west virginia department of environmental protection

Appendix C:
RACT

Promoting a healthy environment.

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WV DEP RACT Analysis

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west virginia department of environmental protection

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Earl Ray Tomblin, Governor
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RACT ANALYSIS

FACILITY INFORMATION

Plant ID No.:	009-00002
Applicant:	Mountain State Carbon, LLC
Facility Name:	Follansbee Plant
Location:	Brooke County
SIC Code:	3312
Received Date:	May 5, 2015
Engineer Assigned:	Steven R. Pursley, PE
UTM's:	Easting: 533.41 km Northing: 4,465.76 km Zone: 17
Description:	Reasonably Available Control Technology (RACT) Analysis in support of the West Virginia Department of Environmental Protection's (WVDEP) State Implementation Plan (SIP).

BACKGROUND

On June 2, 2010, the United States Environmental Protection Agency (USEPA) finalized a revision to the primary SO_2 National Ambient Air Quality Standards (NAAQS). The revised standard was set at 75 parts per billion (ppb). An area is deemed in attainment with that standard when the 3 year average of the 99th percentile of daily maximum 1 hour concentrations does not exceed 75 ppb.

On October 4, 2013, USEPA, published a rule designating 29 areas in 16 states as not attaining that standard based on ambient air quality monitoring data for the years 2009-2011. One of those areas was the portion of Brooke County in West Virginia that is bounded by the Cross Creek tax district. Mountain State Carbon, LLC is an existing major source of SO_2 located in this area.

Any state containing a nonattainment area for a NAAQS is required by the Clean Air Act (CAA) to develop a SIP meeting the requirements of Title I, part D, subparts 1 and 5 of the CAA. Section 172(c) of the CAA requires that the SIP contain provisions that shall provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of **reasonably available control technology**) ...". It also requires an attainment demonstration showing that the affected area will meet the standard by the statutory attainment date. 42 U.S. Code § 7514a(a) specifies "Implementation plans required under section 7514(a) of this title shall provide for attainment of the relevant primary standard as expeditiously as practicable but no later than 5 years from the date of the nonattainment designation." For

the Cross Creek tax district, this means an attainment date of no later than October 2018. EPA guidance also clearly states that "EPA expects attainment plans to require sources to comply with the requirements of the attainment strategy at least 1 calendar year before the attainment date. Thus, for areas that were designated with an effective date of October 2013, with an attainment deadline that is as expeditiously as practicable, but no later than October 2018, the EPA would expect states to require sources to begin complying with the attainment strategy in the SIP no later than January 1, 2017." Accordingly, any control strategy determined to meet RACT must be installed and operating no later than January 1, 2017.

RACT DEFINITION

RACT is defined in 40 CFR part 51.100 (o) as "devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account:

(1) The necessity of imposing such controls in order to attain and maintain a national ambient air quality standard;

(2) The social, environmental, and economic impact of such controls"

Therefore, any control plan that is sufficient to attain and maintain the NAAQs meets this definition of RACT. Mountain State Carbon has proposed a suite of process conditions which they contend is sufficient to attain and maintain the NAAQS.

RACT PROPOSAL

COKE OVEN BATTERIES, EXCESS COG FLARE AND COG BOILERS

The main source of SO_2 from the facility is the combustion of coke oven gas (COG). Sulfur is introduced into the process in the coal supply. In the heated coke oven batteries the sulfur is released as part of the off gas as hydrogen sulfide. Because this off gas has such a high BTU content Mountain State Carbon uses it as a fuel source for their boilers and oven firing systems. This combustion of the H_2S containing COG results in emissions of SO_2 from the boilers, coke oven batteries and the flare.

The amount of SO_2 emissions from these combustion sources are driven almost exclusively by the amount of H_2S in the COG. Therefore, for the coke oven batteries and the COG fired boilers, Mountain State Carbon has proposed a RACT limit of 50 grains of H_2S per 100 dry standard cubic feet of COG during normal operations. This reduced H_2S concentration is achieved by the use of an existing desulfurization process at Mountain State Carbons by-product plant. The facility uses an ammonia wash technology for the dissolution of H_2S with ammonia to reduce the sulfur content of the COG prior to combustion.

For up to 20 days each year, Mountain State Carbon has to take this desulfurization system off line to inspect and repair the system. During these outages, achieving a H_2S concentration of 50 grains per dscf in the COG is not possible. Additionally, due to the

nature of coke batteries, they cannot temporarily shut down. Therefore, during outages Mountain State Carbon has proposed a RACT limiting the sulfur content of the coal to no greater than 1.25% and reduce operations to 63 ovens per day.

MSC has also proposed merging Boiler 9 and Boiler 10 exhaust into the existing Boilers 6/7 stack in order to increase SO_2 dispersion.

ENGINES

Mountain State Carbon also employs two engines at the facility. One engine is a 600 hp emergency generator and the other is a 527 hp emergency air compressor. Both of these engines fire diesel fuel which contains sulfur. During combustion of diesel fuel the vast majority of this sulfur is emitted as SO_2. For these units Mountain State Carbon has proposed using ultra low sulfur diesel (15 ppm max) as fuel in order to meet the RACT requirements. This results in emissions of SO_2 of 0.1 pounds per hour from each engine.

NATURAL GAS COMBUSTION

Mountain State Carbon also utilizes one 85 mmbtu/hr natural gas fired boiler and several other natural gas combustion sources rated at less than 10 mmbtu/hr. The small amount of sulfur in natural gas is mostly converted to SO_2 during combustion. Pipeline quality natural gas is inherently very low in sulfur. Therefore, Mountain State Carbon has proposed that the exclusive use of pipeline quality natural gas in these units is RACT.

ATTAINMENT DEMONSTRATION

EPA guidance states "for attainment demonstrations for the 2010 $S0_2$ NAAQS, the air agency should demonstrate future attainment and maintenance of the NAAQS in the entire area designated as nonattainment (i.e., not just at the violating monitor) by using air quality dispersion modeling..." In November 2015, MSC submitted a report which included modeling results demonstrating that the NAAQS would be met by compliance with the proposed RACT. Jon McClung of WVDAQs planning section has reviewed and approved said modeling. According to the report "*As outlined in Sections 5.1 of this report, the modeling analyses completed by MSC for the 1 hour SO_2 nonattainment SIP demonstrate compliance with the 1 hour SO_2 NAAQS*".

RECOMMENDATION TO DIRECTOR

Mountain State Carbon's submitted proposal results in modeled compliance with the 2010 1 hour SO_2 NAAQS. Specifically, it appears that the proposed modifications will result in immediate (once implemented) compliance with the NAAQS during normal operations. Additionally, MSC has indicated that it would be mid 2018 before any additional add on controls could be added. So it appears that compliance with the NAAQS during outages will occur before any additional add on controls could be installed. Therefore, it is the recommendation of the writer that the submission be considered RACT.

Steven R. Pursley, PE
Engineer

11-30-15
November 30, 2015

MSC SO_2 RACT Proposal

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SO_2 RACT PROPOSAL FOR COKE OVEN BATTERIES, BOILERS, AND ENGINES

Mountain State Carbon, LLC
Follansbee, WV

Prepared By:

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May 2015

Project 153901.0009

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1. REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) REVIEW

1.1. INTRODUCTION

Mountain State Carbon, LLC (MSC) owns and operates a metallurgical coke production facility in Follansbee, WV (Follansbee Plant). Operations at the Follansbee Plant include four (4) by-product recovery coke production batteries, four (4) boilers fired with coke oven gas (COG) generated in the batteries, one (1) boiler fired with natural gas, two (2) diesel-fired stationary internal combustion engines driving generators during emergency situations, and other miscellaneous combustion sources. These and other emission units at the Follansbee Plant are permitted under Title V operating Permit R30-00900002-2010 issued by the West Virginia Department of Environmental Protection (WVDEP) on January 5, 2010.

The Follansbee Plant is located in the Cross Creek tax district of Brooke County which has been designated nonattainment with respect to the 1-hour National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO_2). WVDEP is required to submit a State Implementation Plan (SIP) that provides for attainment of the SO_2 standard based on SO_2 emission reductions from control measures that are permanent and enforceable. In that regard, WVDEP is required to consider reasonably available control technology (RACT) and reasonably available control measures (RACM) that can be implemented, in light of the attainment needs for the affected area.[1] U.S. EPA has stated that "the definition for RACT for SO_2 is that control technology which is necessary to attain and maintain the NAAQS. The technology must also be reasonably available considering technological and economic feasibility. Furthermore, RACT must be that technology which will provide for the achievement of the NAAQS within the established statutory time frames."[2]

There is no proscribed method of determining RACT. Based on the above standard, the requirements for RACT are achieved if the area will attain the standard in the statutory time frame. For the most recent three calendar year period of 2012 to 2014, three of the four most relevant ambient air monitors have demonstrated attainment with the NAAQS. The fourth monitor is within one microgram per cubic meter of attaining the NAAQS and is on a trajectory to reach attainment by the end of the calendar year. Therefore, the controls already in place are considered RACT.

Nonetheless, at the request of WVDEP, MSC has prepared this report which proposes RACT on the basis of technical and economic feasibility for the sources of SO_2 at the Follansbee Plant. MSC has also followed the "top-down" approach at the request of WVDEP.

Table 1-1 identifies emission units considered in the RACT proposal and their approximate potential emissions (PTE) per year.

[1] Stephen D. Page, Director, U.S. EPA, Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions, April 23, 2014, page 14.

[2] 69 Fed. Reg. 24986 (May 5, 2004) (regarding EPA's approval of West Virginia's SIP involving Wheeling-Pittsburgh Steel (now MSC)).

Table 1-1. Emission Units Evaluated in the RACT Proposal

Equipment	SO_2 Allowables Level (tpy)
Coke Oven Batteries	**>100**
Boilers	**>100**
Engines	**<1**
Misc. Combustion Units	**-**

MSC controls emissions of SO_2 from the Follansbee Plant using a pre-combustion desulfurization system that reduces sulfur concentrations in the coke oven gas prior to combustion. Ammonia liquor produced at the Follansbee Plant absorbs hydrogen sulfide (H_2S) from the coke oven gas, and MSC uses a steam deacifier to extract the sulfurous compounds for the purposes of manufacturing sulfuric acid and fertilizer. The majority of by-product recovery coke production facilities do not have desulfurization systems implemented to control SO_2 and thus do not have control equipment for SO2.[3]

1.2. OVERVIEW OF COKEMAKING TECHNIQUES

MSC's Follansbee Plant is a by-product recovery coke production facility. The destructive distillation of coal to produce metallurgical coke generates coke oven gas (COG) in the headspace of the coke ovens and, because this COG is rich in valuable compounds, the by-product plant includes several chemical recovery and/or product generating processes that could produce the following marketable products: tar, light oil, benzene, elemental sulfur, sulfuric acid, anhydrous ammonia, and ammonium sulfate from the COG. In contrast, non-recovery coke production facilities completely combust the COG in a common battery tunnel without recovering any of these compounds.

The differences between by-product recovery and non-recovery cokemaking techniques limit the technical feasibility of certain control techniques considered in this RACT proposal. Non recovery coke plant (NRCP) design is completely different than a recovery coke plant. NRCP are designed to burn all COG as generated and generally designed for one common flue stack and FGD contemplated in their design. Recovery coke plants like MSC are designed to remove sulfur from the pre-combustion COG for the manufacture of sulfuric acid and ammonium sulfate. They are not designed to remove post combustion sulfur, and the retro-fit of FGD is not RACT as it is not technically and economically feasible. Furthermore, because COG from the by-product recovery process is combusted in many different on-site operations (COG fired boilers, several battery underfiring systems, and excess gas flare), the process involves multiple egress points. Applying add-on, post-combustion control devices to multiple egress points is not technically and economically feasible.

For the reasons described above, add-on, post combustion control devices are not technically and economically feasible for by-product recovery operations even if these devices are technically and economically feasible for NRCP.

[3] AIST 2015 Cokemaking Byproducts Roundup – Iron & Steel Technology – March 2014 – AIST.org.

1.3. RACT ASSESSMENT METHODOLOGY

The following sections describe the procedure MSC used to select RACT for the emissions sources at the Follansbee Plant. The criteria for RACT is that it is capable of reaching attainment and that it is technically and economically feasible.

The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical source or source category. If it can be shown that this level of control is technically or economically infeasible for the unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the control level under consideration cannot be eliminated on the basis of technical or economic feasibility.

