1-Hour Sulfur Dioxide (2010 Standard) Redesignation Request and Maintenance Plan for the Central New Hampshire Nonattainment Area

March 1, 2018

NEW HAMPSHIRE
DEPARTMENT OF
Environmental
Services

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R-ARD-17-06

Revision to the

New Hampshire
State Implementation Plan

1-Hour Sulfur Dioxide (2010 Standard) Redesignation Request and Maintenance Plan for the Central New Hampshire Nonattainment Area

March 1, 2018

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Summary

On June 2, 2010, the U.S. Environmental Protection Agency (EPA) issued a final rule revising the primary sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS), and simultaneously revoked both the existing 24-hour and annual primary SO_2 standard. Established to provide requisite protection of public health with an adequate margin of safety, the new standard became 75 parts per billion (ppb) maximum per hour, measured as the 3-year average of the 99th percentile of the daily maximum 1-hour concentration (the design value).

Air quality in Central New Hampshire with regard to SO_2 nonattainment was dominated by a single major source – the coal-fired electric generating unit (EGU), Granite Shore Power LLC's (Granite Shore)[1] Merrimack Station − located in Merrimack County. In 2010, Merrimack Station emitted over 33,000 tons of SO_2. The 2009-2011 design value, 221 ppb, was cited in New Hampshire's designation recommendation. The location of this EGU, near the border of one county and in proximity to two others, did not lend itself to the presumptive norm of a nonattainment designation given to the county in which the violating monitor is located. Consequently, the nonattainment area recommended by New Hampshire consisted of three partial counties – Hillsborough, Merrimack and Rockingham. The EPA concurred with New Hampshire's recommendation and on August 5, 2013 [78 FR 47191] published air quality designations establishing the Central New Hampshire Nonattainment Area. The remaining areas of the state were subsequently designated "attainment/unclassifiable" in EPA's Round 3 of designations [83 FR 1098].

With regards to the revised standard and nonattainment designation, New Hamsphire has submitted revisions to the State Implementation Plan (SIP) including an infrastructure plan in accordance with the Clean Air Act (CAA) Sections 110(a)(1) and (2)[2], additional information relative to the unclassified areas of the State in accordance with 40 CFR 51 Subpart BB[3], a nonattainment area plan[4] in accordance with CAA sections 172(c), 191 and 192, and an amendment to the infrastructure plan addressing SO_2 transport.[5]

In the years since the standard was revised, air quality has improved and New Hampshire is

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[1] Granite Shore Power LLC completed its acquisition of select generating assets of Public Service Company of New Hampshire (PSNH) d/b/a Eversource Energy on January 11, 2018. Granite Shore Power now owns Merrimack Station in Bow, Newington Station in Newington, Schiller Station in Portsmouth as well as combustion turbines in Groveton and Tamworth.

[2] Certification of State Implementation Plan Adequacy Regarding Clean Air Act Section 110(a)(1) and (2) for the 2010 Primary 1-Hour Sulfur Dioxide NAAQS, September 13, 2013, submitted to EPA September 13, 2013. Approved July 8, 2016. [81 FR 44542]

[3] Designation of Attainment/Attainment-Unclassifiable for the 2010 SO_2 NAAQS for portions of New Hampshire submitted January 3, 2017.

[4] Central New Hampshire Nonattainment Area Plan for the 2010 Primary 1-Hour Sulfur Dioxide NAAQS, January 20, 2017, submitted to EPA January 31, 2017.

[5] Amendment to New Hampshire 2010 Sulfur Dioxide NAAQS Infrastructure SIP to Address the Good Neighbor Requirements of Clean Air Act Section 110(a)(2)(D)(i)(I), submitted to EPA June 16, 2017.

now measuring SO_2 values below the standard and can demonstrate that the reduction is permanent and enforceable. This SIP revision contains an attainment demonstration and formal request to the EPA to redesignate the Central New Hampshire Nonattainment Area to attainment for the 2010 1-hour SO_2 NAAQS of 75 ppb. This document summarizes the progress of the area in attaining the standard, demonstrates that all CAA requirements for attainment have been satisfied, and includes a maintenance plan to assure continued attainment.

1. INTRODUCTION

The New Hampshire Department of Environmental Services (NHDES) provides this report in support of its request to redesignate the Central New Hampshire Nonattainment Area to attainment of the 2010 1-hour SO_2 standard. Once an area has been designated nonattainment it must demonstrate at least three consecutive years of clean data and provide EPA with a maintenance plan and a redesignation request to be eligible for redesignation to attainment/maintenance of the standard.

Section 107(d)(3)(E) of the Clean Air Act (CAA) establishes that for an area to be redesignated, several determinations and approvals from the EPA Administrator are required. Guidance on the redesignation process was provided in the CAA Amendments of 1990[6], supplemented with a guidance memo in 1992[7] which outlined the following prerequisites for a redesignation approval by the EPA:

- A determination that the relevant NAAQS has been attained in the area;
- The applicable State Implementation Plan (SIP) has been fully approved under Section 110(k) of the CAA;
- The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements;
- The state has met all applicable requirements for the area under Section 110 and Part D; and
- The EPA has fully approved a maintenance plan, including a contingency plan, under Section 175A of the Clean Air Act.

Each of these requirements is addressed within this submittal.

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[6] "State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," 57 FR 74 (April 16, 1992), pp 13498-13570.

[7] EPA memorandum from John Calcagni, Director, 57 FR 74 (April 16, 1992), Air Quality Management Division, OAQPS, U.S. EPA, Research Triangle Park, NC, "Procedures for Processing Requests to Redesignate Areas to Attainment," September 4, 1992.

1.1 Designation of Sulfur Dioxide Nonattainment Areas

On June 2, 2010, EPA strengthened the primary NAAQS for sulfur dioxide by establishing a revised standard based on *1-hour maximum* concentrations. EPA set the new 1-hour SO_2 NAAQS at 75 parts per billion (ppb) [75 FR 35520]. This standard is met when the 3-year average of the 99th percentile of daily maximum 1-hour concentration does not exceed 75 ppb. In a separate rulemaking, the secondary SO_2 NAAQS was retained without revsion [77 FR 20218].

On March 24, 2011, EPA issued a guidance document[8] indicating that any area currently violating the 1-hour standard with the existing monitoring network would be designated nonattainment. The guidance also recommended that area boundaries be defaulted to the county boundary unless additional information justifies a larger or smaller boundary. New Hampshire in June 2011 provided a recommendation and supporting information to designate 13 contiguous towns and one city located in three counties as the Central New Hampshire 2010 SO_2 NAAQS nonattainment area. This information included:

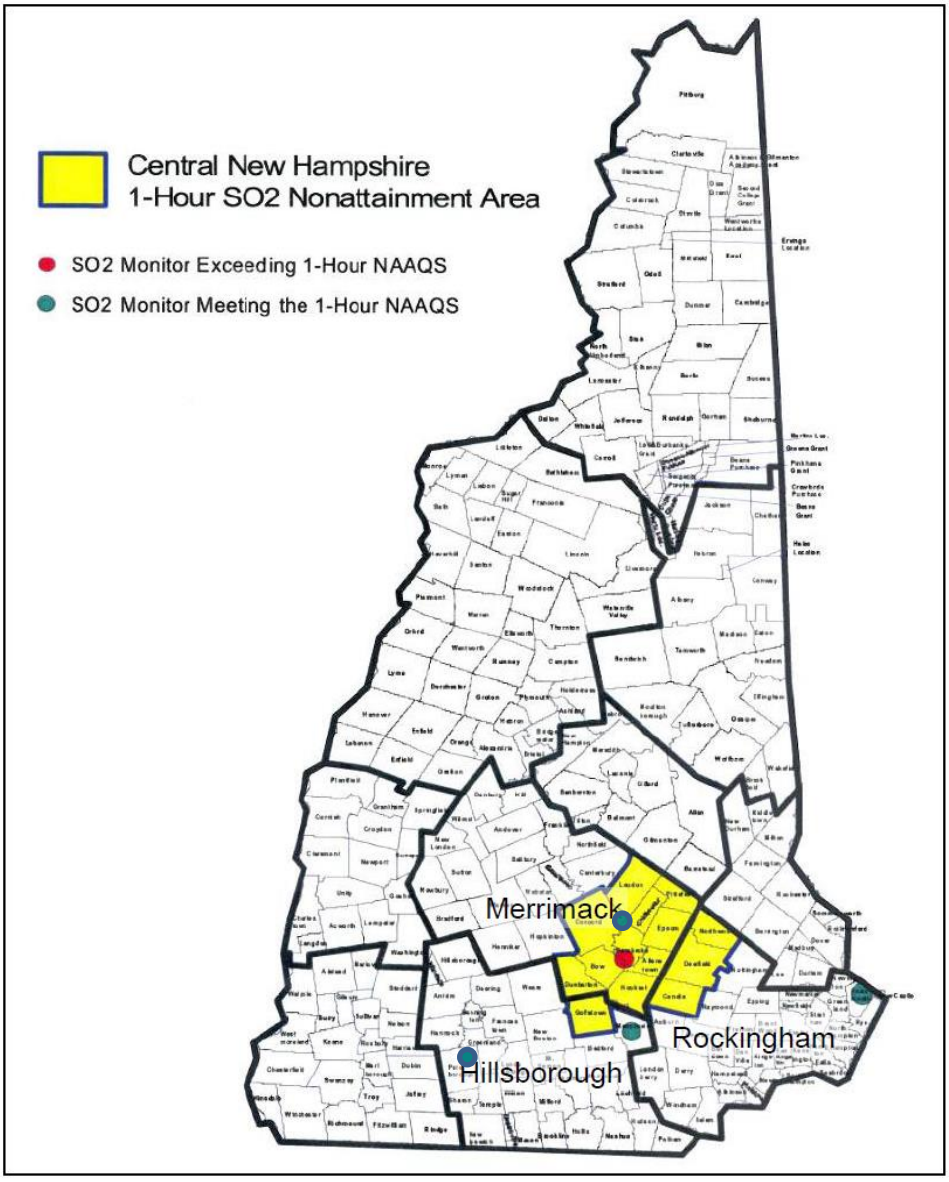
- *Air Quality Data* – Design values were calculated for air quality monitors located in the three New Hampshire counties of the recommended nonattainment area. The 2011 SO_2 NAAQS design values indicated that one monitoring location in Pembroke, New Hampshire (330131006) registered a design value of 221 ppb, well above the standard of 75 ppb. All of the other state's monitors measured air quality below the standard.
- *Emissions-related data* – The largest SO_2 emitter in New Hampshire, Granite Shore's Merrimack Station, is located within one mile of the Pembroke monitor on Exchange Street in Merrimack County. There are no other SO_2 point sources within Merrimack county that emit more than 100 tons per year.
- *Geography and Topography* – The area of the state within 10 miles of Merrimack Station and the Pembroke monitor is characterized by rollings hills with a maximum elevation of 1,000 feet above see level. New Hamsphire used the terrain data coupled with stable plume heights from Merrimack Station to establish boundaries for the nonattainment area.
- *Meteorology and Transport Patterns* – Prevailing wind patterns indicate that emissions from Merrimack Station will be transported primarily to the southeast in the direction of the Exchange Street monitor and away from the western section of Merrimack county, precluding the presumptive norm county boundaries where the violating monitor resides as the delineation for the nonattainment area.

EPA concurred with the state's finding and under Section 107(d) of the CAA, portions of three counties in New Hampshire were designated as nonattainment areas for SO_2 [78 FR 47191], inclusive of the following areas, as shown in Figure 1.1:

[8] Memorandum from Stephen D. Page, Director, U.S.EPA, Office of Air Quality Planning Standards, "Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards," March 24, 2011

- Hillsborough County – Town of Goffstown;
- Merrimack County – Towns of Allenstown, Bow, Chichester, Dunbarton, Epsom, Hooksett, Loudon, Pembroke, Pittsfield, City of Concord; and
- Rockingham County – Towns of Candia, Deerfield, Northwood.

Figure 1-1. Central NH Nonattainment Area



1.2 Designation of Remaining Portions of New Hampshire

Pursuant to 40 CFR Part 51, Subpart BB, Data Requirements for Characterizing Air Quality for the Primary 2010 SO_2 1-hour NAAQS, NHDES submitted statewide air quality data relative to the undesignated portions of the state, as well as the results of air quality modeling for two emission sources (Granite Shores' Schiller and Newington Stations) that combined, have the potential to emit 2,000 tons per year of SO_2. The results of the modeling demonstrate,

through the establishment of federally enforceable permit conditions, that southeastern New Hampshire (including portions of Rockingham County and all of Strafford County) are eligible for designation as attainment with the 2010 SO_2 1-hour NAAQS. In a letter to the EPA Region 1 Administrator in December 2016, the New Hampshire governor made the designation recommendations[9] shown in Table 1.1.

