MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT

Air, Energy & Mining Division
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Talen Montana, LLC
Colstrip Steam Electric Station
Section 34, Township 2 North, Range 41 East, Rosebud County, Montana
580 Willow Ave., P.O. Box 38
Colstrip, MT 59323

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to this facility.

Facility Compliance Requirements	**Yes**	**No**	**Comments**
Source Tests Required	X		Method 5, Method 6, Method 7, Method 9
Ambient Monitoring Required		X	
COMS Required	X		#OP0513-14, Appendix E
CEMS Required	X		#OP0513-14 - CO_2, Appendix F - SO_2 and Appendix G - NO_x
Mercury Emissions Monitoring System (MEMS) Required	X		
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		As Applicable
Monthly Reporting Required		X	
Quarterly Reporting Required	X		Opacity, NO_x, SO_2, and mercury
Applicable Air Quality Programs			
ARM Subchapter 7 Montana Air Quality Permits (MAQP)	X		MAQP #0513-09
New Source Performance Standards (NSPS)	X		40 CFR Part 60, Subpart D, Da, Y, IIII, and JJJJ
National Emission Standards for Hazardous Air Pollutants (NESHAPS)	X		No, Except for 40 CFR Part 61, Subpart M
Maximum Achievable Control Technology (MACT)	X		40 CFR Part 63, Subparts DDDDD, UUUUU, and ZZZZ
Major New Source Review (NSR) – includes Prevention of Significant Deterioration (PSD) and/or Non-attainment Area (NAA) NSR	X		
Risk Management Plan Required (RMP)	X		
Acid Rain Title IV	X		#OP0513-14, Appendix H
Compliance Assurance Monitoring (CAM)	X		#OP0513-14, Appendix I
State Implementation Plan (SIP)	X		General SIP applies

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SECTION I. GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emission units affected by the operating permit proposed for this facility. The document is intended for reference during review of the permit by the United States Environmental Protection Agency (EPA) and the public. It is also intended to provide background information not included in the operating permit and to document issues that may become important during modifications or renewals of the permit.

Conclusions in this document are based on information provided in the Title V Operating Permit renewal application submitted to the Department of Environmental Quality (Department) by PPL Montana, LLC (PPLM) on March 25, 2010, with additional information submitted on March 30, 2012, related to the plan for Compliance Assurance Monitoring (CAM). In addition, information was gathered from the PPLM submittal of the Title V Operating Permit renewal application received by the Department on June 27, 2002. Additional information for the renewal application was received on October 10, 2003. A significant modification application was received on December 31, 2008. Conclusions in this document are also based on information gathered from the original permit issued April 1973 and August 1981, and the PSD permit issued by the EPA in 1979. Further, information was gathered from the application submitted by the Montana Power Company (MPC) – Colstrip on June 12, 1996, and additional information submitted December 20, 1995, February 9, 1996, September 18, 1996, October 7, 1996, December 16, 1996, and September 16, 1997. Additional submittals were provided on May 14, 1998; August 13, 1998, August 16, 1999; June 26, 2000; May 1, 2001, and October 23, 2007. Additional information was provided in the application for a Montana Air Quality Permit (MAQP) submitted to the Department on January 11, 2005. An application for renewal (#OP0513-07) was received on March 25, 2010. Following issuance of draft Operating Permit #OP0513-07, the Department reissued the permit under Operating Permit #OP0513-08. PPL supplied a revised CAM plan on August 8, 2014 with additional submittals on September 18, October 1, and October 3, 2014. PPLM provided written request for a compliance extension for the Mercury and Air Toxics Standard (MATS) on September 15, 2014, and additional information on October 29, 2014, which the Department conditionally approved via Minor Modification of the Title V Operating Permit. PPLM submitted Revision 3 of the Particulate Matter Compliance Assurance Monitoring Plan on February 2, 2015. The Department received a letter requesting a change in company name on May 7, 2015, to Talen Montana, LLC (Talen) and a letter on July 28, 2015, to remove the Regional Haze Federal Implementation Plan (FIP) emission limits for Units 1 & 2. Talen submitted a Title V renewal application on January 4, 2017.

B. Facility Location

Talen operates the Colstrip Steam Electric Station consisting of four tangential coal fired boilers and associated equipment for generation of electricity. The Colstrip facility is located in Section 2, Township 2 North, Range 41 East, Rosebud County, Montana.

C. Facility Background Information

Montana Air Quality Permit (MAQP)

On April 23, 1973, **MAQP #513-111472 (#0513-00)** was issued to the MPC for the construction of Units 1 & 2, and on August 26, 1981, MAQP #0513-00 was issued to MPC for the operation of Units 1 & 2.

