess visible emissions from the wood-fired boiler. On November 5, 2010 NCDAQ attended a requested meeting with Baxter at the facility where Baxter personnel described actions taken to date to bring the boiler in compliance with the opacity standards. These actions

include (1) repairing the heat exchanger, (2) improving boiler air controls, (3) enhancing fuel moisture content monitoring, (4) enhancing steam load management, and increasing the VE monitoring frequency to once per hour during operation. These actions have given the operators better control over the combustion air and wood-fuel combustion in the boiler. At the time of the site visit, NC DAQ personnel observed the wood-fired boiler operating with visible emission less than 20% opacity. Therefore, it appears the facility is now in compliance with 15A NCAC 2D .0521 and continued compliance is expected.

2D .0614: Compliance Assurance Monitoring (CAM)

The existing permit requires CAM for three indicator parameters associated with the multicyclone and scrubber controlling emissions from the wood-fired boiler. Current guidance only requires that CAM be applied to the unit directly emitting to the atmosphere when control devices are installed in series. Therefore, the CAM requirements will be limited to the scrubber. Currently, the facility monitors both the water flow rate entering the scrubber and the pressure drop across the scrubber to ensure its performance. Because the pressure drop across the scrubber monitoring is already required under 2D .0515, the CAM indicator will be the water flow rate. Baxter Healthcare will to be required to maintain the water flow above 250 gpm as they have consistently done. Continued compliance is expected.

2D .1111: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Industrial, Commercial, and Institutional Boilers

To avoid the boiler MACT requirements contained in 40 CFR 63, Subpart DDDDD, Baxter Healthcare wishes to continuing limiting facility-wide HAP emissions to less than 10/25 tpy. Potential uncontrolled facility-wide HAP emissions exceed 10 tpy HCl (individual HAP) and 25 tpy total HAPs. With the reduction in HCl and other HAP emissions achieved by the wood-fired boiler scrubber, potential facility-wide HCl and total HAP emissions are 6.4 tpy and 20.4 tpy, respectively.

The wood-fired boiler will be subject instead to the generally available control technology and management practice (GACT) contained in 40 CFR 63, Subpart JJJJJ “National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Industrial, Commercial, and Institutional Boilers. The boiler GACT was promulgated on **March 21, 2011** and requires the wood-fired and oil-fired boilers to comply with work practices by March 21, 2012 and an energy assessment by March 21, 2014. The Subpart JJJJJ requirements applicable to the boilers have been added to the permit. Compliance is expected.

2Q .0317 PSD Avoidance

To avoid applicability of 15A NCAC 2D .0530(g) for major sources, the facility has requested that all boilers and generators be limited less than 250 tons each of PM₁₀, sulfur dioxide, nitrogen oxide, carbon monoxide, and volatile organic compounds per consecutive 12-month period. Emissions from the wood-fired boiler will be limited to facility wide limits.

B. Fuel oil-fired boilers

ID No.	Emission Source Description
4	No. 6 fuel oil-fired boiler (52 MMBtu per hour maximum heat input rate)
5	No. 6 fuel oil-fired boiler (69 MMBtu per hour maximum heat input rate)
8 (NSPS)	No. 2 fuel oil-fired boiler (11.8 MMBtu per hour maximum heat input rate)
9 (NSPS)	No. 2 fuel oil-fired boiler (11.8 MMBtu per hour maximum heat input rate)

2D .0402 - Sulfur Oxides and 2D .0516 – Sulfur Dioxide from Combustion Sources

Sulfur dioxide emissions from these boilers are limited to **1.6 pounds per million Btu of heat input**. This limit is lower than the typical 2.3 pounds per million Btu of heat input limit of 2D .0516 and is intended to prevent a violation of the SO₂ ambient standard (see 11/10/93 AQ16). The SO₂ limit appears to date back to the 1980s. The appendix to 2D .0516 (Appendix 6-7) references a public hearing on June 25, 1986 (Travenol Laboratories (former name), Air Permit No. 1915R6) and states that "in no case shall sulfur dioxide emissions from the fuel burning equipment exceed 1.6 pounds per million Btu input."

