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State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

April 21, 2014

Ms. Wren Stenger
Chief, Multi-Media Planning and Permitting Division
US EPA Region 6, 6-PDL
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

RE: Louisiana State Implementation Plan (SIP)
Regional Haze Non-EGU Best Available Retrofit (BART) Draft

Dear Mr. Donaldson:

The Louisiana Department of Environmental Quality is proposing revisions to the Louisiana SIP for Regional Haze, specifically revisions to the non-EGU BART section. This submittal addresses the final partial disapproval published on July 3, 2012 that addressed regional haze for the first period of implementation (77 FR 39425).

Written comments regarding the proposed SIP revisions should be mailed to Vivian Aucoin, Office of Environmental Services, Air Permits Division, P. O. Box 4314, Baton Rouge, La., 70821-4314 or faxed to (225) 219- 3472 or emailed to vivian.aucoin@la.gov . Comments must be received by 4:30 p.m., May 22, 2014.

We have enclosed a copy of the above referenced document for your review and comment. Should you have questions regarding this proposed revision, please contact Ms. Aucoin at (225) 219-3389.

Sincerely,

Sam Phillips
Assistant Secretary

Enclosures

C Guy Donaldson, Air Section Chief

Louisiana State Implementation Plan Revision
For
Regional Haze Program
Revisions to Non-EGU BART

Submitted to:

EPA Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Draft April 21, 2014

I. Background on the Regional Haze Rule

A. Plan Submission

Pursuant to the requirements of §51.308(a) and (b), the Louisiana Department of Environmental Quality (LDEQ) submits this State Implementation Plan (SIP) as adopted to meet the requirements of EPA's Regional Haze (RH) rules to comply with requirements set forth in the Clean Air Act (CAA) Amendments of 1990. Elements of this SIP address the core requirements pursuant to §51.308 (d) and the Best Available Retrofit Technology (BART) components of §50.308(e). In addition, this SIP addresses regional planning, coordination with other States/Tribes and the Federal Land Manager (FLM), and contains a commitment to provide future SIP revisions and adequacy determinations. Louisiana has adopted this SIP in accordance with State laws and rules.

Further, this plan fulfills the requirements of Section 110(a)(2)(d)(i)(II) as it contains adequate provisions prohibiting "any source or other type of emission activity within the State from emitting any air pollutant in amounts which will interfere with measures required to be included in applicable implementation plans for this or any other State under part C to …protect visibility."

On July 3, 2012, the United States Environmental Protection Agency (US EPA) finalized a partial limited approval and a partial disapproval of a revision to the RH SIP submitted June 13, 2008 that addressed regional haze/visibility for the first period of implementation. (77 FR 39425)

US EPA found that the following elements satisfied the federal requirements insofar as they do not rely on the sulfur dioxide (SO_2) reductions from the Clean Air Interstate Rule (CAIR): the state's identification of affected Class I areas; the establishment of baseline, natural and current visibility conditions, including the Uniform Rate of Progress (URP); coordination of reasonably attributable visibility impairment (RAVI) and RH requirements; the RH monitoring strategy and other SIP requirements under Title 40 of the Code of Federal Regulations (denoted as 40 CFR), Part 51.308(d)(4); the state's commitment to submit periodic RH SIP revisions and periodic progress reports describing progress towards the state's Reasonable Progress Goals (RPGs); the state's commitment to make a determination of the adequacy of the existing SIP at the time a progress report is submitted; and the state's coordination with the FLMs.

In this action, US EPA further outlined those elements that were included in the partial disapproval. The US EPA found that certain elements of the Best Available Retrofit Technology (BART) evaluations and determinations were not fully adequate to meet the federal regulations. In this SIP revision, the LDEQ will address only those BART facilities that are not included in the CAIR program, or the non-electric generating units (Non-EGUs) in the SIP revision.