A petition for modification of the permit was filed by MPC on January 25, 1978. On February 28, 1978, the Board of Health and Environmental Sciences issued a board order to modify the Preconstruction Permit. The modification included changing the height of the two stacks to 525 feet and allowing the inlet sulfur dioxide (SO_2) monitor values to be based on a 3-hour average.

MAQP #0513-01 was issued to MPC to include the installation and operation of a Syncoal Truck Dump and a lime silo bin vent. Syncoal fines and coarse product are combined to form a blend product that will be supplied to Units 1 & 2. The installation and operation of these sources will increase the allowable particulate emissions for Units 1 & 2 by 1.12 tons per year (TPY). MAQP #0513-01 replaced MAQP #0513-00 (513-111472).

MAQP #1187 was issued to MPC on January 20, 1977, for the construction of Units 3 & 4. Because the proposed facility was a major source under the Prevention of Significant Deterioration (PSD) program, the additional review requirements of the PSD program applied to the project. The state did not have authorization to implement the PSD program at the time of the application; therefore, the PSD review was conducted by the EPA. EPA issued a PSD permit for the construction of the facility on September 11, 1979.

MAQP #1187-M1 was issued on February 5, 1980, and **MAQP #1187-M2** was issued on May 26, 1981. The modifications were completed because of changes to the applicable rules and standards of the Administrative Rules of Montana (ARM) and to include changes that had been made at the facility differing from the original application.

On October 13, 1996, **MAQP #1187-03** was issued. The permit correctly identified the actual maximum heat input capacity of Units 3 & 4. The units are each rated at a heat-input capacity of 7573 million British thermal units per hour (MMBtu/hr) with a production capacity of 778 Megawatts. These are nominal capacities for the facility and, depending on plant operating conditions, actual heat input to the facility may be as high as 8000 MMBtu/hr from each unit.

MAQP #1187-M2 and the EPA permit contained emission limits for particulate, SO_2, and oxides of nitrogen (NO_x) with units of pounds per MMBtu (lb/MMBtu). To ensure that emissions from the facility were not higher than those on that the original analysis was based, this permit established emission limits for these pollutants in the units of pounds per hour (lb/hr). The new emission limits were established based on the nominal heat input to the boilers of 7573 MMBtu/hr multiplied by the current emission limits in lb/MMBtu. MAQP #1187-03 also placed a yearly fuel consumption limit on each unit. The limit was equal to the heat input of each unit operating at the nominal heat input rate of 7573 MMBtu/hr for 8760 hours per year. This limit ensured that emissions of pollutants that did not have limits in the permit were not increased above current levels. The permit also incorporated requirements from the PSD permit issued by EPA in 1979. These requirements were incorporated at the request of MPC for the purpose of developing a comprehensive document that contained pertinent requirements from both the state permit and the EPA PSD permit. **MAQP #1187-03** replaced MAQP #1187-M2.

On September 30, 1998, **MAQP #1187-04** was issued to MPC for Units 3 & 4. The alteration included incorporation of a 3-hour rolling average SO_2 limit, the 1% inlet sulfur standard that was inadvertently removed during the previous modification, and the removal of the inlet monitor requirement.

The 3-hour SO_2 limit was incorporated in the permit to ensure protection of the 3-hour SO_2 standard. During the last permit action, the maximum heat inputs for Units 3 & 4 were discovered to be 8,000 MMBtu/hr. Because these heat inputs were higher than those in the original permit, the Department and MPC agreed that short-term SO_2 and NO_x emission limits would be implemented. The Department completed modeling for the short-term SO_2 emission limits. MPC was limited to a maximum of 4273 lb/hr of SO_2, averaged over any rolling 3-hour period from both stacks combined. These limits allowed MPC the flexibility of operating Unit 3 or Unit 4 at a higher level at any one time, while continuing to ensure protection of the standard.

The 1% inlet sulfur limit existed in the original permit, but was inadvertently removed during a previous permit action. MPC continued to maintain compliance with the 1% inlet sulfur limit, even though it was not stated in the permit.

The requirement for the inlet sulfur monitor as a compliance demonstration for the inlet sulfur content was replaced with an on-going fuel-sampling analysis. The on-going fuel-sampling analysis yielded a more accurate account of the sulfur content of the fuel, as compared to the sulfur content being correlated to SO_2 emissions.