Presented below are the five basic steps of a top-down control technology review as identified by the U.S. EPA.[4]

Step 1 – Identify All Control Technologies

Available control technologies are identified for each emission unit in question. The following methods are used to identify potential technologies: 1) researching the Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC) database, 2) surveying regulatory agencies, 3) drawing from previous engineering experience, 4) surveying air pollution control equipment vendors, and/or 5) surveying available literature.

Step 2 – Eliminate Technically Infeasible Options

After the identification of control options, an analysis is conducted to eliminate technically infeasible options. A control option is eliminated from consideration if there are process specific conditions that prohibit the implementation of the control technology or if the highest control efficiency of the option would result in an emission level that is higher than any applicable regulatory limits, such as an NSPS.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Once technically infeasible options are removed from consideration, the remaining options are ranked based on their control effectiveness. If there is only one remaining option or if all of the remaining technologies could achieve equivalent control efficiencies, ranking based on control efficiency is not required.

Step 4 – Evaluate Most Effective Controls and Document Results

Beginning with the most efficient control option in the ranking, detailed economic, energy, and environmental impact evaluations are performed. If a control option is determined to be economically feasible without adverse energy or environmental impacts, evaluating the remaining options with lower control efficiencies is not necessary.

[4] U.S. EPA. *Draft New Source Review Workshop Manual*, Chapter B. Research Triangle Park, North Carolina. October, 1990.

The economic evaluation centers on the cost effectiveness of the control option. Costs of installing and operating control technologies are estimated and annualized following the methodologies outlined in the EPA's *OAQPS Control Cost Manual* (CCM) and other industry resources.[5]

Step 5 – Select RACT

In the final step, one pollutant-specific control option is proposed as RACT for each emission unit under review based on evaluations from the previous step.

The top-down RACT analyses are performed for each emission unit and are listed below in Sections 1.4 through 1.7.

1.3.1. Identification of Potential Control Technologies

Potentially applicable emission control technologies were identified by researching the U.S. EPA control technology database, technical literature, control equipment vendor information, state permitting authority Files, and/or by using process knowledge and engineering experience. The RACT/Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC), a database made available to the public through the U.S. EPA's Office of Air Quality Planning and Standards (OAQPS) Technology Transfer Network (TTN), lists technologies and corresponding emission limits that have been approved by regulatory agencies in permit actions. These technologies are grouped into categories by industry and can be referenced in determining what emissions levels were proposed for similar types of emissions units.

Trinity performed searches of the RBLC database in April 2015 to initially identify the emission control technologies and emission levels that were determined by permitting authorities as RACT for emission sources comparable to the coke oven batteries, boilers, engines, and miscellaneous combustion units at the facility. The following Coke Oven Battery categories were selected to perform the search for the coke oven batteries:

- Pushing (RBLC Code 81.111),
- Battery Stack (RBLC Code 81.112),
- Doors (RBLC Code 81.113),
- Lids (RBLC Code 81.114),
- Charging (RBLC Code 81.115), and
- Other Coke Processes (RBLC Code 81.190).

The Commercial and Institutional-size Boilers and Furnaces fired by Natural Gas (RBLC Code 13.310) category was selected to perform the search for the less than 100 MMBtu/hr natural gas fired combustion units. The Commercial and Institutional-size Boilers and Furnaces fired by Other Gaseous & Gaseous Fuel Mixtures (RBLC Code 13.390) category was selected to perform the search for the less than 100 MMBtu/hr coke oven gas (COG) fired boilers. The Large Internal Combustion Engines fired by Fuel Oil (RBLC Code

[5] Office of Air Quality Planning and Standards (OAQPS), *EPA Air Pollution Control Cost Manual*, Sixth Edition, EPA 452-02-001 (http://www.epa.gov/ttn/catc/products.html#cccinfo), Daniel C. Mussatti & William M. Vatavuk, January 2002.

17.110) category was selected to perform the search for the greater than 500 horsepower (HP) diesel fired engines.

Appendix A presents a summary table of relevant RACT determinations for coke oven batteries, boilers firing other gaseous fuels and mixtures, engines firing diesel, and miscellaneous combustion units.

1.3.2. Economic Feasibility Calculation Process

Economic analyses were preformed to compare total costs (capital and annual) for potential control technologies. Capital costs include the initial cost of the components intrinsic to the complete control system. Annual operating costs include the financial requirements to operate the control system on annual basis and include overhead, maintenance, outages, raw materials, and utilities.

The capital cost estimating technique used is based on a factored method of determining direct and indirect installation costs. That is, installation costs are expressed as a function of known equipment costs. This method is consistent with the latest U.S. EPA OAQPS guidance manual on estimating control technology costs.[6]

Total purchased equipment cost represents the delivered cost of the control equipment, auxiliary equipment, and instrumentation. Auxiliary equipment consists of all the structural, mechanical, and electrical components required for the efficient operation of the device. Auxiliary equipment costs are estimated as a straight percentage of the equipment cost. Direct installation costs consist of the direct expenditures for materials and labor for site preparation, foundations, structural steel, erection, piping, electrical, painting, and facilities. Indirect installation costs include engineering and supervision of contractors, construction and field expenses, construction fees, and contingencies. Other indirect costs include equipment startup, performance testing, working capital, and interest during construction.

Annual costs are comprised of direct and indirect operating costs. Direct annual costs include labor, maintenance, replacement parts, raw materials, utilities, and waste disposal. Indirect operating costs include plant overhead, taxes, insurance, general administration, and capital charges. Replacement part costs were included where applicable, while raw material costs were estimated based upon the unit cost and annual consumption. With the exception of overhead, indirect operating costs were calculated as a percentage of the total capital costs. The indirect capital costs were based on the capital recovery factor (CRF) defined as:

$$CRF = \frac{i(1+i)^n}{(1+i)^n - 1}$$

where *i* is the annual interest rate and n is the equipment life in years. The equipment life is based on the normal life of the control equipment and varies on an equipment type basis. The same interest applies to

[6] U.S. EPA, *OAQPS Control Cost Manual*, 6th edition, EPA 452/B-02-001, July 2002. http://www.epa.gov/ttn/catc/dir1/c_allchs.pdf

all control equipment cost calculations. For this proposal, an interest rate of 7% was used based on information provided in the most recent OAQPS Control Cost Manual.[7]

Note that all economic calculations are based on 2014 dollars. Detailed cost analyses calculations are presented in Appendix A.

1.4. COKE OVEN BATTERY AND COG BOILER RACT EVALUATION

The RACT evaluation for the coke oven batteries and for the 90 and 98 MMBtu/hr COG-fired boilers is provided in Section 1.4.1. As discussed above, the RBLC was used in this proposal to identify emission control technologies and emission limits determined to be RACT by the permitting authorities for emission units comparable to those at the facility. Appendix A provides a summary of RBLC and permit search results.

1.4.1. SO_2 RACT

1.4.1.1. Background on Pollutant Formation

The main source of SO_2 from coke oven processes is the combustion of COG. Sulfur enters the coke making process through the initial coal supply and is released as hydrogen sulfide (H_2S) during the non-destructive distillation occurring in the heated coke oven batteries. Because the components of the COG are a valuable source of thermal energy, MSC uses the COG as a fuel source in the on-site boilers and in the underfiring systems used to provide heat to the ovens. The combustion of residual H_2S in the COG results in emissions of SO_2 from the boiler stacks, battery stacks, and on site excess COG flare stack.

During combustion in the boilers, H_2S from the coke oven gas becomes SO_2, or less desirable SO_3 when the O_2 content is high.[8] When the O_2 content is high and the temperature is low, the SO_3 becomes highly corrosive H_2SO_4. The formation of SO_2 is predominately determined by the initial sulfur content in the fuel, and not the boiler parameters.

1.4.1.2. Analysis of RACT Alternatives

SO_2 reduction from by-product coke oven batteries can be accomplished by two general methodologies: pre-combustion desulfurization and restrictions on coal sulfur content. Pre-combustion desulfurization neutralizes or absorbs sulfur compounds (e.g., H_2S or SO_2) from the COG before subsequent combustion while coal sulfur restrictions limit the amount of sulfur entering the plant's various combustion processes.

The primary pre-combustion desulfurization process currently existing at the Follansbee Facility utilizes ammonia wash technology for the dissolution of H_2S with NH_4 in the H_2S washer to ensure that sulfur concentrations in the coke oven gas are reduced prior to combustion. The system also includes a deacifier column and a sulfuric acid plant.

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[7] U.S. EPA, *OAQPS Control Cost Manual*, 6th edition, Section 2, Chapter 1, page 1-52. http://www.epa.gov/ttn/catc/dir1/c_allchs.pdf

[8] Sridhar, K., & Mohaideen, J. Abbas, *International Journal of Engineering Research and Development*, Volume 1, Issue 1, page 42-45. https://www.idc-online.com/technical_references/pdfs/civil_engineering/Environmental%20Impact.pdf

Using the RBLC search, potentially applicable SO_2 control technologies for coke oven batteries and for boilers were identified based on the principles of control technology and engineering experience for general coke industry processes and for general combustion units. Table 1-3 outlines the top-down RACT proposal for SO_2 emissions from the coke oven batteries.

1.4.1.3. Selection of RACT

The RBLC entries for SO_2 controls are provided within Appendix A. Most of the emission limits established for sulfur emissions from coke oven batteries and for gaseous fuel-fired boilers are either mass-based (i.e., pound per hour) post-combustion SO_2 limits, concentration-based (i.e., grains per cubic foot) pre-combustion H_2S limits, or numerical restrictions on coal sulfur content (e.g., percent by weight). Certain of the limits for boilers are evaluated over averaging periods ranging from 1 hour to 1 year. Based on a review of the emission limits achievable and recent RACT determinations for similar facilities, MSC is proposing SO_2 RACT for normal operation as a limit of 50 grains (gr) of H_2S per every 100 dry standard cubic feet (dscf) of COG. Because this pre-combustion desulfurization requirement reduces emissions of SO_2 from the battery stacks and the boilers, this proposal constitutes RACT for each of the aforementioned sources.

Table 1-2 summarizes the RACT determination for the coke oven batteries and for the COG-fired boilers. The RACT limits are applicable during normal operation (i.e., excludes periods of startup and shutdown).

Table 1-2. Coke Oven Battery and COG Boiler RACT Summary

Pollutant	Limit	Units	Proposed RACT	Compliance Method
H_2S	50	gr/100 dscf	Primary Pre-Combustion Desulfurization	H_2S CEMS

Table 1-3. Top-Down RACT Proposal for Coke Oven Batteries and COG Boilers - SO_2

Process	Pollutant
Coke Oven Batteries and COG Boilers	SO_2

Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology**	**Pre-Combustion Primary Desulfurization**	**Coal Sulfur Content Restrictions**
		Control Technology Description	Utilizes ammonia wash technology for the dissolution of H_2S with NH_4 in the H_2S washer to ensure that sulfur concentrations in the coke oven gas are reduced prior to combustion. The system also includes a deacifier column and a sulfuric acid plant.[a]	Utilizes coal with a sulfur content limit to reduce the formation of H_2S and SO_2.
		Typical Waste Stream Inlet Flow Rate	63 mmscfd [a]	N/A
		Typical Waste Stream Inlet Pollutant Concentration	275 grains H_2S / 100 scf coke oven gas [b]	N/A
		Other Considerations	During the bi-annual outage periods for maintenance, no desulfurization of the coke oven gas occurs.	The availability of low-sulfur coal may be limited by the fluctuations of regional energy markets.
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for control of SO_2 emissions from coke oven batteries.	Included in RBLC for the control of SO_2 emissions from coke oven batteries. Also listed for boilers less than 100 MMBtu/hr.
		Feasibility Discussion	Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**	Base Case	N/A - Input Restriction
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**		
Step 5.	**SELECT RACT**		👍 **RACT Limit: 50 grains H_2S / 100 scf coke oven gas[c]**	

a. Original design coke oven gas generation rate.
b. Condition 5.1.17(2) of R30-00900002-2010
c. Condition 3.1.26 of R30-00900002-2010

1.5. RACT EVALUATION FOR OUTAGE PERIODS

The RACT evaluation for the coke oven batteries and for the 90 and 98 MMBtu/hr COG-fired boilers is provided in Section 1.4.1. As discussed above, the RBLC was used in this proposal to identify emission control technologies and emission limits determined to be RACT by the permitting authorities for emission units comparable to those at the facility. Appendix A provides a summary of RBLC and permit search results.

