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Domtar

August 29, 2014

U.S. Environmental Protection Agency-Region 6
Attn: Dayana Medina
1445 Ross Avenue #1200
Dallas, TX 75202-2733

SUBJECT:
Domtar A.W. LLC's Response to Request to Provide Information Pursuant to the Clean Air Act dated June 4, 2014

Dear Ms. Medina:

As we discussed, enclosed are the follow-up responses to the following eight questions raised during our webinar presentation on August 21, 2014:

(1) Please provide a summary of the scrubber system, including a brief history, the original manufacturer, and design removal efficiency, etc.

(2) How many absorbers are there for each scrubber system?

(3) For each scrubber, describe its basic type (*e.g.*, wet FGD, SDA), and the subtype (*e.g.*, venturi-rod, packed bed, spray tower, etc.).

(4) For each scrubber, describe the type of reagent used, how it is delivered to the absorber, and how it is determined how much reagent to use.

(5) For each scrubber, describe the internal equipment in each absorber (*e.g.*, for a wet scrubber, describe how many spray headers, trays, liquid distribution rings, mist eliminators, recycle pumps, etc.)

(6) Have any upgrades been performed on the scrubber systems? If so, please describe such upgrades, noting any improvements to the SO2 removal efficiencies.

(7) For each scrubber, describe how much of the flue gas is treated on a percentage basis (*e.g.*, 100% for no bypass).

(8) Please provide monthly average data for 2011, 2012, and 2013 for the following: (a) monitored SO2; (b) mass of fuel burned for each fuel type; (c) percentage of sulfur for each fuel type (including method of calculation); (d) time (in hours) the boiler the scrubber serves was operating; (e) some indication of the load of the boiler the scrubber serves (including method of calculation); and (f) any other performance data that would

provide some indication of how the removal SO2 efficiency of the scrubber varies in response to load and amount of reagent used.

We are also in the process of preparing a response to your question regarding the temperature variability of the boilers and the effect of that variability on the technical feasibility of selective non-catalytic reduction for both boilers. We will forward that response upon its completion.

I will forward an affidavit using the same format as the prior affidavit next week. Please feel free to contact me if you have any questions regarding the enclosed information or if further clarification is needed.

Sincerely,

Annabeth Reitter

Annabeth Reitter
Corporate Manager, Environmental Regulation

Enclosure

cc: Mark A. Thimke, Foley & Lardner LLP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6

IN THE MATTER OF:

Domtar A.W. LLC
Domtar Ashdown Mill
285 Highway 71 South
Ashdown, AR 71822

SUPPLEMENTAL RESPONSE OF DOMTAR A.W. LLC TO UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S CLEAN AIR ACT SECTION 114(A) INFORMATION REQUEST

August 29, 2014

Domtar A.W. LLC ("Domtar") prepared the following responses to the United States Environmental Protection Agency's ("U.S. EPA") questions raised during an August 21, 2014 webinar presentation and follow-up discussion of the answers provided on July 9, July 21, and August 15, 2014, in response to the Clean Air Act, Section 114(a) Information Request dated June 4, 2014 ("Information Request") regarding Domtar's facility at 285 Highway 71 South, Ashdown, Arkansas (hereinafter referred to as the "Ashdown Mill").

General Objections

Domtar's objections are made without in any way waiving or intending to waive but, on the contrary, preserving and intending to preserve:

(a) all questions and/or objections as to competency, relevancy, materiality, privilege, and admissibility as evidence for any purpose of the responses or subject matter thereof, in any subsequent proceeding involving Domtar;

(b) the right to object on any ground to the use of these responses or the subject matter thereof in any subsequent proceeding involving Domtar; and

(c) the right to object on any ground at any time to other requests or discovery procedures involving or relating to the subject of these responses.

Domtar has a corporate document retention program that limits the availability of older records and information. These responses are based on, and therefore necessarily limited by, the records and information still in existence, presently recollected, and thus far discovered in the course of preparing these responses. Domtar reserves the right to supplement and make any changes to these responses if it appears at any time that omissions or errors have been made or that more accurate information is available.

Domtar has not included in this response copies of any attorney/client privilege or attorney work product doctrine documents protected by such privileges. All responses were prepared with the assistance and advice of counsel and such discussions are covered by attorney/client and attorney work product privileges.

SUPPLEMENTAL RESPONSE

1. Please provide a summary of the scrubber system, including a brief history, the original manufacturer, and design removal efficiency, etc.