The permitting action was an alteration of MAQP #1187-03 because of the change in the compliance demonstration for the 1% sulfur content limit. The 1% sulfur content limit and demonstration of compliance was included in the February 28, 1978, Board of Health and Environmental Sciences Findings of Fact and Conclusions of Law and Order. The alteration process allowed public involvement in the change in the compliance demonstration method. However, the permitting action did not result in any change in the emissions from the facility. MAQP #1187-04 replaced MAQP #1187-03.

In letters dated June 18, 1999, and August 16, 1999, MPC and PPLM requested that the permits for Units 1 & 2 and Units 3 & 4 be transferred to reflect the new ownership. The transfer of the permits was to occur when the transfer of ownership to PPL Montana, LLC was final. Through the Department's review, it was determined that Units 1 & 2 and 3 & 4 would now be defined as one source. Therefore, the permit modification transferred ownership, as well as combined MAQPs #0513-01 and #1187-04. The permit conditions remained the same, but were simply combined into one permit. **MAQP #0513-02** replaced MAQPs #0513-01 and #1187-04.

On September 10, 2000, **MAQP #0513-03** was issued to PPLM to conduct a test burn of petroleum coke/Syncoal/Rosebud coal fuel combination in Units 1 & 2. A petroleum coke consumption limit was placed in the permit to ensure that the proposed test burn did not exceed 15 TPY of any pollutant. Because the emissions from this project were less than 15 TPY of any pollutant, the project occurred in accordance with the ARM 17.8.745(1). MAQP #0513-03 replaced MAQP #0513-02.

On May 1, 2001, PPLM submitted a completed application to the Department proposing to add petroleum coke to the list of fuels to be used in Units 1 & 2, which were then permitted to burn Syncoal and subbituminous coal. The alteration to MAQP #0513-03 limited the amount of petroleum coke that could be burned in Units 1 & 2. The conditions included in the permit for

the burning of petroleum coke were Section II.A.9, 10, 11, 12, and 13, Section II.B.3 and Section II.F. The permitting action was not considered a major modification under the PSD regulations because the facility was capable of accommodating petroleum coke. **MAQP #0513-04** replaced MAQP #0513-03.

On January 11, 2005, Arnold & Porter LLP, on behalf of PPLM, submitted a request for an administrative amendment to MAQP #0513-04. The request was to reduce the 3-hour rolling average SO_2 emissions limit (combined stack limit) for Units 3 & 4 from 4,273 lb/hr to 4,140 lb/hr.

The request was submitted in response to an outstanding concern of the Department and the Northern Cheyenne Tribe regarding emissions modeling for SO_2 increment consumption conducted for the issuance of the 1979 PSD permit for Units 3 & 4.

As part of the permit application, PPLM submitted AERMOD modeling to demonstrate compliance with the Class I PSD increment for SO_2 on the Northern Cheyenne Reservation. The Department, in consultation with the EPA Region VIII and the Northern Cheyenne Tribe, requested an additional sensitivity analysis be conducted at a 75% load scenario to comply with national modeling guidance and the model's demonstrated sensitivity to plume rise. PPLM submitted the sensitivity analysis demonstrating that the proposed SO_2 limit of 4,140 lb/hr would protect the 3-hour increment on the Northern Cheyenne Reservation.

In addition, PPLM submitted a request to the Department on November 20, 2000, to remove the ambient air quality monitoring requirements from MAQP #0513-04 for Units 3 & 4. Based on the request and additional information submitted on October 3, 2001, the Department approved the removal of the monitoring requirements. The Department sent an approval letter dated October 19, 2001, after PPLM demonstrated that the potential to cause a violation of the ambient standard was minimal at all sites and monitoring may be removed as provided for in the October 1998 Department guidance.

The permit format, language, and rule references were updated to reflect then-current Department permit format, language and rule references. **MAQP #0513-05** replaced MAQP #0513-04.

On October 23, 2007, PPLM submitted a request for an administrative amendment to MAQP #0513-05. The request was to incorporate revised NO_x standards for Units 3 & 4, as stipulated by Consent Decree CV-07-40-BLG-RFG-CSO entered on May 14, 2007. In addition, the Department was requested to clarify that the compliance demonstration for the revised limits would be demonstrated for an "operating day" firing any fuel, which would go beyond the Consent Decree requirements. **MAQP #0513-06** replaced MAQP #0513-05.

On December 31, 2008, PPLM submitted an application to modify MAQP #0513-06. The reason for the modification was to establish a mercury emission limit for Units 1-4, pursuant to ARM 17.8.771, and to provide an analysis of potential mercury control options including, but not limited to, boiler technology, mercury emission control technology, and any other mercury control practices. The application included a proposed mercury emission control strategy, a proposed mercury emission limit, and associated operating requirements for Units 1-4 in order to comply with ARM 17.8.771. The permit action updated rule references, permit format, and the emissions inventory. **MAQP #0513-07** replaced MAQP #0513-06.