No. 6 Fuel Oil (Boilers 4 and 5)

The AP-42 emission factor for SO₂ emissions from No. 6 fuel oil combustion is 157(S) per 1000 gallons, where S = sulfur content. The heat content of No. 6 fuel oil is 150,000 Btu per gallon. Based on the following calculations, a maximum sulfur content of 1.52% is required to comply with this limit:

$$(157 (1.52) \text{ lb}/1000 \text{ gal.}) / (150,000 \text{ Btu}/\text{gal}) * 1,000,000 \text{ Btu}/\text{million Btu} = \mathbf{1.59 \text{ lb}/\text{million Btu}}$$

At 1.6 lb/million Btu, potential SO₂ emissions from these two boilers are 848.0 tpy.

Compliance is expected.

No. 2 Fuel Oil (Boilers 8 and 9)

These boilers are subject to NSPS, Subpart Dc, which limits the sulfur content of the fuel oil to 0.5% by weight. The AP-42 emission factor for SO₂ emissions from No. 2 fuel oil combustion is 142(S) per 1000 gallons, where S = sulfur content. The heat content of No. 2 fuel oil is 140,000 Btu per gallon. Based on the following calculations, compliance with NSPS ensures compliance.

$$(142 (0.5) \text{ lb}/1000 \text{ gal}) / (140,000 \text{ Btu}/\text{gal}) * 1,000,000 \text{ Btu}/\text{million Btu} = \mathbf{0.51 \text{ lb}/\text{million Btu}}$$

At 0.51 lb/million Btu, potential SO₂ emissions from these two boilers are 52.7 tpy

2D .0503 - Particulates from Fuel Burning Indirect Heat Exchangers

This regulation limits particulates from fuel combustion based on the following equation:

$$E = 1.090 * Q^{-0.2594}$$

Where: E = Allowable particulate emission rate (pounds per million Btu)

Q = Maximum facility wide heat input rate from fuel oil combustion (million Btu/hour)

The facility is permitted to operate four boilers (ID Nos. 4, 5, 8, and 9) with a combined heat input rate of 144.6 million Btu per hour. 2D .0503 (e) states that the removal of a boiler shall not change the particulate limit of a boiler previously set. Boilers 8 and 9 were added to the permit in 2007 with a particulate limit of 0.30 lb/mmBtu. The particulate limit for Boilers 4 and 5 remain at 0.27 lb/mmBtu.

No. 6 Fuel Oil (Boilers 4 and 5)

The AP-42, Table 1.3-1 emission factor for particulates from No. 6 fuel oil combustion is 10 pounds per 1000 gallons. Based on a heat content of 150,000 Btu per gallon for No. 6 fuel oil at (ref. AP-42, Section 1.3.4.3) particulates from No. 6 fuel oil combustion are calculated as:

$$(10 \text{ lb}/1000 \text{ gal}) / (150,000 \text{ Btu}/\text{gal}) * 1,000,000 \text{ Btu}/\text{million Btu} = 0.067 \text{ lb}/\text{million Btu}$$

Boilers 4 and 5: 0.067 pound per million Btu < 0.27 pounds per million Btu

At 0.067 lb/million Btu, potential PM emissions from these two boilers are 35.5 tpy

No. 2 Fuel Oil (Boilers 8 and 9)

The AP-42, Table 1.3-1, emission factor for particulates from No. 2 fuel oil combustion is 2 pounds per 1000 gallons. Based on a heat content of No. 2 fuel oil at 140,000 Btu per gallon, particulates from No. 2 fuel oil combustion are calculated as:

$$(2 \text{ lb}/1000 \text{ gal}) / (140,000 \text{ Btu}/\text{gal}) * 1,000,000 \text{ Btu}/\text{million Btu} = 0.014 \text{ lb}/\text{million Btu}$$

Boilers 8 and 9: 0.014 pound per million Btu < 0.30 pound per million Btu limit

At 0.014 lb/million Btu, potential PM emissions from these two boilers are 1.45 tpy. Compliance with 2D .0503 is indicated for all boilers based on the emission factors.