Table 1-1. Proposed New Hampshire Designations for the 2010 SO_2 NAAQS.

Geographic Area	NH's Recommended Designation of Areas/Counties	EPA's Designation of Areas/Counties[10]
New Hampshire –		
Belknap County	Attainment/ Unclassifiable	Attainment/ Unclassifiable
Carroll County		
Cheshire County		
Coos County		
Grafton County		
Hillsborough County (part) Amherst, Antrim, Bedford, Bennington, Brookline, Deering, Francestown, Greenfield, Greenville, Hancock, Hillsborough, Hollis, Hudson, Litchfield, Lyndeborough, Manchest**er**, Mason, Merrimack, Milford, Mont Vernon, Nashua, New Boston, New Ipswich, Pelham, Peterborough, Sharon, Temple, Weare, Wilton, Windsor		
Merrimack County (part) Andover, Boscawen, Bradford, Canterbury, Danbury, Franklin**,** Henniker, Hill, Hopkinton, New London, Newbury, Northfield, Salisbury, Sutton, Warner, Webster, Wilmot		
Sullivan County	Attainment	Attainment/ Unclassifiable
Strafford County		
Rockingham County (part) Atkinson, Auburn, Brentwood, Chester, Danville, Derry, East Kingston, Epping, Exeter, Fremont, Greenland, Hampstead, Hampton, Hampton Falls, Kensington, Kingston, Londonderry, New Castle, Newfields, Newington, Newmarket, Newton, North Hampton, Nottingham, Plaistow, Portsmouth, Raymond, Rye, Salem, Sandown, Seabrook, South Hampton, Stratham, Windham		

[9] Hassan, Governor Maggie. Letter to H. Curtis Spaulding. 13 December 2016.

[10] [83 FR 1098]

The EPA concurred with New Hampshire's assessment and acknowledged this in a letter from Region 1 Acting Administrator Deborah Szaro to Governor Christopher Sununu dated August 22, 2017. This designation was finalized in EPA's Round 3 of designations for the 2010 SO_2 standard on January 9, 2018 [83 FR 1098].

2. ATTAINMENT OF THE STANDARD

According to EPA guidance[11], there are two components needed to support an attainment demostration. The first is air quality monitoring data indicating that all monitors in the affected area are meeting the standard. More than six years have passed since the last of the air quality data were collected that led to the designation of the Central New Hampshire SO_2 Nonattainment Area. In the intervening period, five additional years of air quality data have become available, major emission control measures have been implemented, and a systemic shift in the electric power sector has occurred. All of this was accompanied by new or proposed regulations applicable to electric generating units (EGUs) in the state. While none of these changes alter New Hampshire's nonattainment area designation, together they represent significant reductions in contributing SO_2 emissions and provide essential context for this redesignation request. In addition, New Hampshire has enacted fuel sulfur limits that will go into effect in July 2018 (RSA 125-C:10-d).

2.1 SO_2 Monitoring Data

The EPA published a guidance document in 2014[12] that included provisions outlining the use of EPA's Clean Data Policy to initiate area redesignations under the 2010 SO_2 NAAQS. The guidance states: " ... to demonstrate that it is meeting the standards, a nonattainment area which was designated based on air quality monitoring data would first need to have 3 consecutive years of air quality monitoring data which show that the area is meeting the standard. The data would need to be complete and quality-assured, consistent with 40 CFR part 58 requirements, and other relevant EPA guidance, and properly submitted to the Air Quality System (AQS) database of the EPA's Aerometric Information Retrieval System (AIRS)." All SO_2 data referenced herein meet these criteria.

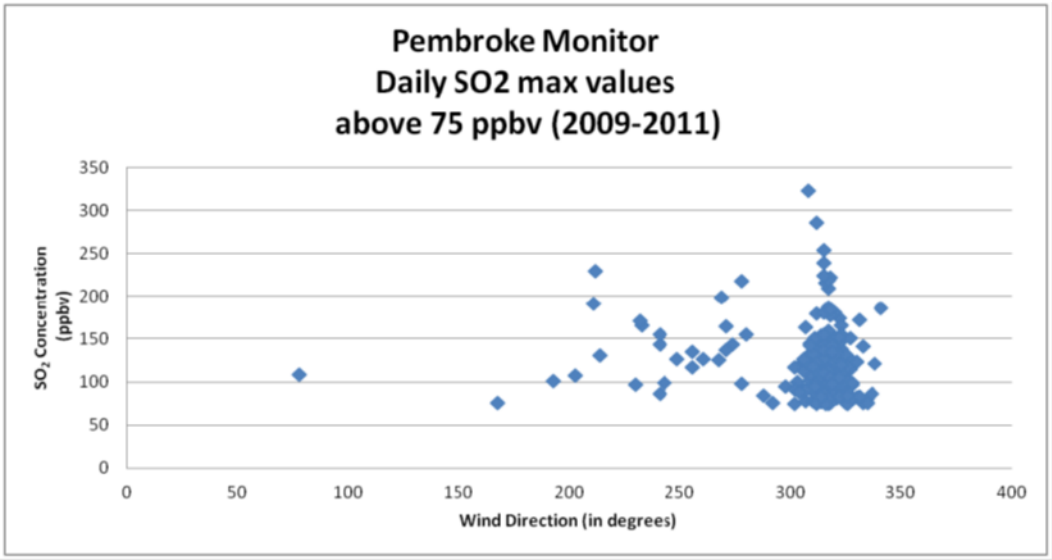
To demonstrate attainment, a state must provide data showing that all monitors in the affected area are meeting the standard as stated in 40 CFR 50.17 using data analysis procedures specified in 40 CFR 50 Appendix T. The state must also provide analyses indicating whether any of the monitors located in the nonattainment area are located in area of maximum concentration.

The monitor in Pembroke, New Hampshire (330131006) is located less than one mile southeast of Merrimack Station. Figure 3-3 depicts the relationship between wind direction and exceedances recorded at the Pembroke monitor over the period 2009-2011. Most of the exceedances occurred when the wind direction was northwesterly – when wind out of the

[11] EPA memorandum from Stephen D. Page, Director, Air Quality Management Division, OAQPS, U.S. EPA, Research Triangle Park, NC, "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions," April 23, 2014.
[12] Ibid.

northwest would carry the plume from Merrimack Station across the Pembroke monitor.

Figure 2-1. SO_2 Exceedances vs. Wind Direction at Pembroke Monitor, 2009-2011



Real-time SO_2 data collected from the monitoring network was analyzed to determine whether monitored areas are meeting the 2010 NAAQS for SO_2. The following definitions are used to assess attainment status:

- *Daily maximum 1-hour values* for SO_2 refers to the maximum 1-hour SO_2 concentration values measured from midnight to midnight (local standard time) that are used in NAAQS computations.
- *Design values* are the metrics that are compared to the NAAQS levels to determine compliance, calculated as specified in 40 CFR 50 Appendix T section 5.
- *99th percentile daily maximum 1-hour value* is the value below which nominally 99 percent of all daily maximum 1-hour concentration values fall, using the ranking method given in 40 CFR 50 Appendix T section 5.

All SO_2 data has passed quality assurance requirements and was reported to EPA and is available at https://www.epa.gov/outdoor-air-quality-data.

2.1.1 99th Percentile Daily Maximum 1-hour Values

The determination of New Hampshire's 2010 1-hour SO_2 attainment status is based on extensive analysis of real-time data collected from monitoring stations installed and maintained by NHDES at strategic locations across the state. Data included in NHDES' Data Requirements Rule[13] submission as well as data provided in NHDES's 2010 SO_2 infrastructure SIP included the three most recent years of monitoring data at the time (2012-2014). Two additional years of data have become available since that time (Table 2-1).

[13] Designation of Attainment/Attainment-Unclassifiable for the 2010 SO_2 NAAQS for portions of New Hampshire submitted January 3, 2017.

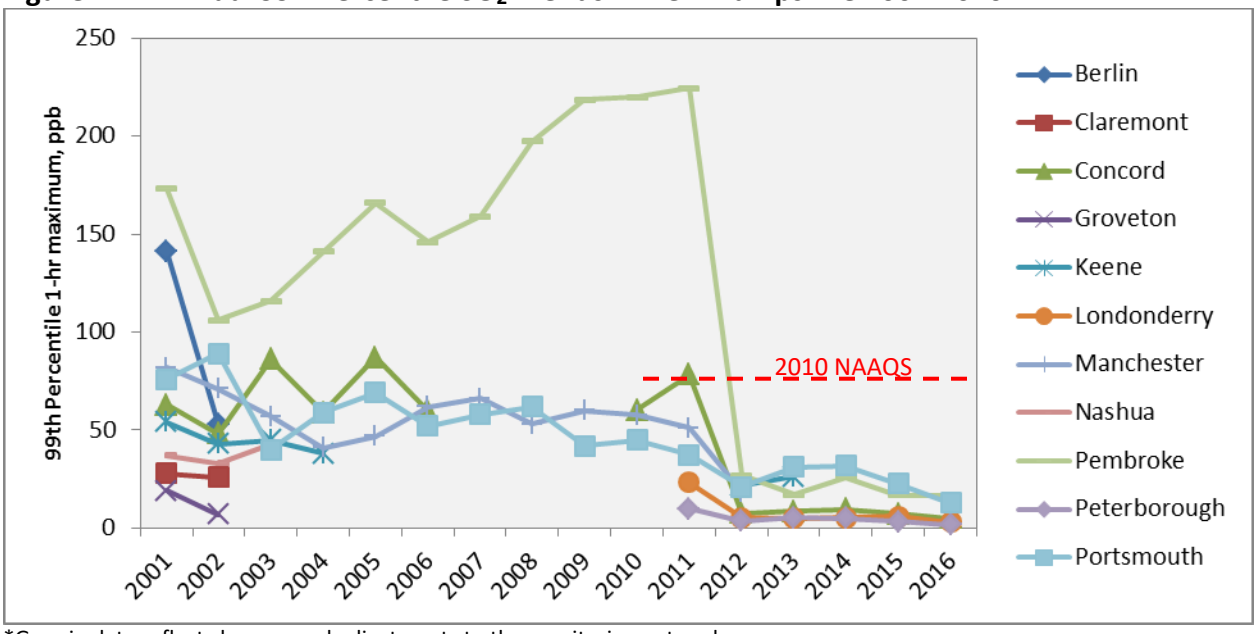
Table 2-1. SO_2 Annual 99th Percentile Values (ppb): 2012-2016

Location	Site ID	2012	2013	2014	2015	2016
Concord*	33-013-1007	7.7	8.6	9.5	7.2	4.9
Londonderry	33-015-0018	5.4	5.1	5.4	6	2.9
Pembroke*	33-013-1006	26.9	17	26	16.9	16.4
Peterborough	33-011-5001	3.6	5	5	3	1.8
Portsmouth	33-015-0014	21.1	31	31.7	22.8	12.7

*located within the nonattainment area

Figure 2-2 displays the 99th percentile daily maximum 1-hour values in parts per billion (ppb) since 2001 for monitoring locations in the state. As shown in Figure 2-1, the annual 99th percentile daily maximum value obtained at the Pembroke monitoring site has decreased from a high of 224 ppb in 2011 to 16.4 ppb in 2016, a 93% reduction, and has remained below the 75 ppb threshold since 2012.

Figure 2-2. Annual 99th Percentile SO_2 Trends in New Hampshire 2001-2016*



*Gaps in data reflect changes and adjustments to the monitoring network.

2.1.2 SO_2 Design Values

The form of the 2010 SO_2 NAAQS standard requires a calculation of monitoring values from three consecutive years. The 1-hour primary standard is violated at an ambient air quality monitoring site when the 3-year average of the annual 99th percentile maximum 1-hour concentration exceeds 75 ppb. In making its determination, the State and EPA considered monitoring data from calendar years 2009-2011 which indicated a violation of the 2010 SO_2 NAAQS at the Pembroke Exchange Street monitor. Analysis of the subsequent years indicate the design value for this monitor was 23 ppb for 2012-2014

and 20 for 2014-2016 (Table 2.2).