1.5.1. SO_2 RACT

1.5.1.1. Background on Pollutant Formation

For a total of 20 days each year, MSC must temporarily remove the primary desulfurization system from service to conduct inspections and implement repairs necessary to maintain the system (i.e., outage periods). Table 1-4 in this section evaluates RACT for these outage periods.

The mechanisms of SO_2 formation during these outage periods are consistent with the mechanisms described in Section 1.4.1.1; however, the RBLC does not include records of any control technology determinations specifically established for outage periods at by product recovery operations. However, it should be noted that RBLC does provide clear documentation that outages of SO_2 controls are permitted for various coke production operations as a general matter.

1.5.1.2. Analysis of RACT Alternatives

One of the control techniques considered for outage periods involves the installation of a redundant desulfurization system capable of maintaining H_2S removal during planned outages of the existing desulfurization system. This control strategy is economically infeasible and presents significant operational challenges given that desulfurization systems are not capable of operating at less than 30 percent of the design capacity. As a result, COG must be distributed between the existing and redundant desulfurization systems during normal operation, and during periods of diminished production, the coke oven batteries may not generate sufficient COG to supply both desulfurization systems. In such a scenario, operators of redundant systems would be required to purchase, store, and burn elemental sulfur (i.e., intentionally generate SO_2 emissions) simply to maintain the operational integrity of the desulfurization systems. MSC considered these operational challenges when evaluating the technical and economical feasibility of this control technique in Table 1-4.

1.5.1.3. Selection of RACT

Given the limited nature of these planned outage events and the conclusion that current operations meet RACT, we are proposing a sulfur in coal limitation during planned outages as the RACT limitation. Specifically, we propose that coal used in the coke batteries have an average blended sulfur content of no greater than 1.25%.

Table 1-4. Top-Down RACT Proposal for Desulfurization Outage Periods - SO_2

Process	Pollutant
Coke Oven Batteries and COG Boilers During Desulfurization Outage Periods	SO_2

Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology**	**Pre-Combustion Redundant Desulfurization**	**Coal Sulfur Content Restrictions**
		Control Technology Description	Utilizes ammonia wash technology for the dissolution of H_2S with NH_4 in the H_2S washer to ensure that sulfur concentrations in the coke oven gas are reduced prior to combustion. The system also includes a deacifier column and a compact sulfuric acid plant. [b]	Utilizes coal with a sulfur content limit to reduce the formation of H_2S and SO_2 during planned outages of the existing desulfurization system.
		Typical Waste Stream Inlet Flow Rate	63 mmscfd [b]	N/A
		Typical Waste Stream Inlet Pollutant Concentration	275 grains H_2S / 100 scf coke oven gas [c]	N/A
		Other Considerations	Desulfurization system is to operate continuously at a minimum 30% operational design capacity. Low production condition does not allow for the operation of both (redundant) desulfurization plants. The installation of additional equipment to purchase, store and burn sulfur (create SO_2) for the sole purpose of operating the acid plant would be necessary. Necessary real estate for the redundant plant does not currently exist.	The availability of low-sulfur coal may be limited by the fluctuations of regional energy markets.
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for control of SO_2 emissions from coke oven batteries.	Included in RBLC for the control of SO_2 emissions from coke oven batteries. Also listed for boilers less than 100 MMBtu/hr.
		Feasibility Discussion	Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**	Similar control efficiency as existing desulfurization for 20 days during the bi-annual shutdown of the primary desulfurizer	N/A - Input Restriction
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**	$7,981 per ton of SO_2 removed based on 20 operating days per year. This is beyond the range of cost effectiveness for RACT for SO_2.[a]	
Step 5.	**SELECT RACT**			**RACT Limits: 1.25% sulfur content during planned outages of the exisitng desulfurization system**

a. Determined through a cost estimate by Trinity Consultants dated January 2015.
b. Original design coke oven gas generation rate.
c. Condition 5.1.17(2) of R30-00900002-2010

1.6. ENGINE RACT EVALUATION

The RACT evaluation for the 527 and 600 horsepower (HP) diesel fired engines is provided in Section 1.6.1. As discussed above, the RBLC was used in this proposal to identify emission control technologies and emission limits determined to be RACT by the permitting authorities for emission units comparable to those at the facility. Appendix A provides a summary of RBLC and permit search results.

1.6.1. SO_2 RACT

1.6.1.1. Background on Pollutant Formation

The main source of SO_2 from engines is emitted through flue gas venting. The engines at MSC's Follansbee Facility are fueled by diesel which contains sulfur. Therefore, sulfur enters the combustion process through the diesel fuel. During combustion the sulfur in the diesel is oxidized into SO_x, mostly SO_2. The formation of SO_2 is predominately determined by the initial sulfur content in the diesel, and not the engine parameters. When diesel is combusted, approximately 95 percent of the sulfur becomes SO_2, 1 to 5 percent becomes SO_3 and 1 to 3 percent becomes sulfur particulate[9]. In combination with water vapor, SO_3 quickly becomes H_2SO_4, a corrosive acid.

1.6.1.2. Analysis of RACT Alternatives

SO_2 reduction from engines can be accomplished by three general methodologies: flue gas desulfurization, restrictions on sulfur content of fuels, and good combustion practices. Flue gas desulfurization oxidizes, neutralizes or absorbs the SO_2 from the waste gas into a solid compound while fuel restrictions limit the amount of sulfur initially entering the process. Good combustion practices involve the appropriate operation and maintenance of equipment to ensure proper functioning and no unintended emission increases.

Using the RBLC search, potentially applicable SO_2 control technologies for diesel fired engines were identified based on the principles of control technology and engineering experience for general combustion units. Table 1-6 outlines the top-down RACT proposal for SO_2 emissions from the engines.

1.6.1.3. Selection of RACT

The RBLC entries for SO_2 controls are provided within Appendix A. Most of the emission limits established for sulfur emissions from diesel fired engines are either mass-based (e.g., pound per hour) or concentration based (e.g., parts per million by volume) exhaust limitations. Certain of these limits are evaluated over 3 hour averaging periods. Most of the facilities identified with the most stringent SO_2 emission limits utilized low sulfur fuel for control of SO_2 emissions. Based on a review of the emission limits achievable and recent RACT determinations for similar facilities, SO_2 RACT for normal operation is a limit of 0.1 lbs/hr for Engine E1 and 0.1 lbs/hr for Engine E5 utilizing low sulfur diesel and good combustion practices. Table 1-5 summarizes the RACT determinations for the engines. These RACT limits are applicable during normal (steady-state) operation (i.e., excludes periods of startup and shutdown).

[9] U.S. EPA, *Compilation of Air Pollutant Emission Factors*, Chapter 1, Section 3. http://www.epa.gov/ttnchie1/ap42/ch01/final/c01s03.pdf

Table 1-5. Engine RACT Summary

Pollutant	Engine Emission Unit ID	Limit	Units	Averaging Period	Proposed RACT	Compliance Method
SO_2	E1	0.1	lbs/hr	N/A	Use of Low Sulfur Diesel and Good Combustion Practices	Fuel Usage Records
	E5	0.1	lbs/hr	12-mo. rolling	Use of Low Sulfur Diesel and Good Combustion Practices	Fuel Usage Records

Table 1-6. Top-Down RACT Proposal for Engines - SO_2

Process	Pollutant
Engines	SO_2

Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology**	**Flue Gas Desulfurization**	**Fuel Sulfur Content Restrictions**	**Good Combustion Practices**
		Control Technology Description	Injects an alkaline reagent into the flue gas in a spray tower or directly into the duct where it oxidizes, neutralizes, and/or absorbs SO_2 into a solid compound, either calcium or sodium sulfate.[a]	Utilizes fuel with a sulfur content limit to reduce the formation of SO_2 during combustion.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	300 - 700 °F for wet scrubbers 300 - 1830 °F for dry sorbent injection [a]	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	15 - 4300 mmscfd [b]	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 2000 ppmv or less [a]	N/A	N/A
		Other Considerations	Chlorine content improves SO_2 removal but increases salt deposition in the equipment. An additional fan may be necessary to keep pressure constant across the absorber. In wet systems, flue gas may need to be reheated to prevent duct corrosion from condensation. In dry systems, flue gas may need to be cooled prior to entering the system.[a]	N/A	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for the control of SO_2 emissions from engines greater than 500 MMBtu/hr.	Included in RBLC for the control of SO_2 emissions from engines greater than 500 MMBtu/hr.	Included in RBLC for the control of SO_2 emissions from engines greater than 500 MMBtu/hr.
		Feasibility Discussion	Technically infeasible. Flue gas desulfurization is typically applied to stationary coal- and oil-fired combustion units ranging in size between 50 and 15,000 MMBtu/hr. The engines at this facility are fired by diesel but are rated at capacities well below the lower end of the applicable size range. The engines only operate on an emergency basis.	Feasible	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**		Base Case	Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**			
Step 5.	**SELECT RACT**			👍 **RACT Limits: 15 ppm sulfur content in diesel fuel[c], 0.1 lbs/hr SO_2 for E1[d], & 0.1 lbs/hr SO_2 for E5[e]**	

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.
b. Determined based on F-factors from Table 19-2 in 40 CFR 60 Method 19 and Source A, EPA-452/F-03-034.
c. Condition 6.1.12(f)(i) of R30-00900002-2010
d. The propsoed RACT for E1 is based on the existing limit for a similar source (i.e., E5).
e. Condition 9.1.4 of R30-00900002-2010

1.7. NATURAL GAS COMBUSTION SOURCE RACT EVALUATION

The Follansbee Facility includes one (1) 85 MMBtu/hr natural gas fired boiler and additional natural gas fired combustion sources rated less than 10 MMBtu/hr in size. These sources produce SO_2 through fuel combustion and can be controlled through the same methods of flue gas desulfurization, fuel sulfur content restrictions, and good combustion practices described above for the COG boilers and engines.

Using the RBLC search, potentially applicable SO_2 control technologies for the natural gas combustion sources were identified based on the principles of control technology and engineering experience for general combustion units. Table 1-7 outlines the top-down RACT proposal for SO_2 emissions from the engines.

Based on a review of the emission limits achievable and recent RACT determinations for similar facilities, SO_2 RACT for these units is good combustion practices.

Table 1-7. Top-Down RACT Proposal for Natural Gas Combustion Units - SO_2

Process	Pollutant
Natural Gas Combustion Units	SO_2

Step 1.	**IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES**	**Control Technology**	**Flue Gas Desulfurization**	**Fuel Sulfur Content Restrictions**	**Good Combustion Practices**
		Control Technology Description	Injects an alkaline reagent into the flue gas in a spray tower or directly into the duct where it oxidizes, neutralizes, and/or absorbs SO_2 into a solid compound, either calcium or sodium sulfate.[a]	Utilizes fuel with low sulfur content to reduce the formation of SO_2 during combustion.	Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices.
		Typical Operating Temperature	300 - 700 °F for wet scrubbers 300 - 1830 °F for dry sorbent injection [a]	N/A	N/A
		Typical Waste Stream Inlet Flow Rate	15 - 4300 mmscfd [b]	N/A	N/A
		Typical Waste Stream Inlet Pollutant Concentration	As low as 2000 ppmv or less [a]	N/A	N/A
		Other Considerations	Chlorine content improves SO_2 removal but increases salt deposition in the equipment. An additional fan may be necessary to keep pressure constant across the absorber. In wet systems, flue gas may need to be reheated to prevent duct corrosion from condensation. In dry systems, flue gas may need to be cooled prior to entering the system.[a]	N/A	N/A
Step 2.	**ELIMINATE TECHNICALLY INFEASIBLE OPTIONS**	**RBLC Database Information**	Not included in RBLC for the control of SO_2 emissions from boilers less than 100 MMBtu/hr, the representative category for the miscellaneous combustion units on site.	Included in RBLC for the control of SO_2 emissions from boilers less than 100 MMBtu/hr, the representative category for the miscellaneous combustion units on site.	Included in RBLC for the control of SO_2 emissions from boilers less than 100 MMBtu/hr, the representative category for the miscellaneous combustion units on site.
		Feasibility Discussion	Technically infeasible. Flue gas desulfurization is typically applied to stationary coal- and oil-fired combustion units ranging in size between 50 and 15,000 MMBtu/hr. The miscellaneous combustion units at this facility are much smaller than the applicable size range.	Feasible. Pipeline-quality natural gas is inherently low in sulfur content.	Feasible
Step 3.	**RANK REMAINING CONTROL TECHNOLOGIES**	**Overall Control Efficiency**			Base Case
Step 4.	**EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS**	**Cost Effectiveness ($/ton)**			
Step 5.	**SELECT RACT**			 **RACT: Use of Natural Gas**	 **RACT: Good Combustion Practices**

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.
b. Determined based on F-factors from Table 19-2 in 40 CFR 60 Method 19 and Source A, EPA-452/F-03-034.