2D .0521 - Control of Visible Emissions

Equipment manufactured before July 1, 1971 is subject to a 40% opacity limit, while equipment manufactured after July 1, 1971 is subject to a 20% opacity limit. Boiler 4 (ID No. 4) has a manufacture date of 1975, and Boiler 5 (ID No. 5) has a manufacture date of 1979 (ref. 02/16/00 Permit Review). Boilers 8 and 9 (ID Nos. 8 and 9) have a manufacture date of January 2007 (ref. 04/02/2007 review). All are subject to the 20% opacity

limit. Each time these boilers have been observed operating during site inspections, they have been in compliance with 2D .0521. Continued compliance is expected.

2D .0524 – New Source Performance Standards

The effective date for NSPS, Subpart Dc, is June 9, 1989. The manufacture date of Boilers 8 and 9, as listed on the initial application, is January 2007. Thus, the units are subject to NSPS, Subpart Dc. Subpart Dc limits the sulfur content of the fuel oil to 0.5% by weight. The facility is required to provide DAQ with a start-up notification, maintain records of monthly fuel combustion, and report the fuel sulfur content every six months. The start-up notification was received on July 30, 2007 and the fuel combusted in the boilers has not contained more than 0.05% sulfur by weight. Continued compliance is expected.

2D .1111: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Industrial, Commercial, and Institutional Boilers

To avoid the boiler MACT requirements contained in 40 CFR 63, Subpart DDDDD, Baxter Healthcare wishes to continue limiting facility-wide HAP emissions to less than 10/25 tpy. Potential uncontrolled facility-wide HAP emissions exceed 10 tpy HCl (individual HAP) and 25 tpy total HAPs. With the reduction in HCl and other HAP emissions achieved by the wood-fired boiler scrubber, potential facility-wide HCl and total HAP emissions are 6.4 tpy and 20.4 tpy, respectively.

The oil-fired boilers will be subject instead to the generally available control technology and management practice (GACT) contained in 40 CFR 63, Subpart JJJJJ “National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Industrial, Commercial, and Institutional Boilers. The boiler GACT was promulgated on **March 21, 2011** and requires oil-fired boilers to comply with work practices by March 21, 2012 and an energy assessment by March 21, 2014. The Subpart JJJJJ requirements applicable to the boilers have been added to the permit. Compliance is expected.

2Q .0317 PSD Avoidance

To avoid applicability of 15A NCAC 2D .0530(g) for major sources, the facility has requested that all combustion sources be limited to less than 250 tons each of PM₁₀, sulfur dioxide, nitrogen oxide, carbon monoxide, and volatile organic compounds per consecutive 12-month period. As the fuel oil-fired boilers are currently permitted, emissions of each criteria pollutant from these units and the generators combined are limited to less than 100 tons per year. The facility has consistently kept the emissions of all criteria pollutants from all sources below 250 tpy. Compliance is expected.

C. Peak shaver/emergency generators

ID No.	Emission Source Description
EP-1 through EP-7	seven 2598 HP diesel fired peak shaver/emergency generators
EP-9	676 HP diesel fired peak shaver/emergency generator

2D .0402 - Sulfur Oxides and 2D .0516 - Sulfur Dioxide Emissions from Combustion Sources

As indicated above, sulfur dioxide emissions from combustion sources are limited to 1.6 pounds per million Btu of heat input. The generators combust diesel fuel and sulfur dioxide emissions are a function of the sulfur content of the diesel fuel. In assessing compliance with the SO₂ limit, a sulfur content of 0.5% is assumed based on the facility’s NSPS limit for boilers 8 and 9. The AP-42 Section 3.4 (Large Stationary Diesel and Stationary Dual-Fuel Engines) emission factor for SO₂ is 1.01(S) pounds per million Btu, where S equals the percent sulfur. SO₂ emissions are calculated as follows:

$$1.01 * S\% = 1.01 * 0.5 = 0.51 \text{ lb of SO}_2 \text{ per million Btu of heat input.}$$

Compliance with this limit is indicated based on the AP-42 emission factor.

2D .0521 - Control of Visible Emissions

All of the generators were new when they were installed in 1997 and are subject to a 20% opacity limit. In general, properly designed, operated and maintained diesel-fired peak shaver/emergency generators have visible emissions below 20% opacity. For the past five years, the generators have not been in operation during any of the site inspections. Compliance with the 20% opacity limit of 2D .0521 is expected and will be confirmed when the generators are observed in operation.