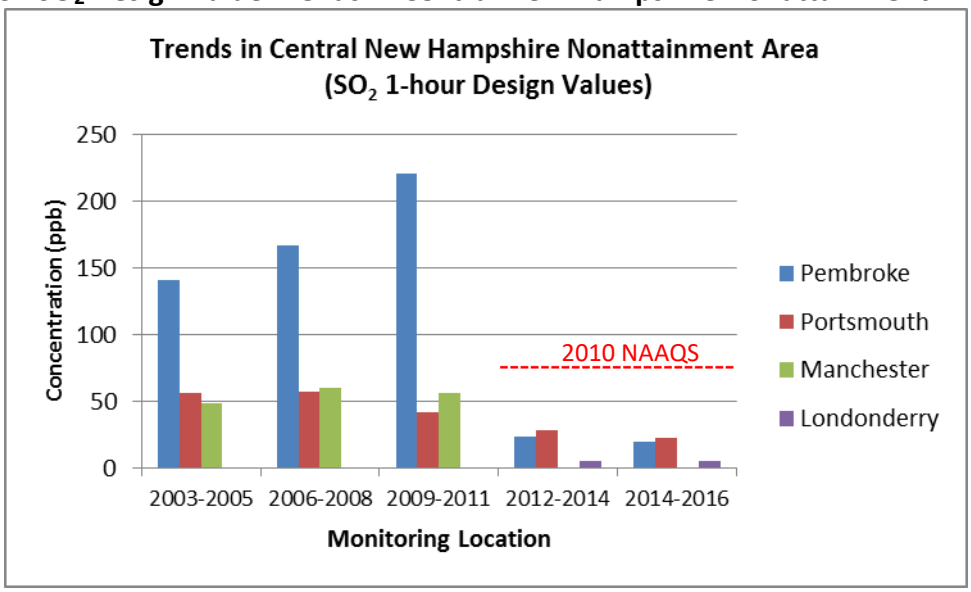
Table 2-2. Three country SO_2 design values, 2009-2011 and 2014-2016

County	Monitor Name	Monitor Air Quality System ID	Monitor Location	2009-2011 SO_2 Design Value (ppb)	2012-2014 SO_2 Design Value (ppb)	2014-2016 SO_2 Design Value (ppb)
Merrimack	Pembroke Exchange St	330131006	Pembroke	221	23	20
Hillsborough	Londonderry*	330150020	Londonderry	56	5	5
Rockingham	Portsmouth	330150014	Portsmouth	41	28	23

* Used as a surrogate for the Manchester (330110020) monitoring station which was discontinued in Q2 2012.

Trends in the design values for monitoring locations in the Central New Hampshire Nonattainment Area are illustrated in Figure 2-3. As the graph shows, design values have remained fairly consistent with the exception of those located close to the states largest SO_2 emission source, Merrimack Station.

Figure 2-3. SO_2 Design Value Trends in Central New Hampshire Nonattainment Area*



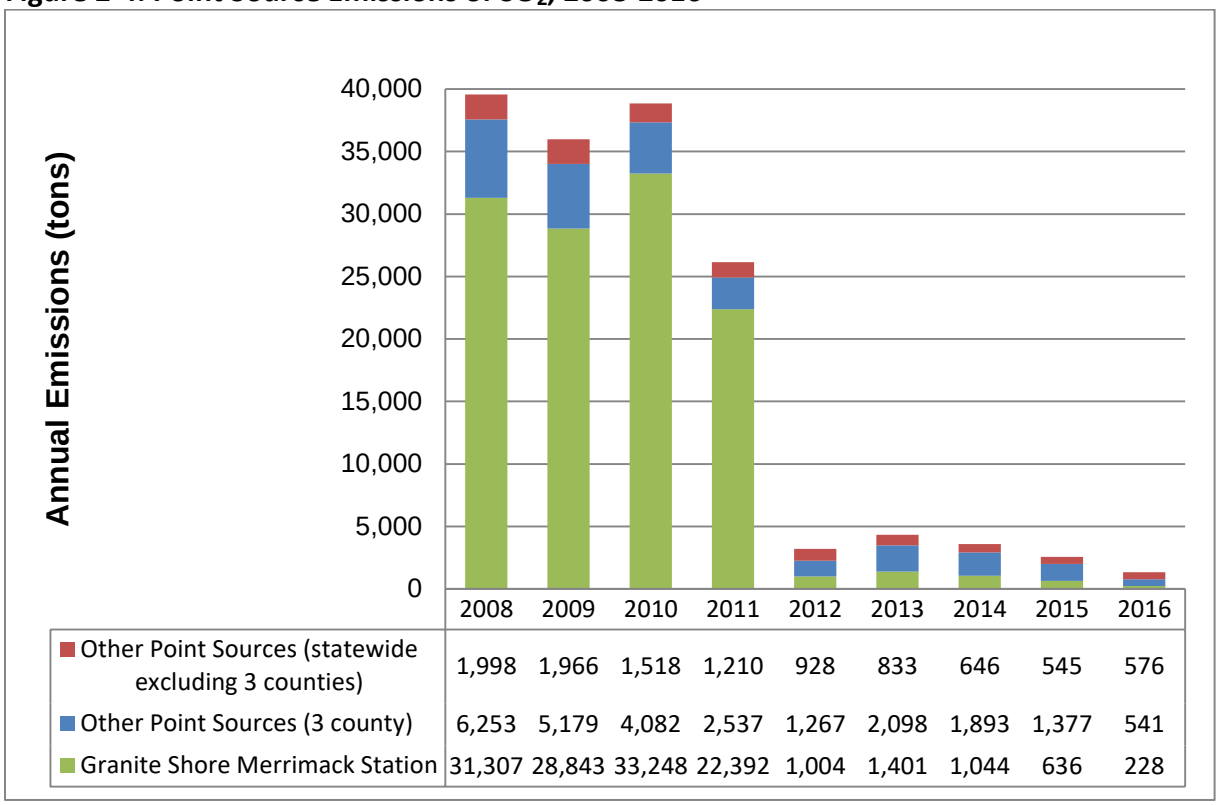
* Gaps in the data plots are due to the relocation of the Manchester monitoring site to Londonderry.

2.1.3 Point Sources

In 2008, Merrimack Station emitted 31,307 tons of SO_2, representing almost 80 percent of statewide SO_2 emissions and 83 percent of all point-source SO_2 emissions in the three counties represented in the Central New Hampshire Nonattainment Area. Amendments in 2006 to state statute Chapter 125-O, *Multiple Pollutant Reduction Program*, imposed emission caps on sulfur dioxide and oxides of nitrogen from fossil-fuel-fired EGUs, and required an 80% reduction in mercury emissions from coal burning EGUs. To reduce mercury emissions, Merrimack Station installed a wet, limestone-based flue gas desulfurization system (FGD) that went on line in November 2011. The removal of SO_2

occurs as a co-benefit of the FGD system. As of 2016, Merrimack Station's SO_2 emissions were reduced to 228 tons, a reduction of 99% and representing 30% of the SO_2 emissions from point sources in the three counties included in the nonattainment area. Recent improvements in SO_2 design values at the Pembroke monitor are reflected in regional and statewide reductions in SO_2 emissions (see Figure 2-4). Overall, statewide point source emissions were down from 39,558 tons in 2008 to 1,345 tons in 2016 – a 96 percent reduction.

Figure 2-4. Point Source Emissions of SO_2, 2008-2016



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Point Sources (statewide excluding 3 counties)	1,998	1,966	1,518	1,210	928	833	646	545	576
Other Point Sources (3 county)	6,253	5,179	4,082	2,537	1,267	2,098	1,893	1,377	541
Granite Shore Merrimack Station	31,307	28,843	33,248	22,392	1,004	1,401	1,044	636	228

2.1.4 Other SO_2 emission sources

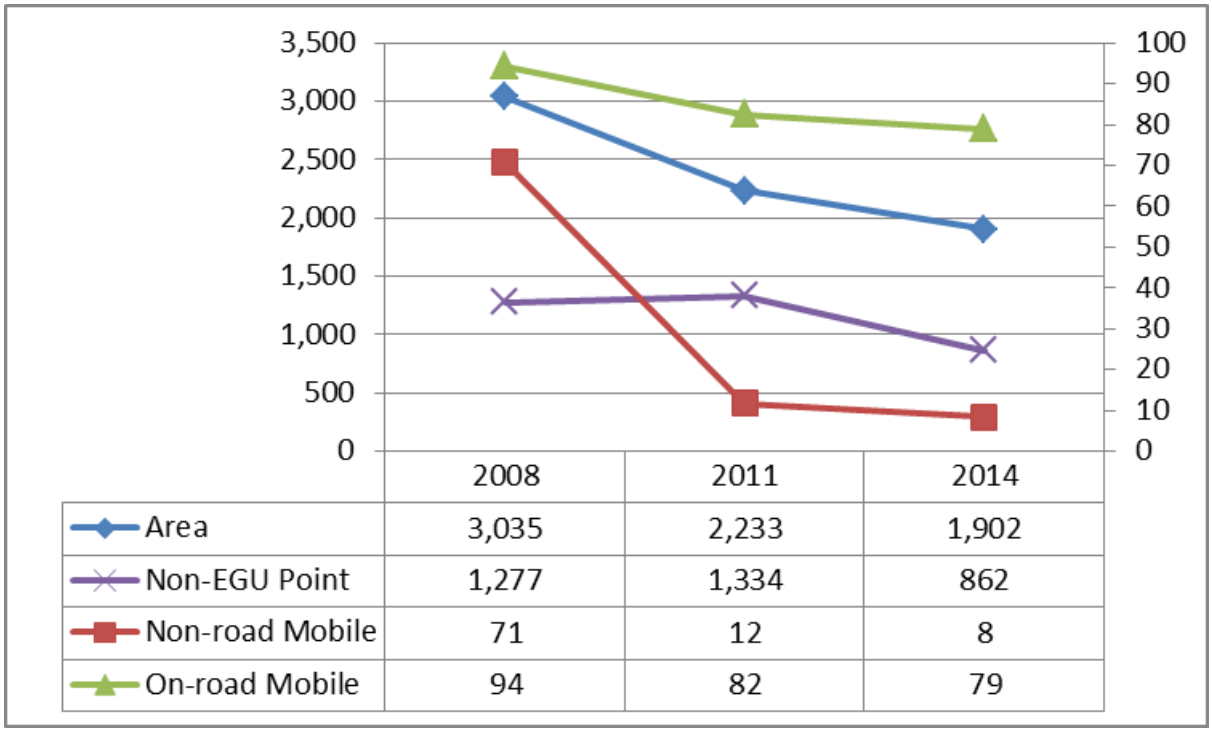
In New Hampshire, residential and commericial and industrial oil combustion are the largest area and non-EGU point sources of SO_2, contributing over 90 percent in each category.[14] Beginning July 2018[15], fuel sold in New Hampshire will be required to have reduced sulfur content – 0.0015 percent for No. 2 fuel oil, 0.25 percent for No. 4 fuel oil and 0.5 percent for Nos. 5 or 6 fuel oil. This will have a large impact on sulfur dioxide emissions from area and non-EGU point sources.

[14] U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2012, Washington, DC, 2014, Table VM-1 and annual.

[15] There is a bill pending in the New Hampshire General Court that could modify RSA 125-C:10-d. As proposed, this amendment would require fuel importers to only accept delivery of compliant fuels as of July 1, 2018. The bill further allows for a sell-through of existing fuel supplies until February 1, 2019.

SO_2 emissions from other all sectors other than EGUs have decreased by 36% since 2008 in the three county area as evidenced by National Emissions Inventory Data[16] and shown in Figure 2.5.

Figure 2-5. Trends in Annual SO_2 Emissions in Merrimack, Hillsborough, and Rockingham Counties, 2008-2014, tons.



	2008	2011	2014
Area	3,035	2,233	1,902
Non-EGU Point	1,277	1,334	862
Non-road Mobile	71	12	8
On-road Mobile	94	82	79

- Area sources of SO_2, characterized by residential fuel consumption, have declined 37% since 2008. Any growth in this section is expected to be offset by fuel sulfur content limits.
- Non-EGU point source emissions have decreased 32%. As with area sources, growth is expected to be offset by fuel sulfur content limits.
- Decreases in SO_2 emissions from nonroad mobile sources (88%) may be attributed to tightening of heavy-duty emission standards and accompanying use of ultra low sulfur diesel (ULSD).
- Gradual decline in SO_2 emissions from the on-road mobile sector (16%) is likely due to increased fuel efficiency. These reductions are likely to stabilize as the fleet turns over, then may be impacted by changes – increases or decreases – in vehicle miles travelled (VMT).