On January 28, 2010, PPLM requested an administrative amendment to MAQP #0513-07. The reason for the amendment was to update a compliance date for NO_x emissions from Colstrip Unit 4 pursuant to its Consent Decree. A stipulation to the Consent Decree was filed on December 22, 2009 due to the occurrence of a Force Majeure incident, such that a new compliance date for installation and operation of the digital controls, low-NO_x burners and overfire air was established to be March 31, 2010 or seven days after the completion of NO_x emission controls tuning, whichever date was earlier. Tuning was completed on Unit 4 NO_x control systems on January 12, 2010. This amendment updated the permit to reflect the changes to the Consent Decree; specifically, the applicable compliance dates in Sections II.A.18 and 20 were updated to January 19, 2010. **MAQP #0513-08** replaced MAQP #0513-07.

On May 7, 2015, the Department received an administrative amendment request to change the company name from PPL Montana, LLC to Talen Montana, LLC. Except for the name, the company will continue with the same legal ownership interest and operator role concerning the Colstrip Steam Electric Station. Personnel, assets, and organization will continue as is. The MAQP was also updated to reflect the current Department format and references to applicable federal regulations. **MAQP #0513-09** replaced MAQP #0513-08.

Title V Operating Permits

On September 23, 1997, draft **Operating Permit #OP0513-00** was issued to MPC for Units 1 & 2. The permit contained the necessary requirements to comply with the operating permit program requirements and the acid rain permitting requirements.

On October 6, 1997 (prior to the permit becoming final and effective), **Operating Permit #OP0513-01** was issued to MPC to correct errors in Operating Permit #OP0513-00. The permit contained a typographical error in the expiration date. The Montana air quality regulation and the acid rain regulations both require the issuance of permit with a fixed term of 5 years. The permit effective date was January 1, 1998. The expiration date should have been December 31, 2002, instead of 2003. Operating Permit #OP0513-01 replaced Operating Permit #OP0513-00.

On April 12, 2005, the Department issued **Operating Permit #OP0513-02** final and effective. The permit was a renewal of Title V Operating Permit #OP0513-01 and Operating Permit #OP1187-00. The two permits, along with the Acid Rain Permit #AR1187-00, were combined as Operating Permit #OP0513-02. Changes in the permit included the addition of two small propane fueled emergency backup generators at the facility, and the removal of the auxiliary boiler for Units 3 & 4. Also, PPLM submitted a CAM Plan for particulate matter (PM) for Units 1-4 in accordance with 40 CFR Part 64. A summary of the CAM plan can be found in Appendix I of the Title V Operating Permit. A complete copy of the CAM plan can be obtained from the Department or the facility.

The Department included a compliance plan/schedule in Section III.A. The Department believed that PPLM had not been able to demonstrate compliance with protection of the 3-hour and 24-hour SO_2 increments (ARM 17.8.804 and ARM 17.8.820) on the Northern Cheyenne Reservation. The condition required PPLM to submit a narrative description of how the facility would demonstrate compliance with these increments and provide a schedule for achieving such compliance. Further information can be found in Section I.F. Compliance Demonstration. The permit was also updated to reflect current permit rule citations and format. Operating Permit #OP0513-02 replaced Operating Permits #OP0513-01, #OP1187-00, and #AR1187-00.

An administrative amendment to incorporate the changes made to Operating Permit #0513-05 was completed. The amendment included the reduction of the 3-hour rolling average SO_2 emissions limit (combined stack limit) for Units 3 & 4 from 4,273 lb/hr to 4,140 lb/hr. **Operating Permit #OP0513-03** replaced Operating Permit #OP0513-02.

On October 23, 2007, PPLM submitted a request to incorporate revised NO_x standards for Units 3 & 4 into PPLM's MAQP and Title V permits. The application was deemed complete on December 20, 2007. The request was to incorporate revised NO_x standards for Units 3 & 4, as stipulated by Consent Decree CV-07-40-BLG-RFG-CSO entered on May 14, 2007. In addition, the Department clarified that the compliance demonstration for the revised limits would be demonstrated for an "operating day" firing any fuel, which would go beyond the Consent Decree requirements. **Operating Permit #OP0513-04** replaced Operating Permit #OP0513-03.