2Q .0317 PSD Avoidance

To avoid applicability of 15A NCAC 2D .0530(g) for major sources, the facility has requested that all combustion sources be limited to less than 250 tons each of PM₁₀, sulfur dioxide, nitrogen oxide, carbon monoxide, and volatile organic compounds per consecutive 12-month period. As the fuel oil-fired boilers are currently permitted, emissions of each criteria pollutant from these units and the generators combined are limited to less than 100 tons per year. The facility has consistently kept the emissions of all criteria pollutants from all sources except the wood-fired boiler below 100 tpy. Compliance with the avoidance condition is expected when these source are combined under the 250 tpy facility wide PSD avoidance limit.

2D .1111, 40 CFR Part 63, Subpart ZZZZ “National Emission Standards For Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines (RICE)”– The facility has chosen to remain a Title III minor facility with potential emissions less than 10/25 tpy for single HAPs/total HAPs. Therefore, the peak shaving generators are existing (pre-June 12, 2006) RICE located at an area source of HAP emissions. Beginning May 3, 2013, the facility will be subject to the following requirements for existing non-emergency compression ignition RICE greater than 500 hp at an area source:

Operating Limits		
Emission Limit (ZZZZ Table 2d)	Reduce CO emissions by 70% or more; or	Minimize the engine’s time spent at idle and the startup time to amount needed for appropriate and safe loading of the engine, to less than or equal to 30 minutes. ¹
	Limit concentration of CO in the exhaust ≤ 23 ppmvd at 15% O ₂	
Operating Limit (ZZZZ Table 2b)	Oxidation Catalyst	Maintain catalyst so that the Δp across the catalyst does not change by more than 2 inches of water at 100% load $\pm 10\%$ from the Δp across the catalyst that was measured during the initial performance test; and
		Maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is ≥ 450 °F and ≤ 1350 °F. ¹
	No Catalyst	Comply with any operating limitations approved by the Administrator.

¹Sources can petition the DAQ pursuant to the requirements of 40 CFR Subpart E for alternative work practices or for a different temperature range.

Ventilation System § 63.6625(g)

For engines not equipped with a closed crankcase ventilation system:

- Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere; **OR**
- Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals, and
- Follow the manufacturer’s specified maintenance requirements for these ventilation systems.

Performance/Compliance Demonstrations (§ 63.6612 and 63.6615)

Conduct the initial performance/compliance demonstration no later than 180 days after 5/3/2013 (initial test can be conducted 2 years prior to compliance date.) Conduct subsequent performance tests every 8,760 hrs or 3 years, whichever comes first.

Performance Monitoring for Engines Controlled with Oxidation Catalyst:

- Install a CPMS and collect the catalyst inlet temperature data according to §63.6625(b); and
- Reduce these data to 4-hour rolling averages; and
- Maintain the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
- Measure the pressure drop across the catalyst once per month and demonstrate that the pressure drop across the catalyst is within the operating limitation established during the performance test.

Performance Monitoring for Engines NOT Controlled with Oxidation Catalyst:

- Install a CPMS and collect the approved operating parameter (if any) data according to §63.6625(b); and
- Reduce these data to 4-hour rolling averages; and
- Maintain the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

Fuel requirements (§ 63.6604)

Use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel as follows:

- (1) 15 ppm maximum sulfur content, and
- (2) A minimum cetane index of 40; or a maximum aromatic content of 35 volume percent.

Reporting § 63.6650

Submit a semiannual compliance report identifying all deviations from emission or operating limitations and all malfunctions during the reporting period, or a statement that there were no deviations from the emission limitations or operating limitations during the reporting period.

D. Cyclohexanone Bonding Process and Isopropyl Alcohol Facility Cleanup Operations

ID No.	Emission Source Description
6	cyclohexanone bonding process
7	isopropyl alcohol facility cleanup operations

The cyclohexanone bonding process and the isopropyl alcohol facility cleanup operations do not emit particulate or visible emissions and thus 2D .0515 and .0521 do not apply. These sources are only subject to the VOC work practices under 2D .0958.