[16] http://www.epa.gov/ttn/chief/eiinformation.html

2.2 Modeling Data

The second component of demonstrating compliance, according to EPA guidance[17], is air quality modeling data. This method is used when there are no air quality monitors in the area, or if existing monitors are not located in the area of maximum concentration. The same guidance also indicates that the EPA may make determinations of attainment based on the modeling from the attainment demonstration for the appicable SIP for the area. In addition to the monitoring data presented in Section 2.1, NHDES is including in this redesignation request the results of the air quality dispersion modeling that was used to demonstrate that SO_2 levels in the Central New Hampshire Nonattainment Area will meet the NAAQS by the required attainment date (2018). The full modeling protocol was previously provided with the New Hampshire 1-Hour SO_2 Nonattainment Plan. The modeling demonstrates that emission limits of the Merrimack Station Temporary Permit (TP-0189 issued on 9/1/2016) are sufficient to maintain the applicable SO_2 NAAQS.

2.2.1 Nonattainment Area Modeling

Ambient air dispersion modeling analysis was conducted using the atmospheric dispersion modeling system (AERMOD) program in accordance with EPA guidance.[18] The modeling was applied to two main boilers at Merrimack Station (MK1 and MK2) over a number of different operating scenarios − including exceptional events − to establish a 1-hour "critical emission value." Using Appendix C of the EPA guidance document, NHDES calculated adjusted emission limits (in lb/hr and lb/MMBtu) with longer averaging periods (i.e., 24-hour, 7- and 30-boiler operating day rolling averages). In order to arrive at these longer term averages, ratios were calculated using the procedure described in Appendix C3 using actual hourly emissions data as reported by Granite Shore to EPA's Clean Air Markets Program, with modification. Specifically, because MK1 and MK2 boilers are subject to the federal Acid Rain Program (ARP), these units are required to continuously monitor the SO_2 emissions per 40 Code of Federal Regulations (CFR) Part 75, *Continuous Emissions Monitoring*. Part 75 requires emissions data to be reported for every hour that an affected unit is operating, including startup, shutdown, and malfunction and establishes missing data substitute procedures for each boiler operating hour for which quality-assured CEM data is not available. The missing data procedures outlined in Subpart D of Part 75 provide conservatively high substitute data values to assure that emissions are not underestimated during monitor outages.

The SO_2 CEMS on the FGD stack was originally certified on November 21, 2011. Although able to be used as a dual-span analyzer, the SO_2 analyzer was originally configured as a

[17] EPA memorandum from Stephen D. Page, Director, Air Quality Management Division, OAQPS, U.S. EPA, Research Triangle Park, NC, "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions," April 23, 2014.
[18] Ibid.

single span analyzer (0-300 ppm). Part 75 Appendix A, Section 2.1.1.5 requires affected facilities to periodically evaluate the span of each SO_2 monitor and make necessary adjustments. Based on this requirement, the span value was adjusted to 0-150 ppm on January 28, 2013. Per Part 75, Appendix A, Section 2.1.1.4(f), for dual span units with SO_2 emission controls, the facility may, as an alternative to maintaining and quality assuring a high monitor range, use a default high range value. If this option is chosen, the Facility is required to report a default SO_2 concentration of 200 percent of the maximum potential concentration (MPC) for each unit operating hour in which the full-scale of the low range SO_2 analyzer is exceeded. At Merrimack Station prior to February 4, 2015, the high range of the SO_2 CEMS was not maintained and quality assured, and therefore substitute data was used in place of high range data at that time. The substitute data consisted of a default SO_2 concentration of 200 percent of the MPC when the full-scale of the low range SO_2 analyzer was exceeded. As of February 4, 2015, Merrimack Station maintains and quality assures a dual-span SO_2 analyzer (0 to 150 ppm and 150-2600 ppm) in lieu of using the alternative data substitution methods of Part 75.

The substituted data points were removed from the dataset by DES prior to the analysis that was used to derive the adjustment ratios because they:

i. Do not represent actual emissions recorded by the SO_2 CEMS; and
ii. Are designed to be extremely conservative whenever quality-assured CEM data is not available.

Because the substitute emission data for a particular boiler operating hour is not representative of actual controlled SO_2 emissions from MK1 and/or MK2, substitute data points were omitted from the dataset that was used to develop the adjustment factors. The explanation of the data used by DES for the air dispersion modeling that was used to develop emissions limits was also provided in Enclosure C – Public Participation Documentation of New Hampshire's Nonattainment plan.[19]

As shown in the following table, the modeling analysis indicated that different emission limits were appropriate for different operating scenarios.

Table 2-3. Adjustment Ratios and Emission Limits for MK1 and MK2

Parameter	**Normal Operating Scenarios**		
Scenario	Scenario 1	Scenario 2	Scenario 3
Units in Operation	MK1 + MK2 w/FGD	MK1 w/FGD	MK2 w/FGD
Max. Gross Heat Input Rating (MMBtu)	4,711	1,238	3,473
Critical emission rate (1-hr average lb/hr)	2,544	1,566	2,234
1-hr average (lb/MMBtu)	0.54	1.26	0.64

[19] Central New Hampshire Nonattainment Area Plan for the 2010 Primary 1-Hour Sulfur Dioxide NAAQS, January 20, 2017, submitted to EPA January 31, 2017.

Parameter	**Normal Operating Scenarios**		
Scenario	Scenario 1	Scenario 2	Scenario 3
➢ Adjustment ratios			
24-hr	0.88	0.89	0.88
7-day	0.73	0.73	0.73
30-day	0.60	0.64	0.65
24-hr rolling average (lb/hr)	2,239	1,394	1,966
➢ Emission Limits			
24-Hour rolling average (lb/MMBtu)	0.48	1.12	0.56
7-Day average (lb/hr)	1,857	1,143	1,631
7-Day average (lb/MMBtu)	**0.39 (permit limit)**	0.92	0.47
30-Day average (lb/hr)	1,527	1,002	1,452
30-Day average (lb/MMBtu)	0.32	0.81	0.42

7-day avg. SO_2 emission limit = 2,544 lbs/hr (Critical emission rate) x 0.73 (7-day adjustment ratio)

= 1,857 lbs/hr

The emission limit (expressed as lb/MMBtu) = (1,857 lb/hr) ÷ (4,711 MMBtu/hr) = 0.39 lb/MMBtu, where 4,711 MMBtu is the combined maximum heat input of MK1 and MK2.

Granite Shore requested a longer term average emission limit to comply with the 1-hour SO_2 NAAQS to allow for FGD system stabilization in response to variability in hourly operations and fuel sulfur content parameters. Specifically, Granite Shore requested a single emission limit as calculated on a 7-boiler operating day[20] rolling average. In order to do this and remain protective of the 1-hour SO_2 NAAQS for all of the various operating scenarios identified in Table 2-3, the lowest limit of 0.39 lb/MMBtu was selected. This limit is considerably lower (and therefore more stringent) than the limits that would be protective of the 1-hour SO_2 NAAQS under the scenarios where MK1 and MK2 operate individually (i.e. 0.92 and 0.47 lb/MMBtu, respectively). To this end, the the permit (TP-0189) establishes a SO_2 emissions limit of 0.39 lb/MMBtu calculated on a 7-boiler operating day rolling average to be applied at all times, including periods of startup and shutdown.

3. STATE IMPLEMENTATION PLAN FOR NONATTAINMENT AREA

Sections 110(a)(1) and (2) of the Clean Air Act (CAA) require states to submit a SIP amendment that addresses the procedural, timing and infrastructure elements when a

[20] Boiler operating day means a 24-hour period that begins at midnight and ends the following midnight during which any fuel is combusted at any time in the boiler. It is not necessary for the fuel to be combusted the entire 24-hour period.

NAAQS is promulgated or revised. This infrastructure SIP, or iSIP, is due within three years of a new or revised standard. New Hampshire submitted its iSIP in September 2013. In the July 2016 Final Rule[21], the EPA certified that the SIP was sufficient to meet the required infrastructure elements with the exception of certain aspects relating to the state's Prevention of Significant Deterioration (PSD) program relating to notification of neighboring states, which was provisionally approved. NHDES addressed the PSD aspect in a rule revision that was submitted as a SIP amendment in October 2016. The amendment was approved by EPA on May 25, 2017.[22] The interstate transport provision Section 110(a)(2)(D)(i)(I), not addressed by New Hampshire in the iSIP, was submitted in a separate amendment on June 16, 2017.

New Hampshire submitted an attainment plan for the 2010 1-hour SO_2 NAAQS in January 2017 demonstrating how the Central New Hampshire Nonattainment Area will attain and maintain the standard. For areas designated nonattainment on August 5, 2013, with an effective date of October 4, 2013, SIPs were due by April 4, 2015. New Hampshire failed to meet this due date and on March 18, 2016 was cited in a Findings of Failure Final Rule [81 FR 14736] with 11 other states. This finding was remedied by the January 2017 submission. The EPA proposed approving it on September 28, 2017.[23]

States must satisfy all the requirements of CAA Section 110(k) for the redesignation request to be approved by EPA. However, the EPA has stated that "...approval action on SIP elements and the redesignation request may occur simultaneously. An area cannot be redesignated to attainment if a required element of its plan is the subject of a disapproval; a finding of failure to submit, or failure to implement the SIP; or a partial, conditional, or limited approval."[24]

4. PERMANENT AND ENFORCEABLE EMISSION REDUCTIONS

Although SO_2 emissions have declined overall in New Hampshire due to fuel diversity, fuel economy and other factors, permanent and enforceable emission reductions will result in attainment and long term maintenance of the 2010 SO_2 NAAQS.

SO_2 emissions from Merrimack Station were the primary source of the Central New Hamsphire Nonattainment Area designation. In 2011, Merrimack Station installed a wet, limestone based flue gas desulfurization (FGD) system. The impetus for this installation was state law RSA 125-O, *Multiple Pollutant Reduction Program*, which requires the reduction of mercury emissions by at least 80 percent from New Hampshire's coal-fired power plants.

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[21] 81 FR 44542

[22] 82 FR 24057

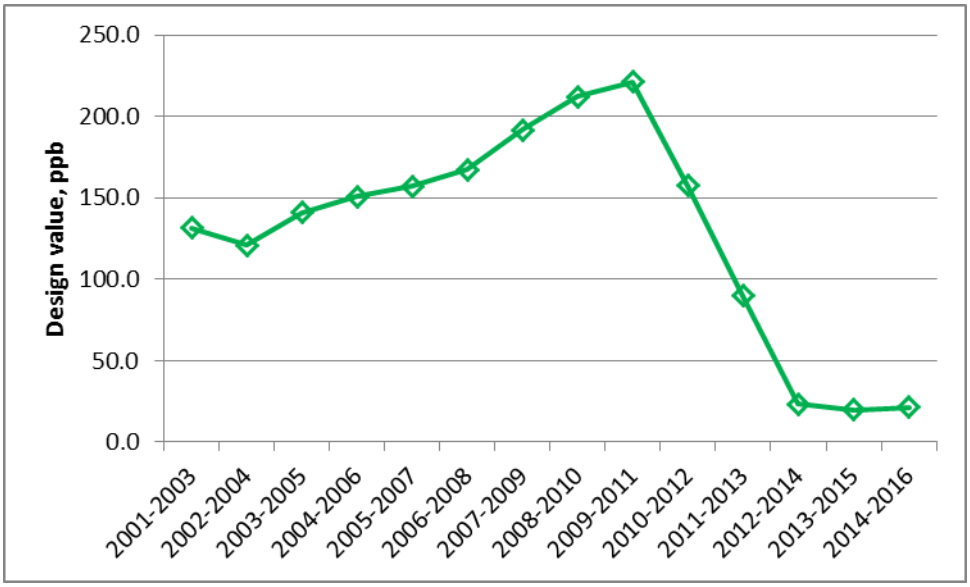
[23] 82 FR 45242

[24] EPA memorandum from John Calcagni, Director, 57 FR 74 (April 16, 1992), Air Quality Management Division, OAQPS, U.S. EPA, Research Triangle Park, NC, "Procedures for Processing Requests to Redesignate Areas to Attainment," September 4, 1992.

Sections 1 and 3 of RSA 125-O, requiring an integrated, multipollutant reduction strategy for certain power plants, was submitted to EPA on September 13, 2013 as part of New Hampshire's infrastructure SIP for the 2010 SO_2 NAAQS.[25] The removal of SO_2 at Merrimack Station occurs as a co-benefit of the FGD system primarily used for the control of mercury emissions from Units MK1 and MK2. SO_2 emissions decreased by 95% in 2012, the first full year of operation and design values beginning in 2012-2014 have been below 75 ppb as show in Figure 4.1.