B. Legal Authority

The Louisiana Environmental Quality Act, La.R.S.30.2001, et seq., (the Act) grants the secretary of the LDEQ specific authority to adopt, amend, or repeal those rules and regulations that are deemed necessary for the protection of the state's environment. Further, the Act provides the secretary with the general power to assure

compliance with applicable federal laws and regulations and to assume authority for those delegated programs that exist under the provision of the Clean Air Act Amendments.

C. Public Notice

In accordance with La. R.S. 49:950 et seq., and to comply with §51.285 Public Notification, the LDEQ published a notice seeking comment on this proposed SIP revision on April 20, 2014 in the *Louisiana Register*. A public hearing concerning this proposed SIP is scheduled for 1:30 pm on May 22, 2014 in the Galvez Building, Oliver Pollock Room C-111 at 602 N. Fifth Street in Baton Rouge, Louisiana. Interested parties are invited to submit written or oral comments on the proposal at that time. The comment period will close at 4:30 p.m. on May 22, 2014. Written comments will be accepted via mail, fax or e-mail. A copy of the notice is included in Appendix A.

D. Commitment to Plan Revision

The consultation process will continue between LDEQ, the states and the FLM as the federal regional haze program progresses. The consultation will continue between Louisiana and states located in the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) as well as those in the Central States Air Resources Association (CenSARA) that will have information pertinent to the five-year progress reports and development/review of any SIP revisions deemed necessary. This will also provide for consideration of any other programs that are implemented and have the potential to contribute to the impairment of visibility of Class 1 areas.

E. History of Regional Haze

In amendments to the CAA in 1977, Congress added Section 169 (42 U.S.C. 7491), setting forth the following national visibility goal of restoring pristine conditions in national parks and wilderness areas:

> *Congress hereby declares as a national goal the preservation of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas with impairment from man-made air pollution.*

Over the following years, modest steps were taken to address the visibility problems in Class I areas. The control measures taken mainly addressed plume blight from specific pollution sources and did little to address regional haze issues in the Eastern United States. Plume blight occurs when a point source such as a smoke stack emits particulate matter or nitrogen dioxide into a stable atmosphere. These pollutants can form a thin, dark, coherent plume obscuring the view. Blight happens before the plume has been dispersed so widely that it is indistinct from the background. Both contrast and coloration may vary depending upon the plume constituents, the viewing background, the viewer angle, and the angle of the sun. [1]

In addition to authorizing creation of visibility transport commissions and setting forth their duties, Section 169B(f) of the CAA specifically mandated creation of the Grand Canyon Visibility Transport Commission. Following four years of research and policy development the Grand Canyon Visibility Transport Commission

[1] http://www.fs.fed.us/air/source01.htm#plu

(Commission) submitted its report to EAP in June 1996. This report, as well as the many research reports prepared by the Commission, contributed invaluable information to EPA in its development of the Federal Regional Haze Rule.

EPA's Regional Haze Rule was adopted on July 1, 1999, and went into effect on August 30, 1999. The Regional Haze Rule aimed at achieving national visibility goals by 2064. This rulemaking addressed the combined visibility effects of various pollution sources over a wide geographic region. This wide reaching pollution strategy meant that many states – even those without Class I Areas – would be required to participate in haze reduction efforts. EPA designated five Regional Planning Organizations (RPO) to assist with the coordination and cooperation needed to address the visibility issue. Those states that make up the midsection of the contiguous United States were designated as Central Regional Air Planning Association (CENRAP). Louisiana is associated with this RPO.

On May 24, 2002 the US Court of Appeals, DC District Court ruled on the challenge brought by the American Corn Growers Association against US EPA's Regional Haze Rule of 1999. The Court remanded to US EPA the BART provisions of the rule, and denied industry's challenge to the haze rule goals of natural visibility and no degradation requirements. US EPA proposed revisions to the Regional Haze rule pursuant to the remand. The BART rule was adopted on October 13, 2006 and went into effect on December 12, 2006. To facilitate the review of this State Implementation Plan (SIP) by US EPA, Federal Land Managers (FLM), stakeholders and the public, a guide is provided in 40 CFR 51.308, *Regional Haze Program Requirements.*