APPENDIX A

RACT Documentation

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SO_2 - Ferrous Metals/Industry - Coke Processes - Coke Oven Batteries - Pushing

ID	State	Company	Cokemaking Technique	Permit Issuance Date	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
LA-0239	LA	Consolidated Environmental Management Inc - Nucor Steel Louisiana	Non-recovery	5/24/2010	126	tons/hr	21.22	lbs/hr		Other - 40 CFR 60 App A Method 8	Unspecified or None	
LA-0239	LA	Consolidated Environmental Management Inc - Nucor Steel Louisiana	Non-recovery	5/24/2010	126	tons/hr	21.22	lbs/hr		Other - 40 CFR 60 App A Method 8	Unspecified or None	
OH-0272	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	2/27/2001	4.3	million tons/yr	33.75	lbs/hr		Unspecified	None	
OH-0305	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	12/11/2003	275,000	tons/yr cok	24	lbs/hr		Unspecified	Low sulfur coal <1%	Additional limit for new batteries: 28.8 lbs SO_2 per hour as a 3-hour average.
OH-0305	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	12/11/2003	275,000	tons/yr cok	24	lbs/hr		Unspecified	Low sulfur coal <1%	
OH-0297	OH	U.S. Coking Group, L.L.C. - FDS Coke	Non-recovery	6/14/2004	1.44	million tons/yr	16.8	lbs/hr		Unspecified	Unspecified or None	
OH-0332	OH	Sun Coke Energy, Inc. - Middletown Coke Company	Non-recovery	2/9/2010	912,500	tons/yr	49	lbs/hr		EPA/OAR Method 6C	None	

SO_2 - Ferrous Metals/Industry - Coke Processes - Coke Oven Batteries - Charging

ID	State	Company	Cokemaking Technique	Permit Issuance Date	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
OH-0272	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	2/27/2001	4.3	million tons/yr	0.2	lbs/hr		Unspecified	None	
OH-0272	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	2/27/2001	4.3	million tons/yr	0.2	lbs/hr		Unspecified	None	
OH-0305	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	12/11/2003	275,000	tons/yr cok	0.14	lbs/hr		Unspecified	Low sulfur coal <1%	
OH-0305	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	12/11/2003	275,000	tons/yr cok	0.14	lbs/hr		Unspecified	Low sulfur coal <1%	
OH-0297	OH	U.S. Coking Group, L.L.C. - FDS Coke	Non-recovery	6/14/2004	2.06	million tons/yr	0.1	lbs/hr		Unspecified	Unspecified or None	
OH-0297	OH	U.S. Coking Group, L.L.C. - FDS Coke	Non-recovery	6/14/2004	2.06	million tons/yr	0.1	lbs/hr		Unspecified	Unspecified or None	
OH-0332	OH	Sun Coke Energy, Inc. - Middletown Coke Company	Non-recovery	2/9/2010	912,500	tons/yr	0.15	lbs/hr		EPA/OAR Method 6C	None	Method 6C only if required. Monthly coal samples.
OH-0332	OH	Sun Coke Energy, Inc. - Middletown Coke Company	Non-recovery	2/9/2010	912,500	tons/yr	0.15	lbs/hr		EPA/OAR Method 6C	None	Method 6C only if required. Monthly coal samples.

SO_2 - Ferrous Metals/Industry - Coke Processes - Coke Oven Batteries - Battery Stack

ID	State	Company	Cokemaking Technique	Permit Issuance Date	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
OH-0297	OH	U.S. Coking Group, L.L.C. - FDS Coke	Non-recovery	6/14/2004	2.06	million tons/yr	243.3	lbs/hr		Unspecified	Lime spray dryer, low sulfur coal, combustion optimization	Additional Limit: 0.99 lbs SO_2 per ton of wet coal charged with coal containing less than 0.9 wt. % sulfur; 1.06 lbs SO_2/ton with coal containing 0.9 wt. % or greater sulfur
OH-0297	OH	U.S. Coking Group, L.L.C. - FDS Coke	Non-recovery	6/14/2004	2.06	million tons/yr	243.3	lbs/hr		Unspecified	Lime spray dryer, low sulfur coal, combustion optimization	Additional Limit: 0.99 lbs SO_2 per ton of wet coal charged with coal containing less than 0.9 wt. % sulfur; 1.06 lbs SO_2/ton with coal containing 0.9 wt. % or greater sulfur
OH-0297	OH	U.S. Coking Group, L.L.C. - FDS Coke	Non-recovery	6/14/2004	2.06	million tons/yr	0.1	lbs/hr		Unspecified		
IN-0012	IN	Inland Steel Co. - Inland Steel Co.	By-product Recovery	9/22/1980						Unspecified	Underfire fuel is limited to natural gas, desulfurized coke oven gas, or blast furnace gas.	
WV-0004	WV	Pennsylvania Coke Technology, Inc. - Pennsylvania Coke Technology, Inc.	By-product Recovery	8/6/1981	210,000	tons/yr	161.1	lbs/hr		Unspecified	Fuel Spec: Low sulfur coal feed	

SO_2 - Ferrous Metals/Industry - Coke Processes - Coke Oven Batteries - Coking

ID	State	Company	Cokemaking Technique	Permit Issuance Date	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
IN-0012	IN	Inland Steel Co. - Inland Steel Co.	By-product Recovery	9/22/1980			0.35	gr/100 cf H_2S		Unspecified		Limit is LAER
LA-0239	LA	Consolidated Environmental Management Inc - Nucor Steel Louisiana	Non-recovery	5/24/2010	197	tons/hr	251.62	lbs/hr		Other - CEMS	Flue gas desulfurization. Maximum content of 1.25% sulfur in the coal. Purchase natural gas containing no more than 2,000 grains of sulfur per MM scf	Sulfur dioxide >= 90 % capture efficiency when the 6 month rolling average concentration of sulfur in the blended charge material is less than or equal to 1%. Sulfur dioxide >= 91 % capture efficiency when the 6 month rolling average concentration of sulfur in the blended charge material is greater than 1%. Planned maintenance bypass of a tower within the Coke Battery 1 FGD system shall be limited to a maximum of 8 days within a twelve month rolling period. Flue gas bypassing an FGD tower must be diverted to the baghouse and may not be vented directly to the atmosphere.
MD-0006	MD	Bethlehem Steel Corp. - Bethlehem Steel Corp.	By-product Recovery	8/6/1979	1.4	million tons/yr coal	26	lbs/hr		Unspecified	Fuel Spec: S in fuel limit to 1.0% by wt.	
OH-0040	OH	Republic Steel Corp. - Republic Steel Corp.	By-product Recovery	3/1/1983	32	tons/hr coke	35	gr/100 cf H_2S		Unspecified	Operating % mainten. proced.	
OH-0272	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	2/27/2001	4	million tons	265	lbs/hr	As a 3-hour average	SO_2 CEMS	Dry scrubber, lime spray dryer, and low sulfur coal: <4% sulfur	No cost analysis submitted for technology installed. Additional limit: 594 lbs/hr and 968.42 tons/yr.
OH-0305	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	12/11/2003	275,000	tons/yr cok	192	lbs/hr		SO_2 CEMS	Dry scrubber with wet lime spray injection and low sulfur <1% coal	
OH-0305	OH	Sun Coke Company - Haverhill North Coke Company	Non-recovery	12/11/2003	275,000	tons/yr cok	192	lbs/hr		SO_2 CEMS	Dry scrubber with wet lime spray injection and low sulfur <1% coal	
OH-0332	OH	Sun Coke Energy, Inc. - Middletown Coke Company	Non-recovery	2/9/2010	2,300	tons/day	498.33	lbs/hr		SO_2 CEMS	Bypass one HRSG at a time, one stack	Estimated 23.92 lbs SO_2/ton of coal. Restricted to 960 hours bypass of HRSG/yr (tpy limit) and one HRSG bypassed at a time.
OH-0332	OH	Sun Coke Energy, Inc. - Middletown Coke Company	Non-recovery	2/9/2010			1,794	lbs/hr		SO_2 CEMS	During the bypass of the spray dryer the charge size shall be reduced by 28% or the sulfur in coal reduced by 28%	During the bypass of the spray dryer the charge size shall be reduced by 28% or the sulfur in coal reduced by 28%. 2491.7 lbs/hr x 72% = 1794 lbs/hr x120 hours x 1 ton/2000 lbs = 107.64 T/YR from spray dryer/baghouse bypass for the allowed 120 hours/YR.
OH-0332	OH	Sun Coke Energy, Inc. - Middletown Coke Company	Non-recovery	2/9/2010	912,500	tons/yr	300	lbs/hr	Based on 3-hr block average	SO_2 CEMS	Fabric filter, common tunnel afterburner maintained at 1,400 degrees F, lime spray dryer.	Other limit: 192.0 lbs/hr based on a 24-hr block average. If required Method 6C. Monthly coal samples.

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Natural Gas

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
AK-0062	AK	Badami Development Facility	08/19/2005	Natural Gas	14.87	MMBtu/hr	250	ppmv			H_2S Content of Natural Gas	
AK-0062	AK	Badami Development Facility	08/19/2005	Natural Gas	1.34	MMBtu/hr	250	ppmv			H_2S Content of Natural Gas	
AK-0062	AK	Badami Development Facility	08/19/2005	Natural Gas	34	MMBtu/hr	250	ppmv			H_2S Content of Natural Gas	
AL-0230	AL	Thyssenkrupp Steel and Stainless USA, LLC	08/17/2007	Natural Gas	64.9	MMBtu/hr	0.0006	lb/MMBtu				
AL-0231	AL	Nucor Decatur LLC	06/12/2007	Natural Gas	95	MMBtu/hr	0.0006	lb/MMBtu				
AR-0090	AR	Nucor Steel, Arkansas	04/03/2006	Natural Gas	12.6	MMBtu/hr	0.1	lb/hr				
AR-0090	AR	Nucor Steel, Arkansas	04/03/2006				0.0006	lb/MMBtu				
FL-0286	FL	FPL West County Energy Center	01/10/2007	Natural Gas	99.8	MMBtu/hr	2	gr/100 scf				
FL-0286	FL	FPL West County Energy Center	01/10/2007	Natural Gas	10	MMBtu/hr	2	gr/100 scf				
FL-0335	FL	Suwannee Mill	09/05/2012	Natural Gas	46	MMBtu/hr	2	gr/100 scf			Good Combustion Practices	
*IN-0158	IN	St. Joseph Energy Center, LLC	12/03/2012	Natural Gas	80	MMBtu/hr	0.0022	lb/MMBtu	3 hours		Fuel Specifications	
LA-0192	LA	Crescent City Power	06/06/2005		19	MMBtu/hr	0.008	lb/hr	Hourly Maximum		Good Combustion Practices and Natural Gas Only	
LA-0203	LA	Oakdale OSB Plant	06/13/2005	Natural Gas	66.5	MMBtu/hr	0.05	lb/hr	Hourly Maximum		Good Combustion Practices and Natural Gas Only	
LA-0231	LA	Lake Charles Gasification Facility	06/22/2009	Natural Gas	34.2	MMBtu/hr	0.02	lb/hr	Hourly Maximum		Natural Gas or SNG	
LA-0231	LA	Lake Charles Gasification Facility	06/22/2009	Natural Gas	35	MMBtu/hr	0.02	lb/hr	Hourly Maximum		Natural Gas or SNG	
LA-0231	LA	Lake Charles Gasification Facility	06/22/2009	Natural Gas	56.9	MMBtu/hr	0.03	lb/hr	Hourly Maximum		Natural Gas or SNG	
MD-0040	MD	CPV St. Charles	11/12/2008	Natural Gas	1.7	MMBtu/hr	0					
NJ-0079	NJ	Woodbridge Energy Center	07/25/2012	Natural Gas	2000	hr/yr	0.162	lb/hr	Avg. of Three Tests		Natural Gas Only	
NJ-0080	NJ	Hess Newark Energy Center	11/01/2012	Natural Gas	51.9	mmcf/yr	0.08	lb/hr			Natural Gas Only	
NV-0044	NV	Harrah's Operating Company, Inc.	01/04/2007	Natural Gas	35.4	MMBtu/hr	0.001	lb/MMBtu			Natural Gas Only	
NV-0046	NV	Goodsprings Compressor Station	05/16/2006	Natural Gas	3.85	MMBtu/hr	0.0026	lb/MMBtu			Natural Gas Only	
NV-0047	NV	Nellis Air Force Base	02/26/2008	Natural Gas			0.0015	lb/MMBtu			Natural Gas Only	
NV-0048	NV	Goodsprings Compressor Station	05/16/2006	Natural Gas	3.85	MMBtu/hr	0.0015	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	8.37	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	14.34	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	16.8	MMBtu/hr	0.0042	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	31.38	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	35.4	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	33.48	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	24	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Natural Gas