As described in Section 2.3, NHDES used modeling to establish permanent, enforceable emission limits in Merrimack Station's most recent Temporary Permit (TP-0189). These limits have been submitted for incorporation into the SIP.[26]

Figure 4-1. Design Values for Pembroke monitor (330131006) located in the zone of maximum concentration



4.1 Additional Emission Control Programs

In addition to establishing emission limits for EGUs, New Hampshire has additional measures that address SO_2 emissions, listed in Table 4-1.

Table 4-1. State Emission Control Measures to Reduce SO_2

Measure	NHRSA/Rule No.	EPA Approval Date

[25] Certification of State Implementation Plan Adequacy Regarding Clean Air Act Section 110(a)(1) and (2) for the2010 Primary 1-Hour Sulfur Dioxide NAAQS, September 13, 2013, submitted to EPA September 13, 2013 (81 FR 44542).

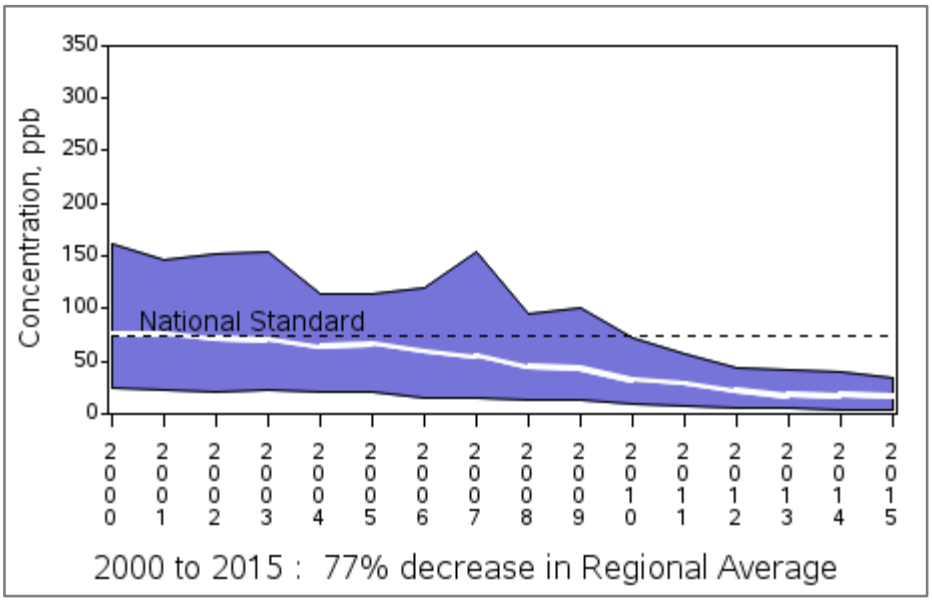
[26] Central New Hampshire Nonattainment Area Plan for the 2010 Primary 1-Hour Sulfur Dioxide NAAQS, January 20, 2017, submitted to EPA January 31, 2017.

Measure	NHRSA/Rule No.	EPA Approval Date
Sulfur Limits of Certain Liquid Fuels	RSA 125-C:10-d	
Multiple Pollutant Reduction Program	RSA 125-0	December 17, 2015
Acid depostition control program	Env-A 400	
Statewide permit system	Env-A 600	September 25, 2015
Testing and Monitoring Procedures	Env-A 800	January 14, 2013
Recordkeeping and Reporting Obligations	Env-A 900	November 5, 2012
Acid Rain Control Act	RSA 125-D	
Conformity	Env-A 1500	November 26, 2013
Fuel Specifications	Env-A 1600	
Mitigation of Regional Haze	Env-A 2300	August 22, 2012
Official Motor Vehicle Inspection Requirements	Saf-C 3200	January 25, 2013

4.2 Upwind Emission Reductions

In the absence of large SO_2 sources or violating monitors[27] in neighboring states (Maine, Masschusetts and Vermont) it is not anticipated that upwind emission reductions will be required in order to maintain the standard in New Hampshire. In addition, the trend for SO_2 pollution has been decreasing in the Northeast, as shown in Figure 4.2.

Figure 4-2. SO_2 Air Quality, 2000-2015. Annual 99th Percentile of Daily Maximum 1-Hour Average. Northeast (ME, NH, VT, MA, CT, RI, NY, PA, NJ, DE, MD) Trend based on 46 sites. [28]



5. COMPLIANCE WITH SECTION 110 AND PART D OF THE CLEAN AIR ACT

Pursuant to Section 107(d)(3) of the Clean Air Act, state implementation plan submittals

[27] https://www.epa.gov/air-trends/air-quality-design-values

[28] https://www.epa.gov/air-trends/sulfur-dioxide-trends#soreg

requesting redesignation of any area or portion thereof must meet all requirements applicable to the area under Title 1, Part A, Section 110 – Implementation Plans, and Title 1, Part D – Plan Requirements for Nonattainment Areas. For purposes of redesignation, a state must meet all requirements of Section 110 and Part D that were applicable prior to submittal of the complete redesignation request but not those that come due after submittal of the redesignation request.

NHDES asserts that New Hampshire's implementation plan meets the requirements of Section 110 and Part D for the state, in general, and for the Central New Hampshire Nonattainment Area, in particular. The required rulemaking authority, powers of the Commissioner, provisions for permits and enforcement, and other provisions necessary to meet the state's obligations under the Clean Air Act are established in New Hampshire's Revised Statutes Annotated (RSA), Chapter 125-C Air Pollution Control. Regulations implementing New Hampshire's air program are established in the Rules Governing the Control of Air Pollution, New Hampshire Code of Administrative Rules Env-A 100 through 4800. (Note: Many New Hampshire air rules have received SIP approval; see relevant titles listed in Table 4-1).

5.1 Requirements of Section 110(a)(2)

Section 110(a) of Title I of the CAA contains the general requirements for a SIP. Section 110(a)(1) generally directs states to submit a SIP that provides for implementation, maintenance, and enforcement of the air quality standards to the EPA within 3 years, after reasonable notice and public hearing. Section 110(a)(2) provides that the infrastructure SIP submitted by a state must have been adopted by the state after reasonable public notice and hearing, and that, among other things, it includes: enforceable emission limitations and other control measures,[29] means or techniques necessary to meet the requirements of the CAA; provision for the establishment and operation of appropriate devices, methods, systems and procedures necessary to monitor ambient air quality; provision for implementation of a source permit program to regulate the modification and construction of any stationary source within the areas covered by the plan; provisions for the implementation of Part C, prevention of significant deterioration (PSD) and Part D, new source review (NSR) permit programs; criteria for stationary source emission control measures, monitoring, and reporting; provisions for air quality modeling; and provision for public and local agency participation in planning and emission control rule development.

New Hampshire has fulfilled Section 110(a)(2) of the Clean Air Act and EPA regulations at 40 CFR 51, Subparts K and L by having adopted and implemented the state laws and regulations that are at least as stringent as the applicable federal requirements established for the protection of air quality. In New Hampshire's iSIP submission, New Hampshire verified that the state fulfills the requirements of Section 110(a)(1) and Section 110(a)(2) of the CAA with respect to the 2010 SO_2 NAAQS.

[29] Other than nonattainment emission limitations and measures which are a part of nonattainment area plans and subject to the timing requirements of Section 172 of the CAA.

5.2 Requirements of Part D

Subpart 1 of Part D consists of general requirements applicable to all areas which are designated nonattainment based on a violation of the NAAQS. Subpart 5 of Part D consists of more specific requirements applicable to SO_2.[30]

5.2.1 Section 172(c) requirements

This Section contains general requirements for nonattainment plans. Fulfillment of these requirements is described below.

1. *Plan provisions shall provide for implementation of all reasonably available control measures as expeditiously as practicable and shall provide for the attainment of the national ambient air quality standard.*
   New Hampshire has essentially implemented reasonable available control technology (RACT) through the implementation of RSA 125-O:11 – O:18, installation of the wet flue gas desulfurization (FGD) and the operational and emission limitations contained in TP-0189. The area is now in attainment, as outlined in this and the nonattainment plan submissions.
2. *Plan provisions shall require reasonable further progress (RFP).*
   It is not necessary to demonstrate reasonable further progress because the area is already meeting the NAAQS.
3. *Plan provisions shall include a comprehensive, accurate inventory.*
   This requirement is fulfulled in section 6, Maintenance Plan.
4. *Identification and quantification of emissions, if any, that will be allowed from the construction and operation of any major new or modified station source in the nonattainment area.*
   The requirements for identification of certain emissions increases do not apply for redesignations because they only have meaning for areas not meeting the NAAQS.
5. *Require permits for the construction and operation of new or modified stationary sources anywhere in the nonattainment area.*
   The requirements of the Part D NSR program will be replaced by the PSD program once the area has been redesignated. State rules designed to protect air quality in attainment areas are found at Part Env-A 619 *Prevention of Significant Deterioration (PSD) Air Quality Permit Requirements*.[31]
6. *Include enforceable emission limitations and other control measures, means or techniques as may be necessary to provide for attainment of the standard.*
   The requirements for other measures needed for attainment do not apply for

[30] Subpart 5 of Part D identifies requirements related only to plan submission deadlines and attainment dates. SIP submittal and attainment dates are discussed in the introduction of this submittal.

[31] Submitted to EPA as a SIP amendment on November 22, 2016. Approved by EPA May 25, 2017 [82 FR 24057].

redesignations because they only have meaning for areas not meeting the NAAQS.

7. *Meet the applicable provisions of section 110(a).*
   New Hampshire' iSIP has been approved by EPA [81 FR 44542]. A transport amendment to this SIP was submitted on June 16, 2017.
8. *Equivalent techniques.*
   This provision allows the State to use equivalent techniques for modeling, inventorying, or other planning activities and is not applicable to this submission.
9. *Contingency measures.*
   Section 172(c)(9) requirements for contingency measures are directed at ensuring RFP and attainment by the applicable date. These requirements no longer apply when an area has attained the standard and is eligible for redesignation.

5.2.2 Conformity

SIP provisions must be consistent with the Section 176(c)(4) conformity requirements. New Hampshire's Env-A 1500, *Conformity* rule meets the requirement and was approved into the SIP on November 26, 2013. [78 FR 71504]

As described in the SO_2 nonattainment area SIP guidance[32], due to the relatively small, and decreasing, amounts of sulfur in gasoline and on-road diesel fuel, the EPA's transportation conformity rules do not apply to SO_2 unless transportation conformity budgets exist for other reasons, such as that SO_2 is found to be a significant contributor to a fine particulate matter ($PM_{2.5}$) nonattainment problem, or if the SIP has established an approved or adequate budget for such emissions as part of the RFP, attainment or maintenance strategy. Neither of these circumstances applies here.

6. MAINTENANCE PLAN

Section 175A of the Clean Air Act sets forth the elements of a maintenance plan for areas seeking redesignation from nonattainment to attainment. The plan must demonstrate continued attainment of the applicable NAAQS for 10 years after the area is redesignated. Section 175A(b) requires that, eight years after formal redesignation, the state submit a SIP revision for maintenance of the standard for an additional 10 years following the first 10-year period. To provide for appropriate response to the possibility of future NAAQS violations, the maintenance plan must contain contingency measures adequate to assure prompt correction of any air quality problems, including a schedule for implementation.

EPA guidance[33] recommends that states seeking redesignation of a nonattainment area establish a maintenance plan that includes the following: attainment inventory, maintenance demonstration, monitoring network, verification of continued attainment, and

[32] EPA memorandum from Stephen D. Page, Director, Air Quality Management Division, OAQPS, U.S. EPA, Research Triangle Park, NC, "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions," April 23, 2014.
[33] 78 FR 47191

a contingency plan.

6.1 Attainment Inventory

Periodic inventories, which include emissions from all sectors, are prepared every three years. The 2011 periodic inventory has been identified as one of the preferred databases for SIP development and coincides with nonattainment air quality in the Central New Hampshire Nonattainment Area. The 2011 inventory is used as the base year for the purpose of this submittal and is being submitted to the EPA with this document to fulfill all emissions inventory requirements under the 2010 SO_2 standard.