F. Breton National Wilderness Area (Class I)

The State of Louisiana has one Class I area within its borders, namely the *Breton National Wilderness Area (Breton).* Established in 1904, Breton is the second oldest refuge in the National Wildlife Refuge System, and is comprised of a series of barrier islands including Breton Island and all of the Chandeleur Islands which are located in St. Bernard Parish, Louisiana. President Theodore Roosevelt heard about the destruction of the birds and their eggs on the barrier island chain and soon afterward awarded it Nation Wildlife Refuge status. Breton was the only national refuge that Roosevelt ever visited.[2]

The barrier island chain was formed from the remnants of the Mississippi River's former St. Bernard Delta, which was active 2000 years ago. The size and shape of the barrier islands chain is constantly altered by tropical storms, wind, and tidal action. The area above mean high tide is approximately 6,923 acres however; Hurricanes Katrina and Rita reduced the islands themselves from 5.64 square miles to 2 square miles.[3] The refuge is approximately thirty miles off the southeast coast of Louisiana.

A portion of Breton has wilderness status and is classified as a mandatory Class I Federal area. Because of this classification, it is afforded visibility protection by the CAA as amended in 1977. Visibility is a term used to characterize the physical limitations in ambient air quality that affect visual range, contrast and coloration. Visibility limitations may be natural, such as fog and mist, or may be caused by manmade air pollution.

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[2] http://www.fws.gov/breton/
[3] ibid

G. Louisiana's Visibility History

The CAA amendments of 1977, especially Section 169A, established the protection of visibility in federal Class I areas as a national goal. In 1980, the US EPA established a phased regulatory approach to visibility protection. The emphasis of the first phase was to remedy existing and future impairment caused by air emissions. These visibility protection regulations established long-range goals, a planning process, implementation procedures, new source review, and a monitoring strategy for all states containing Class I federal areas. While these regulations remain unchanged, the 1990 amendments of the CAA reaffirmed the importance of visibility protection.

Louisiana submitted a Part I Visibility Plan on October 9, 1985 that was approved by US EPA in the June 10, 1986 Federal Register (51 FR 20967). The Louisiana State Implementation Plan (SIP) revision, "Protection of Visibility, Proposed Part II – Long Term Strategy," was approved by US EPA in the December 19, 1988 Federal Register (53 FR 50958). The approved SIP met the requirements of 40 CFR § 51.302 and 51.306.

Louisiana submitted an update to this SIP every three years in which the LDEQ reviewed the long-term strategy to ensure that the SIP was adequate for preventing impairment of visibility at Breton in agreement with Phase I US EPA visibility regulations. Further, it was used to provide the public and US EPA a comprehensive analysis of the progress toward the national visibility goal.

In agreement with Louisiana's long-term strategy, a triennial review of emission inventories of stationary sources in parishes within 100-km distance of Breton was performed. The emission data was obtained from certified actuals reported by stationary sources to the LDEQ.

Data collected and analyzed was on pollutants chosen due to their effect on visibility. These pollutants were: total suspended particulates and PM_{10}, sulfur oxides, nitrogen oxides and volatile organic compounds. In the 2003 report, certified actuals were obtained from the Mississippi Department of Environmental Quality for those counties within the 100-km radius of Breton.

H. Class I Areas outside the State Boundaries

Section 51.308(d) directs each state to address regional haze not only for those Class I areas located within its political boundaries, but also those Class I areas that are located outside the political boundary which may be affected by emissions from within the State. The proximity of facilities in central and northern Louisiana could have a visibility impact on Caney Creek Wilderness Area in southwest Arkansas. CALPUFF modeling has shown that, at the present time, these facilities bear no impact. However, Louisiana will continue to follow the protocol for permitting new construction and major modifications as is presented in our regulations as well as consultation with the appropriate federal agencies.