2D .0958 - Work Practices for Sources of Volatile Organic Compounds

This rule requires facilities to implement storage and cleaning practices listed in .0958(c) and (d). Compliance with this regulation is indicated in past inspection reports. Continued compliance is expected.

E. PVC Extruder Die Cleaning Oven

Emission Source ID	Emission Source Description	Control System ID	Control System Description
1724	PVC extruder die cleaning oven (maximum polymer input rate of 5 pounds per hour)	J17452	water spray trap and condenser (J17452)

The total cycle time for pyrolysis, oxidation, and cool down in this oven is 5 hours. The highest emissions occur during oxidation when PVC is burned off, lasting 50 to 60 minutes. The initial application dated 09/09/93 lists 5 pounds per hour of PVC burn off as the design rating, with a corresponding 0.0001 pounds per hour of acid gas (hydrogen chloride) emissions.

2D .0515 - Particulate Emissions from Miscellaneous Industrial Processes

The cleaning oven is designed to burn off a maximum of 5 pounds per hour (0.0025 tons per hour) of PVC. At this process rate, allowable particulate emissions as limited by 2D .0515 are:

$$E = 4.10 * 0.0025^{0.67} = 0.07 \text{ lb/hour}$$

The facility's 2008 Emissions Inventory indicates that this process emitted 0.0014 pounds of particulates (after the control devices capturing 99.99% of the particulate emissions) during 76.5 hours of operation. For worst case, all particulates are assumed to be emitted during the oxidation cycle or during 15.3 hours at 0.00009 lbs/hour. Compliance with 2D .0515 is indicated but depends on the proper operation of the water spray trap and condenser. Therefore, Baxter shall be required to inspect and maintain the water spray secondary trap for compliance with this regulation. Baxter shall perform periodic inspections and maintenance on the water spray secondary trap and condenser as recommended by the manufacturer. In addition, an annual (once every 12-month period) internal inspection shall be conducted on the water spray secondary trap and condenser to ensure structural integrity. The results of each inspection, and any maintenance performed on the water spray secondary trap and condenser shall be recorded in a log book. The facility has consistently performed I & M for the water trap and condenser for compliance with 2D .0611 and is expected to continue when I & M is required under 2D .0515. [With the inclusion of I&M under Title V, Condition 2D .0611 will no longer apply.]

2D .0521 - Control of Visible Emissions

The die cleaning operation lists a construction date of April 19, 1993 (ref. 09/10/93 application) and is subject to a 20% opacity limit. Past inspection reports have consistently shown visible emissions less than 20% opacity. Continued compliance is expected.

F. Facility Wide Emissions Sources

2Q .0315 – Synthetic Minor Facilities

Permit 01915R19 contains a synthetic minor limit, as previously requested by the facility, for PM₁₀, SO₂, NO_x, CO, and VOC emissions. Now that Baxter Healthcare has acquired ownership of Suez Energy and their Title V permit, their permit no longer needs this Title V avoidance condition.

2Q .0317 Avoidance of 2D .0530 - Prevention of Significant Deterioration

Potential PM, SO₂, NO_x, and CO emissions from the combined facilities (Baxter Healthcare and former Suez Energy) are greater than 250 tons per year. To avoid being classified as a PSD major facility, Baxter Healthcare has requested that PM, SO₂, NO_x, and CO emissions each be limited to less than 250 tons per year. The most recent emissions inventory data shows the emissions of each of these pollutants below the major source thresholds.

Pollutant	Actual Emissions (2008 for R19 sources and 2009 for T12 sources) (tpy)	Potential Emissions (tpy)
PM ₁₀	58.6	383.3
SO ₂	2.6	1227.5
NO _x	105.2	2398.9
CO	162.5	762.9

The facility will be required to calculate PM₁₀, SO₂, NO_x, and CO emissions each month using the most recent approved stack test data for the wood-fired boiler. For the other combustion sources, the facility may use U.S. EPA AP-42 emission factors, NC DAQ spreadsheets based on the AP-42 factors, or any approved site specific test data as the emission factors. 12-month rolling emission total reports shall be submitted in January and July of each year. Baxter has been determining monthly emissions for wood-fired boiler and the fuel oil-fired boilers and generators for compliance with a PSD avoidance condition and synthetic minor limitations and has been reporting in a timely manner. Continued compliance is expected.