Table 6-1. Baseline Inventory of Annual SO_2 Emissions in the Central NH Nonattainment Area, 2011[34] (tons, estimated)

County/Area	EGU Point	Non-EGU Point	Area	On-Road Mobile	Non-Road	Total
Hillsborough (part)			54	1	0	**55**
Merrimack (part)	22,393	115	334	12	1	**22,855**
Rockingham (part)			63	2	0	**65**
3-County Area	**22,393**	**115**	**451**	**15**	**1**	**22,975**

- *Point Sources* represent discrete facilities. These sources usually must meet certain emission criteria to be included as point sources and generally represent larger facilities. *EGU point sources* are electric generating units, while *non-EGU* represents all others.
- *Area Sources* represent facilities and activities too numerous and widespread to be inventoried individually but which collectively may account for significant emissions.
- *Non-Road Mobile Sources* includes aircraft, locomotives, commercial marine vessels, construction vehicles, lawn & garden equipment, and other mobile vehicles and equipment that are not meant to be operated on roadways.
- *On-Road Mobile Sources* includes cars, trucks, buses, motorcycles, and other vehicles that operate on public roadways.

NHDES has developed an attainment inventory for 2014, representing the three-year period (2012-2014) in which New Hampshire's SO_2 monitoring data showed attainment of the 1-hour SO_2 standard and coinciding with the most recent periodic inventory under the federal National Emissions Inventory (NEI) reporting. Annual emissions data are routinely aggregated at the county level and are generally not available for smaller subdivisions.

The attainment emissions inventory should identify the level of emissions sufficient to achieve the NAAQS. Where the state has made an adequate demonstration that air quality

[34] 2014 Final NEI V1 11NEIV2

has improved as a result of the SIP, the attainment inventory will generally be the actual inventory during the time period the area attained the standard.

The 2014 attainment inventory and the projected 2018 interim-year and 2028 maintenance inventories represent all SO_2 emissions originating within the Central New Hampshire Nonattainment Area and is being formally adopted into the SIP as the attainment inventory for this redesignation request.

Table 6-2. Attainment Inventory of Annual SO_2 Emissions in the Central NH Nonattainment Area, 2014 (tons, estimated) [35]

County/Area	EGU Point	Non-EGU Point	Area	On-Road Mobile	Non-Road	Total
Hillsborough (part)	0	0	43	1	0	**44**
Merrimack (part)	1,044	63	270	11	1	**1,389**
Rockingham (part)	0	0	46	2	0	**48**
3-County Area	**1,044**	**63**	**359**	**14**	**1**	**1,481**

6.2 Maintenance Demonstration

According to EPA guidance, a demonstration of maintenance of the NAAQS may be accomplished through the use of either an emissions inventory approach or by air quality modeling to show that future emission rates from all sources will not cause a violation of the NAAQS. The maintenance demonstration should be for a period of 10 years following the redesignation, should consider future growth, including population and industry, be consistent with the attainment inventory, and provide documentation of data inputs and assumptions.

6.2.1 Projected 2018 and 2028 Emissions Inventories

For an area to be redesignated, states must show that emissions 10 years after the date on which EPA approves the redesignation request (expected to be in 2018) will be lower than they were in the base year.

The 2014 attainment inventory represents a 93% reduction in SO_2 emissions in the Central New Hampshire Nonattainment area, 97% of which came from the pre-scrubber Merrimack Station. The 2018 and 2028 projected inventories, derived as explained in section 6.2.2 show increases in 2018 (992 tons) and in 2028 (2,448 tons) compared to the attainment year. These projections reflect potential increased demand for electricity and the full implementation of decreased fuel sulfur standards which begins midway through 2018, the effects of which will be less pronounced by 2028. The same scenario can also

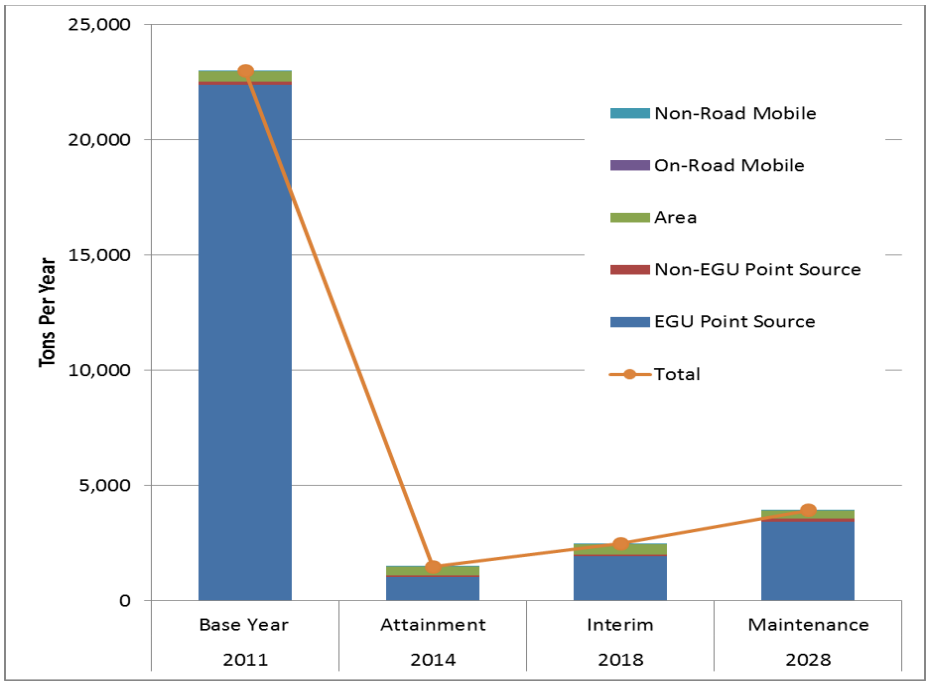
[35] Based on data from https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data

be used to explain interim increases in area sources which then fall slightly by 2028. On- and non-road mobile SO_2 emissions are predicted to continue declining, due to government standards for engine efficiency, improvements in emissions control equipment, and fleet turnover. Again, these decreases are less pronounced as fleet emissions level off by 2028.

Table 6-3. Baseline, Attainment, and Projected Maintenance SO_2 Emissions Inventories for Central NH Nonattainment Area (tons)[36]

Source Category	2011 Base Year	2014 Attainment	2018 Interim	2028 Maintenance
EGU Point Source	22,393	1,044	1,927	3,443
Non-EGU Point Source	115	63	90	127
Area	451	359	425	353
On-Road Mobile	15	14	5	5
Non-Road Mobile	1	1	1	1
Total	**22,975**	**1,481**	**2,473**	**3,929**

Figure 6-1. Baseline, Attainment, and Projected Maintenance SO_2 Emissions Inventories for Merrimack, Hillsborough and Rockingham Counties, representing the Central New Hampshire Nonattainment Area



6.2.2 Projection Methodology

NHDES compiled projected inventory for the three counties and for the Central New

[36] Based data from https://www.epa.gov/air-emissions-inventories

Hampshire Nonattainment Area – 2018, representing the anticipated redesignation year and 2028 representing the first 10-year planning period after attainment with the standard was demonstrated. The projected inventory includes EGU point, non-EGU point, area, on-road mobile, and non-road mobile emissions, and is based on the Mid-Atlantic Regional Air Management Association's (MARAMA's) future projections from its Alpha 2 inventory platform. Future year EGU emissions were projected with the Eastern Regional Technical Advisory Committee (ERTAC) forecasting tool run version 2.3. The ERTAC v2.3 projections for Merrimack Station assumed 90% control efficiency for the fluidized gas desulphurization (FGD) system used to control SO_2 emissions from Merrimack's two coal-fired units. The permitted SO_2 limits that have been incorporated into New Hampshire's SIP are more stringent than this assumption, therefore actual 2018 and 2028 emissions will likely be lower than those shown here. Projections for the other inventory sectors are based on information such as future forecasts of energy consumption, employment, and population. Future year projections also account for the emissions reduction benefits from on-the-books state and Federal regulations. More details on the projected inventories can be found in MARAMA's Technical Support Document (http://www.marama.org/images/stories/documents/2011-2018-2028_Technical_Support_Docs/TSD%20ALPHA2%20Northeast%20Emission%20Inventory%20for%202011%202018%202028%20DraftFinal%2020151123.pdf).

The estimates given for the nonattainment area were derived by apportioning the county-wide values based on the population (for area & non-road mobile) and vehicle miles traveled (VMT) (for on-road mobile) of the individual towns and cities in the Central New Hampshire Nonattainment Area. Because much of the area source SO_2 emissions are the result of activities such as residential fuel combustion, human population is an appropriate surrogate for apportioning these types of emissions to a sub-county level. Similarly, human population is an appropriate surrogate for certain non-road mobile categories such as lawn & garden equipment. There is less certainty in using human population to apportion other types of non-road categories; however, SO_2 from these types of sources are negligible in the Central New Hampshire Nonattainment Area. EGU and non-EGU point source emissions were simply applied to the towns in which each source is located.

2028 emissions for the Central New Hampshire Nonattainment Area are projected to be higher than those for 2018, particularly for the EGU point category. This may be due in part to an optimistic projection of Merrimack Station's future operations by the ERTAC EGU forecasting model. However, it should be noted that the total projected 2028 emissions for the Central New Hampshire Nonattainment Area (3,929 tons) are still over 4,100 tons lower than the Nonattainment Area Plan allowable emissions for Merrimack Station of 8,047 tons.

6.3 Air Quality Monitoring Network

Once an area has been redesignated, the state must continue to operate an appropriate air quality monitoring network in accordance with 40 CFR Part 58 to verify the area's attainment status. NHDES air quality monitoring network includes five sites that measure SO_2, as shown

in Figure 1-1. NHDES is committed to the continued operation and maintenance of an appropriate air quality monitoring network, contingent on future EPA funding sufficient to sustain the network at the required operational levels.

6.4 Verification of Continued Attainment

Verification of continued attainment can be accomplished through the acquisition of air quality data and source emission data. Air quality data will directly show whether the sulfur dioxide NAAQS is being met in real time and over specified averaging periods, i.e., the design value. The gathering of source emission data enables the construction of periodic updates to emissions inventories for tracking progress in emission control measures or supplying inputs for revised air quality modeling projections. Emission inventory updates could be based, in part, on the periodic update of EPA's national emissions inventory (NEI) database and could indicate changes from the attainment inventory.

New Hampshire will track the progress of attainment maintenance by making periodic updates to the state emissions inventory. NHDES ordinarily revises the emissions inventory on a 3-year cycle; the latest one, the 2014 inventory, was completed in 2016. Subsequent updates will be prepared for 2017 and 2020. NHDES will report the results of this tracking program to EPA on the same 3-year cycle, when the emissions inventory data become available.

6.5 Contingency Plan

Section 175A(d) of the Clean Air Act requires that a maintenance plan include contingency provisions to promptly correct any violation of the NAAQS that occurs after redesignation of a nonattainment area to attainment status. As an enforceable part of the SIP, the contingency plan should be implemented expediently if and when the need arises.

As discussed in this submittal, since the installation of control technology at Granite Shore Merrimack Station, there are no sources in the nonattainment area with potential to cause a violation of the 2010 SO_2 NAAQS. Further, implicit in Merrimack Station's permit TP-0189, is the requirement for the operator to demonstrate compliance, inclusive of the permitted averaging period, with the SO_2 lb/MMBtu emission limit as the sum of all SO_2 exhausted from emission units MK1 and MK2 as measured by the continuous emissions monitoring system (CEMS), and to report any permit deviations. The permit also specifies that the venting of emissions from MK1 through the emergency stack, STMK2 will be allowed only in unplanned emergency events[37] as necessary to safely vent residual boiler gases and prevent severe damage to equipment or potential injury to personnel. Granite Shore made changes to the safety control logic for MK1 boiler that will initiate a master fuel trip, immediately stopping the fuel supply to the boiler furnace prior to directing residual combustion gases through the emergency stack STMK2.

Because SO_2 control measures are based on what is directly and quantifiably necessary to

[37] Examples include loss of MK1 booster fan or loss of power supply to the entire FGD system.

attain the SO_2 NAAQS, it would be unlikely for an area to implement the necessary emission controls yet fail to achieve attainment. Accordingly, contingency measures for the control of SO_2 in New Hampshire will entail the use of the state's enforcement authority to promptly and aggressively address permit deviations, from Merrimack Station in particular. This authority is derived in state statute which includes:

- RSA 125:82 (recodified as RSA 125-C:15,) authorizes the agency to issue orders to correct violations.
- RSA 125:85 (recodified as RSA 125-C:15, II) authorizes the agency to obtain injunctive relief to prevent violations.
- RSA 125:86 (recodified as RSA 125-C:15, I-b) authorizes the agency to impose fines for violations of statutes and rules.