II. BART Analysis

A. Introduction to the 4 facilities: Summary

On July 3, 2012, the US EPA published in the Federal Register (77FR39425) a notice pertaining to the Louisiana Regional Haze State Implementation Plan. In this notice, the US EPA finalized a partial disapproval because of deficiencies in the Louisiana RH SIP submittal pertaining to the BART evaluations for four non-electric generation units (non-EGUs) that are subject-to-BART sources. The four non-EGUs are Phillips 66 Company-Alliance Refinery ; Mosaic Fertilizer LLC, Uncle Sam Plant; SOLVAY USA, Inc. (formerly Rhodia) and Sid Richardson Carbon Co. Mosaic Fertilizer has been excluded from this submission; it will be addressed in a separate RH SIP revision.

B. Phillips 66 Company-Alliance Refinery (formerly ConocoPhillips)

The Phillips 66 Company operates a refinery near Belle Chasse, Louisiana and is a subject-to-BART source. On December 5, 2005, Phillips 66 and the US EPA entered into a Consent Decree (CD). The BART engineering analysis provided by Phillips 66 utilized emission reductions that are mandated per the CD for the fluidized catalytic cracker (FCCU), the process refinery flares and the crude unit heater. Implementation of these control projects per the CD emissions reductions have resulted in reducing the overall site visibility impacts. However, the LDEQ did not provide a complete BART evaluation for these units with the applicable emissions limits; Phillips 66 has since provided those documents and they are included in Appendix B.

There were also other units subject to BART, namely the cooling water tower and the gas-fired heaters. LDEQ included an analysis for PM and PM_{10} for the cooling tower and an analysis for NOx for the process heaters. It was determined that there was not a cost effective control; US EPA agreed with the analysis that there were no additional controls required for the units to meet BART.

Conoco has installed controls required by its consent decree for the fluidized catalytic cracker, process refinery flares and the crude unit heater. The following is a summary of these controls:

- A wet gas scrubber (WGS) was installed on the FCCU in 2009 that reduced SO_2 emissions by 2500 tpy and PM emissions by 220 tpy. Selective Catalytic Reduction (SCR) is scheduled to be installed by 2015 that will reduce NOx emissions by 760 tpy.
- SCR and NOx Continuous Emissions Monitoring Systems (CEMS) were installed on the crude unit heater in 2009 that reduced NOx emissions by 700 tpy.
- Flare gas recovery was installed for the process refinery flares in 2011 that reduced NOx emissions by 16 tpy and SO_2 emissions by 330 tpy.
- The Low Pressure and High Pressure Flares meet New Source Performance Standard (NSPS) J requirements (308F-D-1 and 309F-D-2)

- The CO Boilers meet NSPS J requirements (301-B-2A and 301-B-2B)
- Crude Charge Heater meets NSPS J requirements (191-H-1)

Based on the WGS installation alone, Conoco was able to reduce SO_2 emissions from the 2003 baseline amount of 2678 tons per year (TPY) to 103 TPY in 2011. This represents a 96% emissions reduction from the unit. Based on the information above, the LDEQ considers that Phillips 66 has installed the maximum feasible controls available have been installed or are scheduled to be installed on these sources. A complete analysis is included in Appendix B.

C. SOLVAY USA, Inc. (formerly Rhodia)

The SOLVAY USA, Inc. facility (formerly Rhodia) is a sulfuric acid plant located in Baton Rouge, Louisiana. The plant produces sulfuric acid by using two sulfuric acid production trains, Unit I and Unit 2. US EPA, the LDEQ and SOLVAY USA entered into a CD requiring a scrubber to be installed on each of the units to control SO_2 emissions. These controls were incorporated into the permit modification dated November 8, 2012.

In its final action, US EPA found that Rhodia's subject-to-BART unit meets the RH SIP requirements specified in 40 CFR 51.308(1)(ii)(A) for an adequate BART evaluation; however EPA found that the LDEQ failed to include the emissions limits as required. The emissions limits are included in the Administrative Order of Compliance (AOC) between LDEQ and SOLVAY USA, Inc. (See Appendix C).

The analysis takes into account all available control technologies for removing SO_2 at the affected units. All of the available control technologies provide a control efficiency of approximately 94%. There were three abatement alternatives considered: 1) Double Absorption; 2) Sodium Scrubbing (caustic/soda ash); and 3) Ammonia Scrubbing.