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
NV-0049	NV	Harrah's Operating Company, Inc.	08/20/2009	Natural Gas	16.7	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	41.64	MMBtu/hr	0.0007	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	4.2	MMBtu/hr	0.0024	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	2	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	4.3	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	2	MMBtu/hr	0.0006	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	2.1	MMBtu/hr	0.0048	lb/MMBtu			Good Combustion Practices and Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	44	MMBtu/hr	0.0007	lb/MMBtu			Natural Gas Only	
NV-0050	NV	MGM Mirage	11/30/2009	Natural Gas	2	MMBtu/hr	0.005	lb/MMBtu			Natural Gas Only	
NY-0095	NY	Caithnes Bellport Energy Center	05/10/2006	Natural Gas	29.4	MMBtu/hr	0.0005	lb/MMBtu			Low-sulfur Fuel	
OH-0309	OH	Toledo Supplier Park-Paint Shop	05/03/2007	Natural Gas	20.4	MMBtu/hr	0.01	lb/hr				
*OH-0350	OH	Republic Steel	07/18/2012	Natural Gas	65	MMBtu/hr	0.037	lb/hr				
OK-0129	OK	Chouteau Power Plant	01/23/2009	Natural Gas	33.5	MMBtu/hr	0.03	lb/hr			Low-sulfur Fuel	
OK-0129	OK	Chouteau Power Plant	01/23/2009		18.8	MMBtu/hr	0.01	lb/hr			Low-sulfur Fuel	
OK-0134	OK	Pryor Plant Chemical	02/23/2009	Natural Gas	20	MMBtu/hr	0.03	lb/hr			Natural Gas Only	
OK-0135	OK	Pryor Plant Chemical	02/23/2009	Natural Gas	20	MMBtu/hr	0.03	lb/hr				
OK-0135	OK	Pryor Plant Chemical	02/23/2009	Natural Gas	80	MMBtu/hr	0.2	lb/hr				
*PA-0291	PA	Hickory Run Energy Station	04/23/2013	Natural Gas	40	MMBtu/hr	0.0021	lb/MMBtu				
*PA-0296	PA	Berks Hollow Energy Assoc. LLC/Ontelaunee	12/17/2013	Natural Gas	8.5	MMBtu/hr	0.002	lb/MMBtu				
*PA-0296	PA	Berks Hollow Energy Assoc. LLC/Ontelaunee	12/17/2013	Natural Gas	40	MMBtu/hr	0.19	tpy	12-Month Rolling Total			
SC-0112	SC	Nucor Steel - Berkeley	05/05/2008	Natural Gas	50.21	MMBtu/hr	0.0006	lb/MMBtu			Good Combustion Practices and Natural Gas Only	
SC-0113	SC	Pyramax Ceramics, LLC	02/08/2012	Natural Gas	5	MMBtu/hr	0				Natural Gas and Propane	
SC-0114	SC	GP Allendale LP	11/25/2008	Natural Gas	20.89	MMBtu/hr	0.01	lb/hr				
SC-0114	SC	GP Allendale LP	11/25/2008	Natural Gas	75	MMBtu/hr	0.04	lb/hr			Good Combustion Practices	
SC-0115	SC	GP Clarendon LP	02/10/2009	Natural Gas	75	MMBtu/hr	0.04	lb/hr			Good Combustion Practices	
SC-0115	SC	GP Clarendon LP	02/10/2009	Natural Gas	20.89	MMBtu/hr	0.01	lb/hr				
TX-0501	TX	Texstar Gas Process Facility	07/11/2006	Natural Gas	93	MMBtu/hr	0.05	lb/hr				

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
AK-0056	AK	ARCO Alaska, Inc. - Alpine Development Project, Central Processing Fac	2/1/1999	Fuel gas	65.6	MMBtu/hr			See note	Unspecified	Fuel Gas H_2S not to exceed 200 ppm	Fuel limit -- no emission rate limit.
AK-0056	AK	ARCO Alaska, Inc. - Alpine Development Project, Central Processing Fac	2/1/1999	Fuel gas	65.6	MMBtu/hr			See note	Unspecified	Fuel Gas H_2S not to exceed 200 ppm	Fuel sulfur limit -- no emission rate limit
AK-0056	AK	ARCO Alaska, Inc. - Alpine Development Project, Central Processing Fac	2/1/1999	Fuel gas	20	MMBtu/hr			See note	Unspecified	Fuel Gas H_2S not to exceed 200 ppm when operating using liquid fuel: fuel sulfur limit of 215 NG/J (0.50 lb/Mmbtu) heat input; or, as an alternative, 0.5 weight percent sulfur.	Limit is fuel sulfur limit. No emission rate limit
AK-0056	AK	ARCO Alaska, Inc. - Alpine Development Project, Central Processing Fac	2/1/1999	Fuel gas	20	MMBtu/hr			See note	Unspecified	Fuel Gas H_2S not to exceed 200 ppm when operating using liquid fuel: fuel sulfur limit of 215 NG/J (0.50 lb/Mmbtu) heat input; or, as an alternative, 0.5 weight percent sulfur.	Limit is fuel sulfur limits. No emission rate limits
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	25	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	117	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas and gases from tanks			35	ppmv	Daily Average	Unspecified		This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Natural gas or refinery fuel gas			35	ppmv	Daily Average	Unspecified	35 ppm sulfur limit in fuel.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas and natural gas	122	MMBtu/hr	35	ppmv	Daily Average	Unspecified	Sulfur limited to 35 ppm in fuel.	THE 35 PPMV SULFUR LIMIT, AS H2S, IS A RESTRICTION ON THE INLET CONCENTRATION OF THE REFINERY FUEL GAS BEING FIRED IN THE UNIT.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	12	MMBtu/hr	35	ppmv	Daily Average	Unspecified		This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas and natural gas	192	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	THE 35 PPMV SULFUR LIMIT, AS H2S, IS A RESTRICTION ON THE INLET CONCENTRATION OF THE REFINERY FUEL GAS BEING FIRED IN THE UNIT.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	129	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	23.2	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	311	MMBtu/hr	35	ppmv	Daily Average	Unspecified	35 ppm sulfur limit on fuel burned.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	328	MMBtu/hr	35	ppmv	Daily Average	Unspecified	35 ppm sulfur limit on fuel burned.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	101	MMBtu/hr	35	ppmv	Daily Average	Unspecified		This limit is for sulfur, as H_2S, and is a limit on the inlet concentration of the refinery fuel gas.

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	70	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This limit is for sulfur, as H_2S, and is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	211	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This limit is on sulfur, as H_2S, and is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	21.4	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This limit is on sulfur, as H_2S, and is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas and natural gas	222	MMBtu/hr	35	ppmv	Daily Average	Unspecified	Sulfur limited to 35 ppm in fuel burned.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Natural gas or refinery fuel gas	346	MMBtu/hr	35	ppmv	Daily	Unspecified	35 ppm sulfur limit in fuel.	The 35 ppmv sulfur limit, as H_2S, is a restriction on the inlet concentration of the refinery fuel gas being fired in the unit.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	1435	MMBtu/hr	35	ppmv	Daily Average	Unspecified	S limited to 35 ppm.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	44	MMBtu/hr	35	ppmv	Daily Average	Unspecified		This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	100	MMBtu/hr	33.5	lbs/hr	1-hr average	Unspecified		This sulfur limit is for any gases from the sulfur recovery plant.
AZ-0046	AZ	Arizona Clean Fuels Yuma LLC - Arizona Clean Fuels Yuma	4/14/2005	Refinery fuel gas or natural gas	99.5	MMBtu/hr	35	ppmv	Daily Average	Unspecified	Fuel limited to 35 ppm S.	This sulfur limit, as H_2S, is a limit on the inlet concentration of the refinery fuel gas.
LA-0094	LA	Columbian Chemicals Company - North Bend Plant	9/29/1995	Tail gas	640	MMBtu/hr	1746.74	ppm		Unspecified	Limit sulfur content of feedstock to 3 wt% for rubber grade and 1.5 wt% for industrial grade units	
LA-0094	LA	Columbian Chemicals Company - North Bend Plant	9/29/1995	Tail gas	26	MMBtu/hr	2992.3	ppm		Unspecified	Limit sulfur content of feedstock to 3 wt% for rubber grade and 1.5 wt% for industrial grade units	
LA-0094	LA	Columbian Chemicals Company - North Bend Plant	9/29/1995	Tail gas	100	MMBtu/hr	3109.49	ppmv		Unspecified	Limit sulfur content of feedstock to 3 wt% for rubber grade and 1.5 wt% for industrial grade units	Additional Emission Limit: 2,269.44 tons/yr
LA-0149	LA	Marathon Ashland Petroleum LLC-Garyville - Louisiana Refining Division	10/21/1999	Nat & refinery gas	281.1	MMBtu/hr	11.25	lbs/hr	each	Unspecified	Low sulfur fuel	
LA-0149	LA	Marathon Ashland Petroleum LLC-Garyville - Louisiana Refining Division	10/21/1999	Nat & refinery gas	69.4	MMBtu/hr	2.78	lbs/hr		Unspecified	Low sulfur fuel	
LA-0149	LA	Marathon Ashland Petroleum LLC-Garyville - Louisiana Refining Division	10/21/1999	Nat & refinery gas	221	MMBtu/hr	8.85	lbs/hr		Unspecified	Low sulfur fuel	
LA-0149	LA	Marathon Ashland Petroleum LLC-Garyville - Louisiana Refining Division	10/21/1999	Nat & refinery gas	350	MMBtu/hr	11.21	lbs/hr		Unspecified	Use of low sulfur fuel	
LA-0149	LA	Marathon Ashland Petroleum LLC-Garyville - Louisiana Refining Division	10/21/1999	Nat & refinery gas	268.6	MMBtu/hr	10.75	lbs/hr		Unspecified	Low sulfur fuels	
LA-0149	LA	Marathon Ashland Petroleum LLC-Garyville - Louisiana Refining Division	10/21/1999	Nat & refinery gas	78	MMBtu/hr	3.13	lbs/hr		Unspecified	Low sulfur fuel	
LA-0166	LA	Orion Refining Corp (now Valero) - Orion Refining Corp (now Valero)	1/10/2002	Refinery fuel gas	528	MMBtu/hr	14.2	lbs/hr		Unspecified	Low sulfur refinery gas fuel	

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas			25	ppmv as H_2S	Annual Average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas			25	ppmv as H_2S	Annual Average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas	525.7	MMBtu/hr	25	ppmv	As H_3S annual average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas		MMBtu/hr	25	ppmv	As H_2S annual average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Purge gas	1412.5	MMBtu/hr	25	ppmv as H_2S	Annual Average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas		MMBtu/hr	25	ppmv as H_2S	Annual Average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas	155.2	MMBtu/hr	25	ppmv	As H_2S annual average	Unspecified	Use of low sulfur refinery fuel gas	
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	Refinery fuel gas	9.6	MMBtu/hr	0.2	max lbs/hr		Unspecified		
LA-0211	LA	Marathon Petroleum Co LLC - Garyville Refinery	12/27/2006	H_2 plant feed gas	2472	MMBtu/hr	0.01	max lbs/hr		Unspecified	Comply with 40 CFR 60.18	
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas	354	MMBtu/hr	9.43	lbs/hr	Hourly Maximum	Unspecified	Use of pipeline quality natural gas or refinery fuel gases with an H_2S concentration less than 100 ppmv (annual average).	
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Process fuel gas					See note	Unspecified	Fueled by natural gas or process fuel gas with H_2S <= 10 ppmv (annual average)	No emission limits available
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas					See note	Unspecified	Use of pipeline quality natural gas or refinery fuel gases with an H_2S concentration less than 100 ppmv (annual average).	No emission limits
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Process fuel gas					See note	Unspecified	Use of pipeline quality natural gas or process fuel gases with an H_2S concentration less than 10 ppmv (annual average).	No emission limits
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas	200	MMBtu/hr	0.45	LB/H	Hourly Maximum	Unspecified	Use of pipeline quality natural gas or process fuel gases with an H_2S concentration less than 10 ppmv (annual average).	
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas					See note	Unspecified	Use of pipeline quality natural gas or refinery fuel gases with an H_2S concentration less than 100 ppmv (annual average).	No emission limits available
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas			0		See note	Unspecified	Use of pipeline quality natural gas or refinery fuel gases with an H_2S concentration less than 100 ppmv (annual average).	No emission limits