This comprehensive program to identify violations of the 2010 SO_2 NAAQS and undertake aggressive compliance and enforcement actions is also embodied in New Hampshire's infrastructure SIP for the 2010 1-hour SO2 NAAQS[38]. Elements of this submission have have specific relevance to the requirement to provide contingency measures, including:

- Subsection 110(a)(2)(B): Ambient Air Quality Monitoring/Data System;
- Subsection 110(a)(2)(C): Program for Enforcement of Control Measures;
- Subsection 110(a)(2)(F): Stationary Source Emissions Monitoring and Reporting;
- Subsection 110(a)(2)(G): Emergency Power.

7. PUBLIC PARTICIPATION

The notice was published in the *Union Leader*, a newspaper of general, statewide circulation, on January 19, 2018, more than 30 days prior to the date of the proposed hearing. In this notice, the public was invited to submit comments and/or request a public hearing. Opportunity was provided for members of the public to submit comments at any time up to 4:00 p.m. on the February 27, 2018. Since no public hearing was requested, none was held. A summary of comments and responses in provided in Attachment A.

8. SUMMARY AND CONCLUSIONS

NHDES is requesting redesignation of the Central New Hampshire Nonattainment Area from nonattainment to attainment of the 2010 1-hour National Ambient Air Quality Standard for sulfur dioxide. Section 107(d)(3)(E) of the Clean Air Act establishes the requirements that an area must meet in order to be considered for redesignation. The following summarizes how the nonattainment area meets the essential criteria for redesignation:

- *The area has attained the 1-hour sulfur dioxide standard.* The Pembroke monitoring site has measured a three year design value below the standard since 2012-2014.

[38] Certification of State Implementation Plan Adequacy Regarding Clean Air Act Section 110(a)(1) and (2) for the 2010 Primary 1-Hour Sulfur Dioxide NAAQS, September 13, 2013, [81 FR 44542].

This monitoring site is located in the nonattainment area zone of maximum concentration. In addition, all other sulfur dioxide monitoring sites throughout the state demonstrate SO_2 levels below the standard design value.

- *The state has an approved/approvable State Implementation Plan under CAA Section 110(k).* New Hampshire's approved SIP is published in the Code of Federal Regulations at 40 CFR 52 Subpart EE. New Hampshire' SO_2 iSIP was approved by EPA on August 8, 2016 [81 FR 44542]. A transport amendment to this SIP was submitted on June 16, 2017.

- *The improvement in air quality is due to permanent and enforceable emission reductions resulting from implementation of the SIP and other federal requirements.* As described in Section 4, SO_2 emissions from Merrimack Station were the primary source of the Central New Hamsphire Nonattainment Area designation. In 2011, a wet, limestone based flue gas desulfurization (FGD) system was installed at Merrimack Station. SO_2 emissions decreased by 95% in 2012, the first full year of operation and design values beginning in 2012-2014 have been below 75 ppb. Emissions of SO_2 from other in-state sources is declining also (see Figure 2-1). Merrimack Station is operating under a temporary permit (TP-0189) that specifies limit of 0.39 lb/MMBtu calculated on a 7-boiler operating day rolling average basis for MK1 and MK2 combined. This limit has been submitted for inclusion in the SIP as part of NHDES's January 31, 2017 submittal to EPA (i.e., New Hampshire's "Central New Hampshire Nonattainment Area Plan for the 2010 Primary 1-hour Sulfur Dioxide NAAQS").
- *The state has prepared an approved/approvable maintenance plan under Section 175A.* NHDES has prepared the requisite attainment inventory, maintenance demonstration, and contingency plan, and will continue to operate an appropriate air quality monitoring network to assure that the area stays in attainment of the 1-hour SO_2 standard after redesignation (see Section 6. Maintenance Plan). Area data indicates a downward trend in overal SO_2 emissions (Figure 4-2).

- *The state has met all Title I, Part A, Section 110, and Part D requirements for the area*. New Hampshire has satisfied the requirements of Section 110 related to emission reporting and recordkeeping, periodic testing and inspection of emission sources, transportation-related emission control measures, continuous monitoring and recording, and legal authority and emergency powers. The state has also met Part D requirements for nonattainment areas, providing assurance of future attainment through continued implementation of appropriate emission control and monitoring measures and attention to anti-backsliding requirements.

Attachment A – Administrative Materials

- Evidence of Legal Authority – Chapter 125-C Air Pollution Control, Sections C:4, C:6
- Certification of Public Process
- Copy of Public Notice
- Public Comments and Responses

TITLE X
PUBLIC HEALTH

CHAPTER 125-C
AIR POLLUTION CONTROL

Section 125-C:4

125-C:4 Rulemaking Authority; Subpoena Power. –

I. The commissioner shall adopt rules under RSA 541-A, relative to:

(a) The prevention, control, abatement, and limitation of air pollution, including, but not limited to, open air source pollution, mobile source pollution, and stationary source pollution.

(b) Primary and secondary ambient air quality standards.

(c) Procedures to meet air pollution emergencies, as authorized by RSA 125-C:9.

(d) The establishment and operation of a statewide permit system, as authorized by RSA 125-C:6, XIV, RSA 125-C:11, I and RSA 125-C:11, I-a.

(e) Devices, in addition to those devices defined under RSA 125-C:2, subject to the permit requirements of RSA 125-C:11, as authorized by RSA 125-C:11, II.

(f) The exemption of certain devices and non-Title V sources from the permit requirements of RSA 125-C:11, I and the conformance of exempted devices to established standards, as authorized by RSA 125-C:11, I.

(g) The forms and information required on applications for temporary and permanent permits required under RSA 125-C:11, as authorized by RSA 125-C:12, I.

(h) Notification of and public hearing on permit applications, including exemptions from those requirements, as authorized by RSA 125-C:12, II.

(i) Fees for permit application and review, as authorized by RSA 125-C:12, IV-d.

(j) Procedures for permit application review, as authorized by RSA 125-C:11, IV, and criteria for permit denial, suspension or revocation, as authorized by RSA 125-C:13.

(k) Procedures for air testing and monitoring and recordkeeping, as authorized by RSA 125-C:6, XI.

(l) Procedures for receiving violation complaints and for rules enforcement, as authorized by RSA 125-C:15, I.

(m) Procedures for granting variances, as authorized by RSA 125-C:16.

(n) The manufacture, use, or sale of consumer products for purposes of implementing RSA 485:16-c.

(o) Applicability thresholds for emissions of particulate matter, mercury, and dioxin as provided in RSA 125-C:10-b, VII(f).

(p) The duration of time during which no additional best available control technology determination is required as provided in RSA 125-C:10-b, IV and VI.

(q) Procedures for establishing standards for and certification of any material, that is not an exempt fuel, to be combusted in a device at an affected source subject to RSA 125-C:10-b.

(r) Standards and testing requirements for biomass and eligible biomass fuel as authorized

by RSA 125-C:6, XIV-a.

[Paragraph I(s) effective July 1, 2018.]

(s) The recordkeeping, reporting, certification requirements, and test methods to be used to demonstrate compliance with RSA 125-C:10-d.

I-a. In adopting rules under paragraph I, the department may incorporate by reference standards issued by the California air resources board relative to certification and testing of vapor recovery equipment.

I-b. In adopting rules under subparagraph I(n), the department may incorporate by reference other state test methods and procedures that are referenced in the model rules of the Ozone Transport Commission (OTC) concerning consumer products, as defined in RSA 125-C:2, V-c.

II. The commissioner is authorized to issue subpoenas requiring the attendance of such witnesses and the production of such evidence and to administer such oaths and to take such testimony as he may deem necessary.

Source. 1979, 359:2. 1986, 202:8. 1996, 228:19, 104; 278:2, 3. 2001, 293:5. 2003, 137:3. 2004, 175:2. 2005, 173:3. 2008, 113:3. 2010, 183:6, eff. June 21, 2010. 2016, 94:2, eff. July 1, 2018.

TITLE X
PUBLIC HEALTH

CHAPTER 125-C
AIR POLLUTION CONTROL

Section 125-C:6

125-C:6 Powers and Duties of the Commissioner. – In addition to the other powers and duties granted herein, the commissioner shall have and may exercise the following powers and duties:

I. Exercising general supervision of the administration and enforcement of this chapter and all rules adopted and orders promulgated under it;

II. Developing a comprehensive program and provide services for the study, prevention, and abatement of air pollution;

III. Conducting and encouraging studies relating to air quality;

IV. Collecting and disseminating the results of studies relating to air quality;

V. Advising, consulting, and cooperating with the cities and towns and other agencies of the state, federal government, interstate agencies, and other affected agencies or groups in matters relating to air quality;

VI. Encouraging local units to promote cooperation by the people, political subdivisions, industries, and others in preventing and controlling air pollution in the state;

VI-a. Encouraging the recycling of waste oil by allowing qualified marketers to sell, and qualified facilities to burn, a mixture that consists of at least 90 percent virgin no. 6 oil and the remainder complying with the used fuel oil specifications in 40 CFR, section 279.11, table 1;

VII. Entering at all reasonable times in or upon any private or public property, except private residences, for the purpose of inspecting or investigating any condition which is believed to be either an air pollution source or in violation of any of the rules or orders promulgated hereunder. Any information, other than emission data, relating to secret processes or methods of manufacture or production obtained in the course of such inspection or investigation shall not be disclosed by the commissioner without permission of the person whose source is inspected or investigated;

VIII. Accepting, receiving, and administering grants or other funds or gifts for the purpose of carrying out any of the functions of this chapter, including such monies given under any federal law to the state for air quality control activities, surveys, or programs;

IX. Consulting the air resources council established by RSA 21-O:11 on the policies and plans for the control and prevention of air pollution;

X. Exercising all incidental powers necessary to carry out the purposes of this chapter;

XI. Conducting emission tests and requiring owners or operators of stationary sources to install, maintain, and use emission monitoring devices and to make periodic reports to the commissioner on the nature and amounts of emissions from such stationary sources. The commissioner shall have the authority to make such data available to the public and as correlated

with any applicable emission standards;

XII. Carrying out a program of inspection and testing of all modes of transportation, to enforce compliance with applicable emission standards when necessary and practicable and to control or limit the operation of motor vehicular and other modes of transportation when in the opinion of the commissioner such modes of transportation are producing or pose an imminent danger of producing levels of air pollutants that will result in a violation of an ambient air quality standard, or that will result in a significant deterioration, as defined in applicable federal regulations, of existing air quality in an area classified as a "clean air" area by state or federal regulations;

XIII. Coordinating and regulating the air pollution control programs of political subdivisions of the state and entering agreements with said subdivisions to plan or implement programs for the control and abatement of air pollution;

XIV. Establishing and operating a statewide system under which permits shall be required for the construction, installation, operation, or modification of air pollution devices and sources, which system shall be established pursuant to RSA 125-C:11 and the sections which follow. The authority vested in the commissioner by this section shall include the power to delay or prevent any construction, modification, or operation of said air pollution sources and modifications which, in the opinion of the commissioner, would cause the ambient air pollution level in the locality of such construction, modification, or operation to exceed limits for ambient concentrations established by the New Hampshire state implementation plan adopted pursuant to the Clean Air Act as amended, or which construction, modification, or operation would, in the opinion of the commissioner, violate any provision of any land use plan established by the New Hampshire state implementation plan;

XIV-a. Establishing fuel quality standards and testing requirements for biomass other than round wood and wood chips derived from round wood or waste wood such as limbs, branches, brush, slash, bark, stumps, sawdust, saw mill trimmings, clean pallets, and untreated wood scraps from furniture and other manufacture and eligible biomass fuel related to the combustion of such materials at stationary sources, and clean processed wood residue for use in accordance with RSA 125-C:10-c, II(b). The commissioner may establish such standards as necessary to maintain statewide compliance with Clean Air Act standards and RSA 125-I.

XV. Implementing a program of prevention of significant deterioration of ambient air quality by establishing air quality increments limiting the maximum allowable increases in the amounts of air pollutants provided such increments are not less stringent than those specified in the Clean Air Act and amendments thereto, and in regulations promulgated thereunder;

XVI. Establishing an air quality monitoring equipment replacement program to provide for sufficient annual replacement to meet federal Environmental Protection Agency guidelines and to assure the reliability and accuracy of the network equipment.

XVII. Implementing a program to control the emissions of air contaminants from consumer products for purposes of RSA 485:16-c, by establishing limits on the manufacture, use, or sale of such products, provided that such limits are not less stringent than those established under the Clean Air Act and amendments thereto, and in regulations promulgated under the Clean Air Act.