Caustic scrubbing was found to be the most cost effective option; the scrubbers were installed and as a result SO_2 permit emission limits of over 8,800 tons per year were reduced to permit emissions limit of 1,075 tons per year for the units combined. This control not only meets BART but surpasses the control for new facilities under NSPS. Modeling results with the SO_2 controls show all impacts of Rhodia to the Breton and Caney Creek Wilderness Areas are below the 0.5 deci-views (dv) standard. The department believes that this source has the most stringent control strategy available and no further BART analysis is necessary. According to 40 CFR Part 51 Appendix Y(IV)(D)(1)(9) since the source will have the most stringent controls available, it is not necessary to comprehensively complete each step of the BART analysis. See Appendix C for a listing of the affected units and the federally enforceable emission limits.

D. Sid Richardson Carbon Co.

The Sid Richardson Carbon Company is a subject-to-BART source located in West Baton Rouge Parish, Louisiana. For the subject-to-BART units at the facility, LDEQ submitted in the original RH SIP a BART engineering analysis; for particulate matter the LDEQ determined that the high efficiency fabric filters already in use at the facility are BART. US EPA found that the LDEQ acted within its discretion in making this determination and that the analyses met the BART requirements. However, the US EPA found that the engineering analysis for NOx and SO_2 were deficient. While LDEQ indicated that no controls were technically feasible, US EPA felt that the record did not provide a sufficient basis for the conclusion. Based on this, the SO_2 BART determination for Sid Richardson was deemed deficient.

The original modeling that was performed showed that the facility had an impact that was above the 0.05 deciview level; this is the level at which the state determined sources would have the potential to impact one or more Class I areas. The Sid Richardson Facility model results were 0.756 deciviews.

In the previous RH SIP, the 2007 modeling indicated that impacts were above the threshold and based on that analysis, LDEQ determined the facility was subject-to-BART. For the subject-to-BART source, the LDEQ submitted a BART engineering analysis. US EPA agreed with the engineering analysis as it pertains to Particulate Matter (PM), but did not agree with the analyses for NOx or SO_2. While LDEQ indicated that no controls were technically feasible, US EPA felt that the record did not provide a sufficient basis for the conclusion. Based on this, the SO_2 BART determination for Sid Richardson was deemed deficient. In response to the EPA action, Sid Richardson began to revise the BART analysis and update the modeling. The facility requested permission to perform a new round of modeling using the same emissions parameters that were used in the original model but with the newest EPA approved methods and guidance documents.

In this RH SIP, as a result of Sid Richardson's updating the base case modeling, the model results show that the visibility impacts are below the state's established BART threshold of 0.5 dv. Based on this analysis, LDEQ determined the facility is not subject-to-BART. A full model report is included in Appendix D.

III. Summary

In order to comply with 40 CFR 51.308(e), the RH SIP must contain emission limitations representing BART and schedules for compliance with BART for each BART-eligible source that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area. Based on the information contained in this SIP revision, the LDEQ believes that these requirements have been met with the inclusion of the AOCs in the appendices. As was stated earlier in the SIP, the Sid Richardson Carbon facility has shown through modeling that their emissions do not impact the Class I Federal area. The tables below show the emission reductions from Phillips 66 and SOLVAY USA.[4]

Facility	Criteria Pollutant	Units	2006	2010	2011	2012
Phillips 66 Co. Alliance Refinery	Sulfur Dioxide (SO_2)	TPY	6638	9320	2102	770
Phillips 66 Co. Alliance Refinery	Nitrogen Oxide (NOx)	TPY	335	134	139	110
SOLVAY USA, LLC (Rhodia)	Sulfur Dioxide (SO_2)	TPY	8638	9137	3472	1105
SOLVAY USA, LLC (Rhodia)	Nitrogen Oxide (NOx)	TPY	2311	2146	1678	1622

[4] The information in this table was taken from the LDEQ Emissions Inventory reporting system (ERIC) and represent actual annual emissions as reported by the facilities.