Response: The scrubber system on the No. 2 Power Boiler is a 1974 Airpol Venturi Scrubber and Airpol Spin-Vane Separator. There are two units running in parallel that the mill identifies as the North Scrubber and the South Scrubber. Flue gases discharged from the boiler proceed through ducting and enter the venturi scrubber. The scrubber has an adjustable throat to compensate for changes in gas volumes. The venturi scrubber operates on a principle of atomization of the scrubbing liquid and prolonged contact to remove particulates and sub-micron particulates, depending upon pressure drop across the unit. The venturi scrubber also acts to absorb SO2 from the flue gas stream. The scrubbing liquid enters the scrubber through six nozzles distributed around the inlet and throat creating a wet flooded approach. The scrubbed gases and liquid with collected solid particles continue through a wet elbow to the Spin-Vane Separator which further cleans the gas utilizing centrifugal force to remove particulate. Finally, the gas spins through the separator spin vanes exiting at the top of the unit, while liquid and solids exit at the bottom of the vessel to a separate recycle tank for recirculation to the scrubber. Caustic solution is added to the recirculation system, which also has a bleed flow for control of solids level in the solution. The pH of the scrubbing solution is maintained at a level that will absorb SO2 from the flue gas, as is described in further detail in the response to question 4 below.

The operating conditions that were anticipated for this application in 1974 indicate expected SO2 inlet to the scrubber loading and expected SO2 outlet loading rates. Expected inlet SO2 was listed as 755 lb/hr, and expected outlet SO2 was listed as 429 lb/hr (1.2 lb/MMBTU), for each scrubber system. Please note that current Title V permit limits for No. 2 Power Boiler SO2 emissions are 984.0 lb/hr and 1.2 lb/MMBTU. The scrubber systems operate on a control loop so as to to maintain continuous compliance with these permitted emission limits, and therefore the SO2 removal range is wide. The scrubber systems have proven the ability to control to these permitted levels, as indicated by SO2 CEMS data.

Another factor in the wide range of SO2 removal is the effect of changing loads on the boiler. When load increases, more fuel is needed to provide the additional steam demand. This increase results in changing conditions in the flue gas and changes to the SO2 loading. The scrubber system must then respond to these fluctuations in order to maintain continuous compliance with permit limits. The No. 2 Power Boiler is also the primary combustion source used for incinerating HAPs in the LVHC (Low Volume High Concentration), or NCG (noncondensible gas) streams from the pulping process. This gas stream contains reduced sulfur compounds from the digester relief and blow gases, and evaporator systems, which oxidize to SO2 during the combustion process. While NCGs are not a fuel source, they are a significant contribution to the SO2 loading in the No. 2 Power Boiler. 40 C.F.R. Part 60, Subpart BB requires these gases to be combusted and 40 C.F.R. Part 63, Subpart S requires these gases to be collected and treated. Under 40 C.F.R. Part 63, Subpart S the mill has elected the option to combust these gases in the boiler.

2. How many absorbers are there for each scrubber system?

Response: The pH of the scrubbing solution in the recirculation tank is maintained at a level that will absorb SO2 from the flue gas as it travels through the venturi scrubber and spin-vane separator. There are no "absorbers" for the scrubber system.

3. For each scrubber, describe its basic type (*e.g.*, wet FGD, SDA), and the subtype (*e.g.*, venturi-rod, packed bed, spray tower, etc.).

Response: The North and South Scrubber systems are basic venturi scrubbers and spin-vane separators that utilize pH-adjusted solution for SO2 absorption.

4. For each scrubber, describe the type of reagent used, how it is delivered to the absorber, and how it is determined how much reagent to use.

Response: Each of the North and South Scrubber systems has its own recirculation tank. Each recirculation tank has its own recirculation pump. The pumps pull scrubbing solution from a weir box on the side of each tank. Specific pH ranges are maintained for the scrubbing solution to ensure sufficient amounts of SO2 are removed from the flue gas in the scrubber. There are three high pH sources supplied to the scrubber systems. These are: 15% caustic solution, demineralizer anion rinse water (approximately 2.5% NaOH) and EOP filtrate from the bleach plant (typical pH above 9.0). Anion rinse water and EOP filtrate are delivered to the suction side of the recirculation pumps. The 15% caustic solution is delivered to the pulp outlet side. Each recirculation tank is also equipped with a bleed pump. This bleed system allows solution containing particulate matter to be removed from the system and replaced with clean water. The two sources of makeup water to the recirculation tanks are mill water and warm water. The recirculation tanks are equipped with level control systems to ensure adequate scrubbing solution supply is maintained. The pH controls provide signals for the 15% caustic flow controllers to adjust the flow to bring the pH into the desired setpoint range. This is triggered if the scrubber solution pH reaches 4.0. The pH controller is overridden in the event that stack measured SO2 levels are above the operator setpoint (normally 0.86 lb/MMBTU of SO2 on a two hour average; limit is 1.20 lb/MMBTU of SO2 on a three hour average). This will allow additional caustic feed to the scrubber solution to increase the pH and reduce SO2 measured at the stack. As mentioned above, the scrubber systems operate in this manner to maintain continuous compliance with permitted emission limits, which results in a wide range of SO2 removal efficiencies. The scrubber systems have proven the ability to control to the permitted limits, as indicated by SO2 CEMS data.