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas	715	MMBtu/hr			See note	Unspecified	Fueled by natural gas and/or refinery fuel gas with H_2S <= 100 ppmv (annual average) or process fuel gas with H_2S <= 10 ppmv (annual average)	No emission limits available
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas	70	MMBtu/hr			See note	Unspecified	Fueled by natural gas and/or refinery fuel gas with H_2S <= 100 ppmv (annual average)	No emission limits available
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Refinery fuel gas	633	MMBtu/hr			See note	Unspecified	Fueled by natural gas and/or refinery fuel gas with H_2S <= 100 ppmv (annual average)	No emission limits available
LA-0213	LA	Valero Refining - New Orleans, LLC - St. Charles Refinery	11/17/2009	Process fuel gas	15	MMBtu/hr			See note	Unspecified	Fueled by natural gas or process fuel gas with H_2S <= 10 ppmv (annual average)	No emission limits available
LA-0234	LA	CITGO Petroleum Company - Lake Charles Complex - Cat Gas Hydro	1/26/2009	Fuel gas	62.8	MMBtu/hr	5.08	lbs/hr		Unspecified	Low sulfur concentration in the fuel gas	Original PSD established an average sulfur concentration of 182 ppm and a maximum of 332 ppm in the fuel gas. This reconciliation after determining more updated sulfur concentrations raises those values to an average of 218.4 ppm and a maximum of 475 ppm in the fuel gas.
LA-0234	LA	CITGO Petroleum Company - Lake Charles Complex - Cat Gas Hydro	1/26/2009	Fuel gas	56.9	MMBtu/hr	5.08	lbs/hr		Unspecified	Low sulfur concentration in the fuel gas	Original PSD established an average sulfur concentration of 182 ppm and a maximum of 332 ppm in the fuel gas. This reconciliation after determining more updated sulfur concentrations raises those values to an average of 218.4 ppm and a maximum of 475 ppm in the fuel gas.
LA-0234	LA	CITGO Petroleum Company - Lake Charles Complex - Cat Gas Hydro	1/26/2009	Fuel gas	56.9	MMBtu/hr	5.08	lbs/hr		Unspecified	Low sulfur concentration in the fuel gas	Original PSD established an average sulfur concentration of 182 ppm and a maximum of 332 ppm in the fuel gas. This reconciliation after determining more updated sulfur concentrations raises those values to an average of 218.4 ppm and a maximum of 475 ppm in the fuel gas.
LA-0234	LA	CITGO Petroleum Company - Lake Charles Complex - Cat Gas Hydro	1/26/2009	Fuel gas	38.3	MMBtu/hr	3.1	lbs/hr		Unspecified	Low sulfur concentration in the fuel gas	Original PSD established an average sulfur concentration of 182 ppm and a maximum of 332 ppm in the fuel gas. This reconciliation after determining more updated sulfur concentrations raises those values to an average of 218.4 ppm and a maximum of 475 ppm in the fuel gas.
LA-0234	LA	CITGO Petroleum Company - Lake Charles Complex - Cat Gas Hydro	1/26/2009	Fuel gas	38.3	MMBtu/hr	3.1	lbs/hr		Unspecified	Low sulfur concentration in the fuel gas	Original PSD established an average sulfur concentration of 182 ppm and a maximum of 332 ppm in the fuel gas. This reconciliation after determining more updated sulfur concentrations raises those values to an average of 218.4 ppm and a maximum of 475 ppm in the fuel gas.

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
LA-0234	LA	CITGO Petroleum Company - Lake Charles Complex - Cat Gas Hydro	1/26/2009	Fuel gas	62.8	MMBtu/hr	5.08	lbs/hr		Unspecified	Use low sulfur concentration fuel gas.	Original PSD established an average sulfur concentration of 182 ppm and a maximum of 332 ppm in the fuel gas. This reconciliation after determining more updated sulfur concentrations raises those values to an average of 218.4 ppm and a maximum of 475 ppm in the fuel gas.
NJ-0053	NJ	MCUA Landfill Gas Utilization Project - MCUA	3/9/1999	Landfill gas	31	MMBtu/hr	1.73	lbs/hr		Unspecified	None	
NJ-0053	NJ	MCUA Landfill Gas Utilization Project - MCUA	3/9/1999	Landfill gas	90	MMBtu/hr	3.6	lbs/hr		Unspecified	None	Additional Emission Limit: 0.04 lbs/MMbtu
NJ-0061	NJ	Merck - Merck-Rahway Plant	9/18/2003	Natural gas co-fired with waste solvent	99.5	MMBtu/hr	5.1	lbs/hr		Unspecified	The use of low sulfur content in fuel: 0.055 % sulfur in fuel by weight for the mixture of natural gas and waste solvent is considered BACT for SO_2.	
PA-0231	PA	United Refinery Co - United Refinery Co.	10/9/2003	Refinery gas	116	MMBtu/hr	2.71	lbs/hr		Unspecified	Low sulfur refinery gas	Best available technology (BAT) review done.
PA-0231	PA	United Refinery Co - United Refinery Co.	10/9/2003	Refinery gas	91	MMBtu/hr	2.44	lbs/hr		Unspecified	Low sulfur refinery gas	Best available technology (BAT) review done.
PA-0231	PA	United Refinery Co - United Refinery Co.	10/9/2003	Refinery gas	344	MMBtu/hr	9.22	lbs/hr		Unspecified	Good combustion practice	Best available technology (BAT) review done.
PA-0231	PA	United Refinery Co - United Refinery Co.	10/9/2003	Refinery gas	147	MMBtu/hr	46.22	lbs/hr		Unspecified	Use of desulfurized refinery gas	Best available technology (BAT) review done.
TX-0284	TX	Praxair Incorporated - Praxair Synthesis Gas Plant	10/20/1998	Process gas		MMBtu/hr	1.14	lbs/hr		Unspecified	None indicated	
TX-0348	TX	Diamond Shamrock Refining Company LP - Diamond Shamrock McKee Plant	10/19/2001	Fuel gas	38.5	MMBtu/hr	1.46	lbs/hr		Unspecified	None indicated	Standard emission limits calculated from hourly limits and process rating.
TX-0348	TX	Diamond Shamrock Refining Company LP - Diamond Shamrock McKee Plant	10/19/2001	Fuel gas	160.4	MMBtu/hr	6.07	lbs/hr		Unspecified	None indicated	Standard emission limits calculated from hourly limits and process rating.
TX-0348	TX	Diamond Shamrock Refining Company LP - Diamond Shamrock McKee Plant	10/19/2001	Fuel gas	13.5	MMBtu/hr	0.51	lbs/hr		Unspecified	None indicated	Standard emission limits calculated from hourly limits and process rating.
TX-0348	TX	Diamond Shamrock Refining Company LP - Diamond Shamrock McKee Plant	10/19/2001	Fuel gas	10.8	MMBtu/hr	0.41	lbs/hr		Unspecified	None indicated	Standard emission limits calculated from hourly limits and process rating.
TX-0348	TX	Diamond Shamrock Refining Company LP - Diamond Shamrock McKee Plant	10/19/2001	Fuel gas	30.1	MMBtu/hr	1.14	lbs/hr		Unspecified	None indicated	Standard emission limits calculated by dividing the hourly emission limit by the throughput.
TX-0348	TX	Diamond Shamrock Refining Company LP - Diamond Shamrock McKee Plant	10/19/2001	Fuel gas	37	MMBtu/hr	1.4	lbs/hr		Unspecified	None indicated	Standard emission limits calculated from hourly limits and process rating.
TX-0375	TX	Lyondell - CITGO Refining, LP - Lyondell - CITGO Refining, LP	3/14/2002	Petro refin gas	586	MMBtu/hr	15.1	lbs/hr	EACH	Unspecified	Low S fuel: Fuel gas with H_2S content no more than 0.1 gr/dscf over a 3 h rolling basis, or natural gas with H_2S content no more than 0.25 gr/100 dscf and total S content no more than 5.0 gr/ 100 dscf.	

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
TX-0375	TX	Lyondell - CITGO Refining, LP - Lyondell - CITGO Refining, LP	3/14/2002	Petro refin gas	38.34	MMBtu/hr	1	lbs/hr		Unspecified	Low S fuel: Fuel gas with H_2S content no more than 0.1 gr/dscf over a 3 h rolling basis, or natural gas with H_2S content no more than 0.25 gr/100 dscf and total S content no more than 5.0 gr/ 100 dscf.	
TX-0395	TX	Diamond Shamrock Refining Company - Diamond Shamrock McKee Plant	5/23/2000	Refinery gas	32.7	MMBtu/hr	1.23	lbs/hr		Unspecified		
TX-0395	TX	Diamond Shamrock Refining Company - Diamond Shamrock McKee Plant	5/23/2000	Refinery gas	248	MMBtu/hr	9.33	lbs/hr		Unspecified		
TX-0395	TX	Diamond Shamrock Refining Company - Diamond Shamrock McKee Plant	5/23/2000	Refinery gas	20	MMBtu/hr	0.75	lbs/hr		Unspecified		
TX-0395	TX	Diamond Shamrock Refining Company - Diamond Shamrock McKee Plant	5/23/2000	Refinery gas	147.2	MMBtu/hr	5.54	lbs/hr		Unspecified		
TX-0395	TX	Diamond Shamrock Refining Company - Diamond Shamrock McKee Plant	5/23/2000	Refinery gas	45.7	MMBtu/hr	1.72	lbs/hr		Unspecified		
TX-0395	TX	Diamond Shamrock Refining Company - Diamond Shamrock McKee Plant	5/23/2000	Refinery gas	63.4	MMBtu/hr	2.39	lbs/hr		Unspecified		
TX-0442	TX	Shell Oil Company - Shell Oil Deer Park	7/30/2004	Refinery fuel gas			300	ppm		Unspecified		
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.8	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.6	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			3.2	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.6	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			4	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.6	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.1	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			4	lbs/hr		Unspecified	Limit H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			4.1	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			7.8	lbs/hr		Unspecified	Limit H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			2	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	

SO_2 - Commercial/institutional-size Boilers/Furnaces (<100 MMBtu/hr) - Gaseous Fuel and Gaseous Fuel Mixtures

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Units	Limit	Units	Averaging Period	Compliance Method	Control Type	Note(s)
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.5	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.3	lbs/hr		Unspecified	Limit H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.2	lbs/hr		Unspecified	Limit H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.8	lbs/hr		Unspecified	Limit H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.3	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.7	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			1.4	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			1.1	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.9	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			7.2	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			1.5	lbs/hr		Unspecified		
TX-0443	TX	Valero Refining - Texas LP - Valero Corpus Christi Refinery East Plant	1/1/2005	Fuel gas			0.7	lbs/hr		Unspecified	Limit the content of H_2S in fuel gas	
TX-0472	TX	Flint Hills Resources LP - Flint Hills Resources Corpus Christi West Plant	1/24/2005	Natural gas and refinery fuel gas			100	% Comb conv to SO_2		Unspecified		SO2 emissions are estimated using the maximum and average H2S content in the fuel gas and assuming 100% combustion conversion to SO2. The short-term maximum H2S content is 162 ppmv on a 3-hour rolling average in accordance with NSPS Subpart J. The average H2S content is 81 ppmv on a 365 day rolling average.
*WY-0071	WY	Sinclair Wyoming Refining Company - Sinclair Refinery	10/15/2012	Refinery fuel gas	50	MMBtu/hr				Unspecified	Follow Subpart Ja Fuel gas H_2S limits	
*WY-0071	WY	Sinclair Wyoming Refining Company - Sinclair Refinery	10/15/2012	Refinery fuel gas	233	MMBtu/hr				Unspecified	Follow Subpart Ja Fuel gas H_2S limits	
*WY-0071	WY	Sinclair Wyoming Refining Company - Sinclair Refinery	10/15/2012	Refinery fuel gas	64.2	MMBtu/hr				Unspecified	Follow Subpart Ja Fuel gas H_2S limits	
*WY-0071	WY	Sinclair Wyoming Refining Company - Sinclair Refinery	10/15/2012	Refinery fuel gas	46.3	MMBtu/hr				Unspecified	Follow Subpart Ja Fuel gas H_2S limits	
*WY-0071	WY	Sinclair Wyoming Refining Company - Sinclair Refinery	10/15/2012	Refinery fuel gas	44.9	MMBtu/hr				Unspecified	Follow Subpart Ja Fuel gas H_2S limits	
*WY-0071	WY	Sinclair Wyoming Refining Company - Sinclair Refinery	10/15/2012	Refinery fuel gas	33.4	MMBtu/hr				Unspecified	Follow Subpart Ja Fuel gas H_2S limits	