2Q .0711 – Toxic Air Pollutant (TAP) Emission Rates Requiring a Permit

The die cleaning operation emits hydrogen chloride (HCl), an acute irritant TAP, at 0.001 pounds per hour. The facility wide rate for which a demonstration of compliance with the acceptable ambient level (AAL) is required 0.18 pounds per hour. Facility wide emissions of HCl resulting primarily from the wood-fired boiler exceed the TPER but because all existing combustion sources have been previously exempt from toxics, no compliance demonstration is required. The facility will be required to perform a toxics modeling demonstration prior to adding a combustion source that emits HCl. At this time, Baxter is not subject to any toxic emission limits under 15A NCAC 2D .1100.

2Q .0317: Avoidance Condition for 40 CFR Part 68 “Accidental Release Requirements: Risk Management Programs under the Clean Air Act (CAA), Section 112(r)

This facility is not subject to 112(r). The facility stores aqueous ammonia with a reduced concentration to 19% (less than 20%) to avoid 112(r) applicability. The existing .0300 air permit includes a specific condition limiting the amount of aqueous ammonia stored at the facility in concentrations greater than 20% to less than 20,000 pounds. The facility also stores chlorine in as many as nine 150 lb cylinders (ref. 04/08/2009 inspection report, 9 x 150 = 1350 pounds). To avoid the applicability of 112(r), the facility is limited to storing 2500 lbs (293 gallons) on site at any one time. To comply with this permit and avoid the applicability of 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs under CAA Section 112(r)," the Permittee shall:

- a. not use, store or handle, within any process, more than 20,000 pounds of aqueous ammonia at concentrations greater than 20%; and,
- b. not use, store or handle, within any process, more than 2,500 pounds (193 gallons) of chlorine.

G. Insignificant Activities

Emission Source ID	Emission Source Description
I-Wood	Wood handling and storage (includes open wood piles, manual material handling with front end loader, and manual unloading)
I-Oiltank	One fuel oil storage tank (6,000 gallon capacity)
I-EP10	One 250 HP diesel fired emergency fire pump engine
I-EP11	One 250 HP diesel fired emergency fire pump engine
I-EP12	One 75 HP (50kW electrical) diesel fired emergency lighting generator

Fire pumps

Two diesel fuel-fired fire pumps rated at 250 hp are located in separate enclosures in front of the facility. The engine on the north end was manufactured in 1993 by Cummins and the engine on the south end was manufactured in 1984 by Detroit. The facility estimates that these engines are operated less than 10 hours per year for maintenance and testing (ref. 2008 inspection report). Beginning May 3, 2013, these pumps will be subject to the Reciprocating Internal Combustion Engine (RICE) Generally Achievable Control Technology (GACT) rule. Compliance is expected.

Emergency lighting generator

This generator is located on the east side of the facility and is rated at 50kW, or approximately 75 horsepower. This engine is operated once per month until reaching operating temperature for exercise purposes (ref. 2008 inspection report). Beginning May 3, 2013, this generator will be subject to the RICE GACT rule. Compliance is expected.

When DAQ received delegation of the federal permitting program, it adopted the federal hazardous air pollutant regulations by reference in 02D .1111. In its efforts to use staff resources most efficiently, DAQ is currently investigating potential de-delegation or exclusion of the RICE GACT rule. In accordance with the January 11, 2011 interim policy on RICE Area Source Rule Implementation signed by Sheila Holman, DAQ Director, and the three emergency engines will continue to be on the insignificant activities list of the permit without specific RICE GACT permit requirements until the outcome of the de-delegation of the rule is known.

VI. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. .

XI. Conclusions, Comments, and Recommendations

A professional engineer's seal was not required for this renewal.

A consistency determination was not required for this renewal.

ARO recommends *issuance?* of the permit and was sent a DRAFT permit prior to issuance

RCO concurs with ARO's recommendation to issue the renewed air permit.