5. For each scrubber, describe the internal equipment in each absorber (*e.g.*, for a wet scrubber, describe how many spray headers, trays, liquid distribution rings, mist eliminators, recycle pumps, etc.)

Response: Each venturi scrubber is equipped with six nozzles distributed around the inlet and throat. There are no spray headers, trays, rings, or mist eliminators. Each separator is equipped with an internal spin vane. Each recirculation tank is equipped with one recirculation pump and one scrubber bleed pump.

6. Have any upgrades been performed on the scrubber systems? If so, please describe such upgrades, noting any improvements to the SO2 removal efficiencies.

Response: No upgrades have been performed on the scrubber systems.

7. For each scrubber, describe how much of the flue gas is treated on a percentage basis (*e.g.*, 100% for no bypass).

Response: 100% of the flue gas is treated by the scrubber systems. There is no bypass.

8. Please provide monthly average data for 2011, 2012, and 2013 for the following: (a) monitored SO2; (b) mass of fuel burned for each fuel type; (c) percentage of sulfur for each fuel type (including method of calculation); (d) time (in hours) the boiler the scrubber serves was operating; (e) some indication of the load of the boiler the scrubber serves (including method of calculation); and (f) any other performance data that would provide some indication of how the removal SO2 efficiency of the scrubber varies in response to load and amount of reagent used.

Response: Please see the attached Excel spreadsheet and the comments below.

a. Monitored SO2. Indicated in the Excel file as "AVG SO2 TPD, CEMS" for each of the requested years of data.

b. Mass of fuel burned for each fuel type. Indicated in the Excel file by each fuel type and unit of measure—coal (tons), natural gas (MSCF), TDF (tons), and bark (tons).

c. Percentage of sulfur for each fuel type (including method of calculation).

Coal – Average 0.5% sulfur, range 0.3% to 1.1% sulfur (COAs received with coal shipments)

TDF – 2.1% sulfur (fuel sample analysis)

Bark – 0.025 lb SO2/10^6 BTU (AP-42 factor)

Natural Gas – 0.6 lb SO2/10^6 scf (AP-42 factor)

While not a fuel source, there is additional SO2 loading from the incineration of NCG gases in the boiler, which is a significant amount of the total SO2 loading (NCASI factor, 5.48 lb SO2/Air Dry Ton Unbleached Pulp).

d. Time (in hours) the boiler the scrubber serves was operating. Indicated in the Excel file as "2 PB Operating Hours" for each of the requested years of data.

e. Some indication of the load of the boiler the scrubber serves (including method of calculation). Indicated in the Excel file as "Monthly AVG Steam Production, Mlb/hr" for each of the requested years of data. Steam production is the indication of load for the boiler, and it is measured with a steam flow meter on the steam output from the boiler.

f. Any other performance data that would provide some indication of how the removal SO2 efficiency of the scrubber varies in response to load and amount of reagent used. As mentioned above, the pH controls provide signals for the 15% caustic flow controllers to adjust the flow to bring the pH into the desired setpoint range. This is triggered if the scrubber solution pH reaches 4.0. The pH controller is overridden in the event that stack measured SO2 levels are above the operator setpoint (normally 0.86 lb/MMBTU of SO2 on a two hour average; limit is 1.20 lb/MMBTU of SO2 on a three hour average). This will allow additional caustic feed to the scrubber solution to increase the pH and reduce SO2 measured at the stack. Also mentioned above, the scrubber systems operate in this manner to maintain continuous compliance with permitted emission limits, which results in a wide range of SO2 removal efficiencies. The scrubber systems have proven the ability to control to the permitted limits, as indicated by the SO2 CEMS data. These efficiencies provide an indication of where we needed to run to meet the permit requirements.

AS TO OBJECTIONS:

FOLEY & LARDNER LLP

Dated: 8/29/14

By Louis J. Thorson

Louis J. Thorson
Attorney for Domtar Corporation

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