SO_2 - Internal Combustion Engines - Large Internal Combustion Engines (>500HP) - Diesel Fuel

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Unit	Limit	Unit	Averaging Period	Compliance Method	Control Type	Note(s)
*IN-0158	IN	St. Joseph Energy Center, LLC - St. Joseph Energy Center, LLC	12/3/2012	Diesel	1,006	hp each	0.012	lbs/hr		Unspecified	Ultra low sulfur distillate and usage limits	Limit one and two are for each generator
*IN-0158	IN	St. Joseph Energy Center, LLC - St. Joseph Energy Center, LLC	12/3/2012	Diesel	2,012	hp	0.024	lbs/hr	3 HOURS	Unspecified	Ultra low sulfur distillate and usage limits	Limit one and two are for each generator
*WY-0070	WY	Black Hills Power, Inc. - Cheyenne Prairie Generating Station	8/28/2012	Ultra low sulfur diesel	839	hp				EPA/OAR Method 6	Ultra Low Sulfur Diesel	limited to 500 hours of non-emergency operation per calendar year
AK-0037	AK	Tesoro Alaska Company - Kenai Refinery	3/21/2000	Diesel	660	hp	500	ppm	Averaged over 3 hours	Unspecified	Fuel sulfur content limits as follows: Diesel fuel, 0.35% sulfur; Natural gas, 0.01% sulfur; LPG, 0.01% sulfur; refinery gas, 168 ppmv H_2S.	Estimated emissions are 0.2 tons/year, but this is not an emission limit.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	500	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit state: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	650	hp			See control description	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	755	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	Ensure the emission limit by complying with the fuel restriction 18 AAC 50.055: emission limit 1
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	940	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit State: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	949	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit State: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	950	hp			See control description	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	1,200	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit STATE: Emission limit 1
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	1,215	hp			See control description	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	2,195	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit State: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	3,632	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit State: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	4,240	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit State: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	4,425	hp	500	ppm	Av over 3 h	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	BACT: Fuel sulfur content limit State: emission limit 1 and hydrogen sulfide content restrictions to the fuel.
AK-0038	AK	BP Exploration Inc. - Northstar Development Project	2/5/1999	Diesel	6,200	hp			See control description	Unspecified	Sulfur content of fuel oil shall not exceed 0.15% by weight.	
LA-0122	LA	International Paper - Mansfield Mill - Mansfield Mill	8/14/2001	Diesel	587	hp	1.2	lbs/hr		Unspecified	Preventative maintenance	
LA-0122	LA	International Paper - Mansfield Mill - Mansfield Mill	8/14/2001	Diesel fuel	775	hp each	1.6	lbs/hr	each	Unspecified	Preventative maintenance	
LA-0122	LA	International Paper - Mansfield Mill - Mansfield Mill	8/14/2001	Diesel fuel	1,100	hp each	2.2	lbs/hr	each	Unspecified	Preventative maintenance	
MN-0053	MN	MN Municipal Power Agency - Fairbault Energy Park	7/15/2004	Diesel	670	hp	0.051	lb/MMbtu		Unspecified	Low sulfur fuel	
MN-0054	MN	- Mankato Energy Center	12/4/2003	Diesel fuel	1,850	hp	0.59	G/B-HP-H		Unspecified	Low sulfur fuel	
OK-0056	OK	Mustang Power LLC - Horseshoe Energy Project	2/12/2002	Diesel fuel	1,000	hp	0.05	lb/MMbtu		Unspecified	Low sulfur diesel fuel	
OK-0072	OK	Redbud Energy LP - Redbud Power Plt	5/6/2002	Diesel fuel	1,818	hp	0.4	lb/MMbtu		Unspecified		

SO_2 - Internal Combustion Engines - Large Internal Combustion Engines (>500HP) - Diesel Fuel

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Unit	Limit	Unit	Averaging Period	Compliance Method	Control Type	Note(s)
OK-0090	OK	Duke Energy - Duke Energy Stephens, LLC Stephens Energy	3/21/2003	Diesel	749	bhp	0.3	lbs/hr		Unspecified	Use of low sulfur diesel fuel (< 0.05% S by wt)	
OK-0129	OK	Associated Electric Cooperative Inc - Chourteau Power Plant	1/23/2009	Low sulfur diesel	2,200	hp	0.89	lbs/hr		Unspecified	Low sulfur diesel 0.05%S	
SC-0113	SC	Pyramax Ceramics, LLC - Pyramax Ceramics, LLC	2/8/2012	Diesel	500	hp				Unspecified	Use of low sulfur diesel, sulfur content less than 0.0015 percent. Operating hours less than 100 hours per year for maintenance and testing.	Diesel fuel sulfur content shall be < 0.0015 percent. Reports of fuel sulfur content shall be maintained.
SC-0113	SC	Pyramax Ceramics, LLC - Pyramax Ceramics, LLC	2/8/2012	Diesel	757	hp				Unspecified	Use of low sulfur diesel, sulfur content less than 0.0015 percent. Operating hours less than 100 hours per year for maintenance and testing.	Diesel fuel sulfur content shall be < 0.0015 percent. Reports of fuel sulfur content shall be maintained.
TX-0407	TX	Steag Power LLC - Sterne Electric Generating Facility	12/6/2002	Diesel	1,350	hp	2.77	lbs/hr		Unspecified	Distillate fuel oil containing no more than 0.2 weight percent of sulfur.	
WV-0023	WV	Longview Power, LLC - Maidsville	3/2/2004	Diesel	1,801	hp	6.5	lbs/hr		Unspecified	Sulfur content limited to 0.05% by weight	Limited to 500 hours of operation a year
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	835	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	500	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	1,050	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	1,050	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	1,050	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	1,000	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	835	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.

SO_2 - Internal Combustion Engines - Large Internal Combustion Engines (>500HP) - Diesel Fuel

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Unit	Limit	Unit	Averaging Period	Compliance Method	Control Type	Note(s)
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	750	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0043	AK	Nushagak Electric Cooperative, Inc (NEC) - Dillingham Power Plant	5/8/2000	Diesel	1,135	kW	63.3	tons/12 mo. period	Combined limit, all fuel burning sources	Unspecified	The sulfur content of the fuel oil burned must not exceed 0.50 percent by weight at any time. Follow the power generation limits as specified in the process notes.	Owner requested limit to avoid PSD classification. Sulfur compounds expressed as sulfur dioxide. Basis of ppm limit is SIP.
AK-0045	AK	Phillips Petroleum Company - North Cook Inlet Unit	6/6/2000	Diesel	500	kW each	500	ppm	3 h av, each	Unspecified	Use natural gas with a hydrogen sulfide content not to exceed 200 ppm and a fuel oil with a sulfur content not to exceed 0.25% by weight	Limit set according to 18 AAC 50.055(C)
AK-0053	AK	Tesoro Alaska Company - Kenai Refinery	3/21/2000	Fuel oil	2	mW			See control description	Unspecified	Use only fuel gas with a hydrogen sulfide content not to exceed 200 ppm and use a distillate fuel oil with a sulfur content not to exceed 0.15% by weight	
AK-0053	AK	Tesoro Alaska Company - Kenai Refinery	3/21/2000	Fuel oil	2	mW			See control description	Unspecified	Use only fuel gas with a hydrogen sulfide content not to exceed 200 ppm and use a distillate fuel oil with a sulfur content not to exceed 0.15% by weight	
AK-0059	AK	USAF Eareckson Air Station - USAF Eareckson Air Station	9/29/2003	Diesel					See note	Unspecified	Low sulfur fuel: < 0.3% S by wt	BACT is fuel sulfur limit. No emission rate limit.
AK-0060	AK	Westward Seafoods, Inc. - Dutch Harbor Seafood Processing Facility	10/10/2003	Distillate fuel oil	2,220	kW			See note	Unspecified	Low sulfur fuel: sulfur restriction of 0.24% S by wt for a jet A and diesel no. 2 fuel blend.	BACT is fuel sulfur limit. Mass balance calculations result in an estimated 56 ppmv.
AK-0061	AK	Nome Joint Utilities System - Snake River Power Plant	11/5/2004	Diesel fuel	5,211	kW	0.5	% S by wt	Per shipment delivered	Unspecified	Limit sulfur content in diesel fuel.	
FL-0310	FL	Shady Hills Power Company - Shady Hills Generating Station	1/12/2009	Ultra Low S oil	3	mW	0.0015	% S by wt	NA/recordkeeping	Other - ULSO	Firing ultra low sulfur oil with a maximum hours of operation of 500 hrs/yr.	Compliance demonstrated by verification delivery receipts
*FL-0346	FL	Florida Power & Light - Lauderdale Plant	4/22/2014	ULSD	2	MMBtu/hr (HHV) per engine	15	ppm sulfur in fuel		Unspecified	ULSD required	BACT = NSPS IIII; Certified IIII engine meets BACT. ULSD required in NSPS.
IA-0088	IA	Archer Daniels Midland - ADM Corn Processing - Cedar Rapids	6/29/2007	Diesel	1,500	kW	0.17	G/B-HP-H	Average of 3 test runs	Unspecified	Burn low-sulfur diesel fuel. 0.05% by wt or less not to exceed the NSPS requirement.	
IA-0095	IA	- Tate & Lyle Ingredients Americas, Inc.	9/19/2008	Diesel	700	kW	0.23	G/KW-H	Average of three stack test runs	Unspecified	Fuel sulfur limit	
KS-0028	KS	Kansas City Board Of Public Utilities - Nearman Creek Power Station	10/18/2005	No. 2 fuel oil	24	MMBtu/hr	1.2	lbs/hr	Full load operations	Unspecified	Good combustion control	
SC-0114	SC	GP Allendale LP - GP Allendale LP	11/25/2008	Diesel	525	hp	0.39	lbs/hr		EPA/OAR Method 6C	Tune-ups and inspections will be performed as outlined in the good management practice plan.	Annual emissions from the diesel fire pump are based on an operational limit of 500 hr/yr.
SC-0115	SC	GP Clarendon LP - GP Clarendon LP	2/10/2009	Diesel	525	hp	0.39	lbs/hr		EPA/OAR Method 6C	Tune-ups and inspections will be performed as outlined in the good management practice plan.	Annual emissions from the diesel fire pump are based on an operational limit of 500 hr/yr.