Source. 1979, 359:2. 1981, 332:3. 1986, 202:6, I(h), 9, 10. 1988, 277:1. 1995, 192:1. 1996, 228:104. 2001, 293:6. 2008, 113:4. 2010, 183:8, eff. June 21, 2010. 2016, 319:19, eff. Aug. 23, 2016.

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

CERTIFICATION OF PUBLIC PROCESS:
Amendment to New Hampshire State Implementation Plan Requesting Redesignation of the Central New Hampshire Nonattainment Area

I hereby certify that:

In accordance with New Hampshire Administrative Rule Env-A 204.01(b) and Federal regulations at 40 CFR § 51.102, public notice was given that the New Hampshire Department of Environmental Services (the Department) intended to submit for the approval of the U.S. Environmental Protection Agency (EPA) a request to redesignate the Central New Hampshire Nonattainment Area from nonattainment to attainment of the 2010 1-hour National Ambient Air Quality Standard for sulfur dioxide. The request describes how New Hampshire has fulfilled all of the requirements that an area must meet in order to be considered for redesignation as established in Section 107(d)(3)(E) of the Clean Air Act.

The notice was published in the *Union Leader*, a newspaper of general, statewide circulation, on January 19, 2018, more than 30 days prior to the date of the proposed hearing. In this notice, the public was invited to submit comments and/or request a public hearing. Opportunity was provided for members of the public to submit comments at any time up to 4:00 p.m. on the February 27, 2018. Since no public hearing was requested, none was held. A summary of comments received and answers thereto is included.

A copy of the draft SIP submittal was available for public inspection at the Department's offices at 29 Hazen Drive, Concord, NH, during regular working hours from 8:00 a.m. to 4:00 p.m., Monday through Friday, throughout the comment period. The draft SIP revision was also available for downloading from the Department's website at http://des.nh.gov.

The above statements are true to the best of my knowledge and belief.

_____
Michele Roberge
SIP Planning Manager, Air Resources Division

_____
Date

STATE OF NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENT

STATE OF NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES AIR RESOURCES DIVISION CONCORD, NEW HAMPSHIRE NOTICE OF PUBLIC COMMENT PERIOD AND PUBLIC HEARING In accordance with New Hampshire Administrative Rule Env-A 204.01 and Title 40 of the Code of Federal Regulations (CFR) Section 51.102, notice is hereby given that the New Hampshire Department of Environmental Services, Air Resources Division (the Department) has prepared, and intends to submit to the U.S. Environmental Protection Agency, amendments to New Hampshire's State Implementation Plan (SIP) to meet the requirements of the federal Clean Air Act pertaining to the revised national air quality standard for sulfur dioxide (SO2). The standard that New Hampshire and other states must meet is contained in Title 40: Protection of Environment, section 50.17, National primary ambient air quality standards for sulfur oxides (sulfur dioxide). On August 5, 2013, EPA published a final rule designating the attainment status of certain areas of the country for the 2010 SO2 primary National Ambient Air Quality Standard (NAAQS, 78 FR 47191). The Central New Hampshire Nonattainment Area (consisting of the town of Goffstown in Hillsborough County, the towns of Allenstown, Bow, Chichester, Dunbarton, Epsom, Hooksett, Loudon, Pembroke, Pittsfield, and the City of Concord in Merrimack County, and the towns of Candia, Deerfield and Northwood in Rockingham County) is a portion of the state that was designated as nonattainment for the revised SO2 standard. Any state containing an area designated as nonattainment for the 2010 SO2 NAAQS is required to develop and submit a nonattainment area SIP meeting the requirements of Title I, Part D, subpart 1 the CAA, providing for attainment of the NAAQS by the applicable statutory attainment date. For the revised 2010 SO2 standard, the attainment date is October 2018. New Hampshire submitted its attainment plan, indicating that these areas were currently meeting the SO2 standard, in January 2017. The subject of the document now being offered for public comment is a request to the EPA to formally redesignate the aforementioned nonattainment area to attainment and provide a plan for the maintenance of the 2010 SO2 standard. Specifically, this SIP submittal is intended to satisfy the requirements of Sections 107(d)(3)(E) and 175A of the Clean Air Act (CAA) and EPA guidance for documenting attainment and maintenance of the standard and assuring that the decrease in emissions is permanent and enforceable. In accordance with N.H. Administrative Rule Env-A 204.01(b) and 40 CFR 51.102, notice is hereby given that the New Hampshire Department of Environmental Services (NHDES), Air Resources Division, will accept requests for a public hearing and/or written comments on proposed amendments to State Implementation Plan listed above if requested in writing by February 20, 2018. Please submit a written request to Felice Janelle, SIP Analyst, Air Resources Division, NH Department of Environmental Services, P.O. Box 95, 29 Hazen Drive, Concord, NH 03302-0095, Fax (603) 271-1381 or e-mail Felice.Janelle@des.nh.gov. If a public hearing is requested, it will take place on February 27, 2018, at the NHDES offices at 10 AM in Room 112. If no request for a public hearing is received the hearing will be cancelled. Cancellation of such meeting will posted on the NHDES webpage calendar at: http://www4.egov.nh.gov/sign-up/public/cal.asp?w=list&y=5 by 4 PM on February 21, 2018 or you may contact Felice Janelle at (603)271-4848. A copy of the SIP submission is available for public inspection at the Department's offices at 29 Hazen Drive, Concord, NH, during regular working hours from 8:00 a.m. to 4:00 p.m., Monday through Friday. The main text of the SIP submission is named "Draft Sulfur Dioxide Nonattainment Area Redesignation Request' and may be downloaded at https://www.des.nh.gov/organization/divisions/air/do/sip/sip-revisions.htm#so2 . Craig A. Wright Director, Air Resources Division NH Department of Environmental Services

Appeared in: ***The Union Leader*** on Friday, 01/19/2018

COMPILATION OF PUBLIC COMMENTS AND NEW HAMPSHIRE'S RESPONSES THERETO

No comments were received from the public at large on the draft redesignation request. Comments on the pre-draft version were solicited from the U.S. Environmental Protection Agency (EPA) who submitted comments via letter dated July 27, 2017. Those comments and NHDES' responses are presented below.

1. On page 1, paragraph 2, we suggest revising the first sentence to indicate that "Air quality in Central New Hampshire with regard to SO_2 nonattainment was dominated by a single major source...".
   ***Response**:* This change was made.

2. The numbers in Figure 2-3 and Figure 2-4 are difficult to read. We suggest adding leader lines next to the values and putting them next to the bars rather than on the bars and data points.
   ***Response**:* Data tables were added to these figures. NOTE: These figures are now numbered 2-4 and 2-5.

3. The discussion regarding the SO_2 Data Requirements Rule (DRR) is confusing because it does not pertain to the Central New Hampshire Nonattainment Area. We suggest either removing the section of indicating clearly how the DRR discussion pertains to the nonattainment area. If you decide to include the DRR discussion with additional statements regarding the relevance to the nonattainment area, please correct the period of time modeled from three years to five years.
   ***Response**:* The discussion of the DRR in section 3 was removed.

4. We offer the following comments on the emission inventory development (section 6.1)
   a. NHDES developed inventories for the entire three-county area in which the nonattainment area resides, rather than exclusively for the nonattainment area. However, in the January 31, 2017 Nonattainment Area Plan, NHDES submitted an emission inventory for the nonattainment area in addition to an inventory for the three-county area. NHDES did not indicate in the Plan that source outside the nonattainment area were affecting the nonattainment area. Therefore, it would be inconsistent to include those emissions in the inventory. Unless NHDES has revised its approach for this area, we suggest only including the nonattainment area emissions in the inventory using the methodology established in the Plan. Otherwise, the state may be inappropriately tracking emissions that do not affect the area to determine compliance with the maintenance plan.
   b. The state indicated that the three-year inventory approach is a more conservative approach than a nonattainment area inventory. However, it would only be more conservative if the attainment inventory included only

the emission in the nonattainment area and the maintenance year inventory for the three-county area as is compared against it. We do not agree that the three-county approach is inherently more conservative because emission increases with the area may be masked by emission decreases in the broader area. Therefore, in line with the previous comment, we suggest including only the nonattainment area emissions in the inventory.

c. Section 6.2.1 indicates that the emissions for the maintenance year (10 years after the redesignation request) must be lower than the emissions for the base year. As stated in our guidance, the maintenance demonstration should show that the future emissions of SO_2 will not exceed the level of the attainment inventory, which for NHDES's request would be the 2014 inventory, or by demonstrating through modeling. This is further described on page 67 of the guidance. NHDES should revise its text to correct this discrepancy.

Response: (a. and b.) Tables 6.1, 6.2 and 6.3, and Figure 6.1 were updated to include emissions from the nonattainment area only, instead of the three-counties. The methodology for deriving these numbers is given in section 6.2.2. ***(c.)*** The figures cited in the section 6.2.1 were changed to represent the nonattainment area only. NHDES also provides the following explanation in section 6.6.2 on page 22: *"2028 emissions for the Central New Hampshire Nonattainment Area are projected to be higher than those for 2018, particularly for the EGU point category. This may be due in part to an optimistic projection of Merrimack Station's future operations by the ERTAC EGU forecasting model. However, it should be noted that the total projected 2028 emissions for the Central New Hampshire Nonattainment Area (3,929 tons) are still over 4,100 tons lower than the Nonattainment Area Plan allowable emissions for Merrimack Station of 8,047 tons."*

5. In section 6.2.3, you state that the redesignation guidance does not require air quality modeling for SO_2 nonattainment areas seeking redesignation. However, the guidance does indicate that to demonstrate attainment of the NAAQS, an air agency would generally rely on two independent component analyses: air quality monitoring and air quality modeling. For areas with attainment demonstration modeling available, no additional modeling using actuals would be required. Monitoring data alone would not suffice unless the state successfully demonstrates that the monitor is in the area of maximum concentration. NHDES should revise the text to more accurately reflect the EPA guidance and how the state's efforts conform to the guidance.

Response*:* Section 6.2.3 was removed, and a discussion of monitors in the area of maximum concentration was added to section 2.1.

The EPA offered these additional comments to the draft posted on January 19, 2018 in a letter received January 23, 2018.

1. On August 5, 2013, EPA designated the Central New Hampshire area as "nonattainment" for the 2010 SO2 standard during "Round 1" of designations. All

other areas of New Hampshire remained undesignated until January 9, 2018, the date of EPA's "Round 3" of designations for the 2010 SO2 standard. In Round 3 EPA designated all previously undesignated areas in New Hampshire as "attainment/ unclassifiable" for the 2010 SO2 standard. The Draft Request is dated November 29, 2017, and therefore some information is no longer accurate. NH DES should revise the Draft Request to be consistent with the designations history listed above. Specifically, NH DES should adjust page 1 paragraph 2, which implies that EPA designated all other areas in New Hampshire as "unclassifiable", to reflect that fact that these areas were not designated in Round 1. Additionally, the text in Section 1.2 and Table 1-1 of the Draft Request should be updated to reflect the final Round 3 designation status for these areas. *See* 83 FR 1098.
Response: These revisions were made.

2. A statement in Section 4 on page 15 of the Draft Request states that "NHDES used modeling to establish permanent, enforceable emission limits in Merrimack Station's most recent Temporary Permit (TP-0189)." NH DES should also indicate in Section 4 that those limits have been submitted for incorporation into the New Hampshire State Implementation Plan (SIP). EPA has proposed to approve the State's plan for the Central New Hampshire area, which would include incorporation of the limits into the New Hampshire SIP.
Response: This statement was added (page 16)

3. A statement on page 12 of the Draft Request indicates that NH DES used "actual hourly emissions data as reported by Eversource to EPA's Clean Air Markets Program" in its analysis for the development of the emissions limit for Merrimack Station relying on a 7-day averaging period. This statement is not consistent with the information presented on pages 7 through 9 of the "Compilation of Public Comments and New Hampshire's Responses Thereto" included as part of Enclosure C: Public Participation Documentation in the January 31, 2017 submittal to EPA (i.e., New Hampshire's "Central New Hampshire Nonattainment Area Plan for the 2010 Primary 1-hour Sulfur Dioxide NAAQS"). NH DES should provide additional details regarding all data and other information used in its development of the Merrimack Station 7-day average emission limit.
Response: The explanation that was provided in the "Compilation of Public Comments and New Hampshire's Responses Thereto" included as part of Enclosure C: Public Participation Documentation in the January 31, 2017 submittal to EPA (i.e., New Hampshire's "Central New Hampshire Nonattainment Area Plan for the 2010 Primary 1-hour Sulfur Dioxide NAAQS") was inserted in the redesignation request in the modeling description in part 2.2.1.