SO_2 - Internal Combustion Engines - Large Internal Combustion Engines (>500HP) - Diesel Fuel

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Unit	Limit	Unit	Averaging Period	Compliance Method	Control Type	Note(s)
IA-0088	IA	Archer Daniels Midland - ADM Corn Processing - Cedar Rapids	6/29/2007	Diesel #2	540	hp	0.17	G/B-HP-H	Average of 3 test runs	Unspecified	Burn low-sulfur diesel fuel. 0.05% by wt or less not to exceed the NSPS requirement.	
MN-0050	MN	Lakefield Junction LP - Lakefield Junction LP Generating Station	5/4/2000	Diesel	2	mW	0.5	lb/MMbtu		Unspecified	Low sulfur fuel; limited operation to 1,000 h/rolling 12-mo	
VA-0276	VA	Ingenco Distributed Energy - Ingenco - Charles City Plant	6/20/2003	Fuel oil	550	hp	0.5	lb/MMbtu		Unspecified	Good combustion practices	Additional limits: 29.0 t/yr total facility, 1.5 G/BHP-H (calculated). emissions from the operation of any individual engine, group of six engines when the facility is operated in either the single fuel or the dual fuel mode shall not exceed the limits specified.
VA-0305	VA	Ingenco - Ingenco K&O Facility	9/26/2007	Distillate oil	550	hp	30.7	tons/yr		Unspecified	Good combustion practices and continuous monitoring devices	Emission limits are for 1 of 48 engines.
IA-0095	IA	- Tate & Lyle Ingredients Americas, Inc.	9/19/2008	Diesel	575	hp	0.23	G/KW-H	Average of three stack test runs	Unspecified	Limit on sulfur in fuel	
*IN-0166	IN	Indiana Gasification, LLC - Indiana Gasification, LLC	6/27/2012	Diesel	575	hp each	15	ppm sulfur		Unspecified	Use of low-S diesel and limited hours of non-emergency operation	Emission limits: each emergency generator shall not exceed 52 hours per year of nonemergency operation.
MN-0070	MN	- Minnesota Steel Industries, LLC	9/7/2007	Diesel			0.05	%	Sulfur by weight in fuel	Unspecified	Limited hours, limited sulfur in fuel	Limited to 500 hours per year (12 month rolling average); sulfur limit for fuel limits SO_2 emissions.
MN-0071	MN	Minnesota Municipal Power Agency - Fairbault Energy Park	6/5/2007	No. 2	1,750	kW	0.0004	LB/HP-H	3 hour average	Unspecified		Including ssm. 10 hour/day operating limit
NC-0074	NC	Bridgestone/Firestone North American Tire - Bridgestone/Firestone North American Tire	1/24/2003	Diesel	16	MMBtu/hr	2.3	lb/MMbtu		Unspecified		
NC-0074	NC	Bridgestone/Firestone North American Tire - Bridgestone/Firestone North American Tire	1/24/2003	Diesel	4	MMBtu/hr	2.3	lb/MMbtu		Unspecified		
NJ-0036	NJ	AES Red Oak LLC - AES Red Oak LLC	10/24/2001	Diesel fuel	49	MMBtu/hr	2.45	lbs/hr		Unspecified	Low sulfur fuel	
NV-0047	NV	99 Civil Engineer Squadron Of Usaf - Nellis Air Force Base	2/26/2008	Diesel oil			0.02	G/B-HP-H		Unspecified	Limiting sulfur content in the diesel oil to 0.05%	
OH-0254	OH	Duke Energy North America - Duke Energy Washington County LLC	8/14/2003	Diesel	600	kW	0.4	lbs/hr		Unspecified	Low sulfur fuel, combustion control	
LA-0231	LA	Lake Charles Cogeneration, LLC - Lake Charles Gasification Facility	6/22/2009	Diesel	575	hp each	0.01	lbs/hr	Maximum (each)	Unspecified	Comply with 40 CFR 60 SUBPART IIII	
OH-0255	OH	American Electric Power - AEP Waterford Energy LLC	3/29/2001	Diesel	1,000	kW	0.01	tons/yr		Unspecified	Low sulfur fuel	Unit limited to 500 hours per 12 month period.
OH-0266	OH	University Of Cincinnati - University Of Cincinnati	8/15/2002	Diesel fuel oil	19	MMBtu/hr	0.043	lb/MMbtu		Unspecified	Sulfur content of diesel fuel less than 0.05 percent.	Limits are for each engine.
OH-0275	OH	Cinergy - PSI Energy-Madison Station	8/24/2004	Diesel fuel	17	MMBtu/hr	8.61	lbs/hr		Unspecified	Sulfur limited to 0.05% by weight. Operations limited to 499 hour per year	Each generator restricted to 499 h/yr of operation
LA-0122	LA	International Paper - Mansfield Mill - Mansfield Mill	8/14/2001	Diesel	587	hp	1.2	lbs/hr		Unspecified	Preventative maintenance	
*OH-0352	OH	Arcadis, Us, Inc. - Oregon Clean Energy Center	6/18/2013	Diesel	2,250	kW	0.03	lbs/hr		EPA/OAR Method 6C		Method 6c if required

SO_2 - Internal Combustion Engines - Large Internal Combustion Engines (>500HP) - Diesel Fuel

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Unit	Limit	Unit	Averaging Period	Compliance Method	Control Type	Note(s)
AK-0037	AK	Tesoro Alaska Company - Kenai Refinery	3/21/2000	Diesel	660	hp	500	ppm	Averaged over 3 hours	Unspecified	Fuel sulfur content limits as follows: diesel, 0.35% sulfur; natural gas, 0.01% sulfur; LPG, 0.01% sulfur; refinery gas, 168 ppmv H2S.	Estimated emissions are 0.5 t/yr, but this is not an emission limit.
MN-0053	MN	MN Municipal Power Agency - Fairbault Energy Park	7/15/2004	Diesel	670	hp	0.051	lb/MMbtu		Unspecified	Low sulfur fuel	
AR-0051	AR	Duke Energy - Duke Energy-Jackson Facility	4/1/2002	Diesel fuel	671	hp			See notes	Unspecified	Fuels limit: 0.05% S by wt	No emission rate limit, limit is fuels limit.
OK-0090	OK	Duke Energy - Duke Energy Stephens, LLC Stephens Energy	3/21/2003	Diesel	749	bhp	0.3	lbs/hr		Unspecified	Use of Low Sulfur diesel fuel (< 0.05% S by wt)	
OK-0091	OK	Cardinal FG Co. - Cardinal FG Co./ Cardinal Glass Plant	3/18/2003	Diesel	2,000	kW	0.05	lb/MMbtu		Unspecified	Low sulfur fuel, < 0.05% S	
SC-0113	SC	Pyramax Ceramics, LLC - Pyramax Ceramics, LLC	2/8/2012	Diesel	757	hp				Unspecified	Use of low sulfur fuel diesel, sulfur content less than 0.0015 percent. Operating hours less than 100 hours per year for maintenance and testing.	Sulfur content of diesel fuel to be less that 0.0015 percent. Supplier certification of fuel sulfur content shall be maintained.
LA-0122	LA	International Paper - Mansfield Mill - Mansfield Mill	8/14/2001	Diesel fuel	775	hp each	1.6	lbs/hr	Each	Unspecified	Preventative maintenance	
*WY-0070	WY	Black Hills Power, Inc. - Cheyenne Prairie Generating Station	8/28/2012	Ultra low sulfur diesel	839	hp				EPA/OAR Method 6	Ultra low sulfur diesel	limited to 500 hours of non-emergency operation per calendar year
PR-0005	PR	Puerto Rico Electric Authority (PREPA) - San Juan Repowering Project	3/2/2000	Diesel fuel	5,000	kW	2.65	lbs/hr		Unspecified	Good combustion control	
SC-0064	SC	SCE&G - SCE&G - Jasper County Generating Facility	5/23/2002	Diesel	2,000	kW	0.9	lbs/hr		Unspecified	Low sulfur (0.05%) diesel	
*IN-0158	IN	St. Joseph Energy Center, LLC - St. Joseph Energy Center, LLC	12/3/2012	Diesel	1,006	hp each	0.012	lbs/hr		Unspecified	Ultra low sulfur distillate and using limits	Limit one and two are for each generator
AK-0066	AK	British Petroleum Exploration Alaska (BPXA) - Endicott Production Facility, Liberty Development Project	6/15/2009	Distillate	1,041	hp	15	ppmw		Unspecified	Limit sulfur in fuel	Baseline selected as BACT. This fuel sulfur limit applies or will apply to all new emission units in Prudhoe Bay
LA-0122	LA	International Paper - Mansfield Mill - Mansfield Mill	8/14/2001	Diesel fuel	1,100	hp each	2.2	lbs/hr	Each	Unspecified	Preventative maintenance	
OK-0128	OK	Mid American Steel And Wire Company - Mid American Steel Rolling Mill	9/8/2008	No. 2 diesel	1,200	hp	0.49	lbs/hr		Unspecified	500 hours per year, 0.05% sulfur diesel fuel	
*IN-0166	IN	Indiana Gasification, LLC - Indiana Gasification, LLC	6/27/2012	Diesel	1,341	hp each	15	ppm sulfur		Unspecified	Use of low-S diesel and limited hours of non-emergency operation.	Emission limit: each emergency generator shall not exceed 52 hours per year of nonemergency operation.
LA-0231	LA	Lake Charles Cogeneration, LLC - Lake Charles Gasification Facility	6/22/2009	Diesel	1,341	hp each	0.01	lbs/hr	Maximum (each)	Unspecified	Comply with 40 CFR 60 SUBPART IIII	
TX-0407	TX	Steag Power LLC - Sterne Electric Generating Facility	12/6/2002	Diesel	1,350	hp	2.77	lbs/hr		Unspecified	Distillate fuel oil containing no more than 0.2 weight percent of sulfur.	
*SC-0132	SC	Argos Usa - Argos Harleyville Plant	12/14/2007	Diesel	1,000	kW				None selected in SAE		Must meet 40 CFR 60 subpart IIII requirements
TX-0262	TX	Archer Power Partners, L.P. - Archer Generating Station	1/3/2000	Diesel fuel	2,000	kW	1.9	lbs/hr		Unspecified		Additional emission limit: .32 G/BHP-H.
SC-0114	SC	GP Allendale LP - GP Allendale LP	11/25/2008	Diesel	1,400	hp	5.4	lbs/hr		EPA/OAR Method 6C		
SC-0115	SC	GP Clarendon LP - GP Clarendon LP	2/10/2009	Diesel	1,400	hp	5.4	lbs/hr		EPA/OAR Method 6C	Tune-ups and inspections will be performed as outlined in the good management practice plan.	Annual emissions from the diesel emergency generator are based on an operational limit of 500 hr/yr.

SO_2 - Internal Combustion Engines - Large Internal Combustion Engines (>500HP) - Diesel Fuel

ID	State	Company	Permit Issuance Date	Fuel Type	Capacity	Unit	Limit	Unit	Averaging Period	Compliance Method	Control Type	Note(s)
CO-0055	CO	Lamar Utilities Board DBA Lamar Light & Power - Lamar Light & Power Power Plant	2/3/2006	Diesel	1,500	hp	0.06	lb/MMbtu		Unspecified	Low sulfur fuel. Less than 0.05 by weight	
WV-0023	WV	Longview Power, LLC - Maidsville	3/2/2004	Diesel	1,801	hp	6.5	lbs/hr		Unspecified	Sulfur content in the fuel limited to 0.05% by weight	Limited to 500 hours of operation a year
OK-0072	OK	Redbud Energy LP - Redbud Power Plt	5/6/2002	Diesel fuel	1,818	hp	0.4	lb/MMbtu		Unspecified		
WA-0328	WA	BP West Coast Products, LLC - BP Cherry Point Cogeneration Project	1/11/2005	Diesel fuel	2	mW				Unspecified	Fuel must satisfy requirements of on-road diesel specifications at time of fuel purchase	* See notes -see control method description for SO_2 above
WI-0174	WI	Badger Generating Co LLC - Badger Generating Co LLC	9/20/2000	Diesel	4	MMBtu/hr	1.02	lbs/hr		Unspecified	Sulfur content <= .05% by wt. Permit limits are fuel sulfur content limit and lb/h limit, not G/BHP-H.	
WI-0174	WI	Badger Generating Co LLC - Badger Generating Co LLC	9/20/2000	Diesel	4	MMBtu/hr	1.1	lbs/hr		Unspecified	The use of diesel fuel having a sulfur content of .05% by wt., and equipment usage limits. Permit limits are fuel sulfur content limits and lb/h limit, not limit in G/BHP-H.	
MN-0054	MN	- Mankato Energy Center	12/4/2003	Diesel fuel	1,850	hp	0.59	G/B-HP-H		Unspecified	Low sulfur fuel	
AK-0062	AK	BP Exploration Alaska - Badami Development Facility	8/19/2005	Diesel fuel	1,855	hp	0.15	% by wt	Sulfur in fuel oil	Unspecified	Limit sulfur content of fuel combusted	See notes: limit sulfur content of fuel combusted
*IN-0158	IN	St. Joseph Energy Center, LLC - St. Joseph Energy Center, LLC	12/3/2012	Diesel	2,012	hp	0.024	lbs/hr	3 hours	Unspecified	Ultra low sulfur distillate and usage limits	Limit one and two are for each generator
OK-0129	OK	Associated Electric Cooperative Inc - Chouteau Power Plant	1/23/2009	Low sulfur diesel	2,200	hp	0.89	lbs/hr		Unspecified	Low sulfur diesel 0.05%S	