As part of this significant modification, the Department made the following additional administrative corrections:

- Renumbered the emitting units (EU) in the table under Section II to reflect the current identifications;

- Added EU016, for the alternate fuel loading requirements;

- Removed EU012, for the scrubber relining process, since it was determined that this was a maintenance procedure involving air pollution control for EU001 – EU004 and was in fact an insignificant activity;

- Revised opacity requirements for Units 1 - 4 to include opacity of 20% or greater averaged over 6 consecutive minutes "*except for one 6-minute period per hour of not greater than 27% opacity*" consistent with the NSPS;

- Revised NO_x limitations under Section III.B.7 and III.C.10, to reflect conformance with Acid Rain provisions;

- Added Units 1 & 2 Syncoal and petroleum coke and scrubber operation requirements;

- Changed SO_2 reference test methods from Methods 6 & 6A to Methods 6 & 6C;

- Clarified continuous emission monitoring systems (CEMS) reporting (opacity, SO_2 and NO_x) to be quarterly for Unit 1 – 4. While the Department has historically requested quarterly reporting, the Title V permit was previously inconsistent. This included updates to EU001 – EU004 as well as Appendices E, F, and G;

- Clarified that compliance with the requirements in the consent decree entered 5/14/07 (Consent Decree CV-07-40-BLG-RFC-CSO0) is deemed compliance with the Units 3 & 4 requirements for Best Available Retrofit Technology (BART); and

- Renumbered CEMS regulatory requirements to reflect the revised NSPS – 40 CFR Part 60, Subpart Da.

On December 31, 2008, PPLM submitted an application to modify Operating Permit #OP0513-04 to include mercury emission limitations under ARM 17.8.771 that were incorporated into MAQP #0513-07 on April 9, 2009. On February 3, 2009, PPLM sent a letter to the Department requesting that Steve Christian be designated as an Alternate Responsible Official. Operating Permit #OP0513-04 was updated to reflect the new mercury control requirements and the new Alternate Responsible Official. **Operating Permit #OP0513-05** replaced Operating Permit #OP0513-04.

On January 28, 2009, PPLM requested an administrative amendment to Operating Permit #OP0513-05. The amendment was to update a compliance date for oxides of nitrogen (NO_x) emissions from Colstrip Unit 4 pursuant to Consent Decree CV-07-40-BLG-RFC-CSO (Consent Decree) entered May 14, 2007. A stipulation to the Consent Decree was filed on December 22, 2009 due to the occurrence of a Force Majeure incident, such that a new compliance date for installation and operation of the digital controls, low-NO_x burners and overfire air was established to be March 31, 2010, or seven days after the completion of NO_x emission controls tuning, whichever date is earlier. Tuning was complete on Unit 4 NO_x control systems on January 12, 2010. This amendment updated the permit to reflect the changes to the Consent Decree, specifically compliance dates for Unit 4 NO_x emissions at Sections III.C.14 and 16 were changed to January 19, 2010. **Operating Permit #OP0513-06** replaced Operating Permit #OP0513-05.

On March 25, 2010, the Department received an application for renewal of PPLM's Title V Operating Permit. The permit action was a renewal of Operating Permit #OP0513-06 for PPLM and included updates of current permit language and rule references used by the Department. During the renewal process, it became apparent that language and requirements included within a Findings of Fact and Conclusions of Law signed by the Board of Health and Environmental Sciences (BHES) on November 21, 1975 had not been included within the permit. The document contains information and requirements pertaining to the grant of conditional certification for Colstrip Units 3 and 4 made pursuant to Section 70-810 (L), Revised Code of Montana (R.C.M) 1947 of the Major Facility Siting Act (MFSA). The document states that "The applicant's will utilize only coal from the Rosebud seam. It will at no time exceed 1% inlet sulfur content. Daily testing of the coal and sulfur content will be required to effect that control." Operating Permit #OP0513-06 did not include a requirement specifying the coal source (i.e. Rosebud seam). Draft Operating Permit #OP0513-07 (and subsequent iterations) incorporated this condition as required under the requirements of Title V of the Federal Clean Air Act (FCAA).

The Department issued draft Operating Permit #OP0513-07 on May 17, 2011. Following the issuance of draft Operating Permit #OP0513-07, through the review of the administrative process of issuance, the Department determined that it had not met its obligation under ARM 17.8.1233, specifically giving notice to all "Affected States" (or entities, as is applicable in this case) as defined under ARM 17.8.1201(3). The Department did not notify the Northern Cheyenne or Crow Tribes during the issuance of draft Operating Permit #OP0513-07.

Further, following issuance of draft Operating Permit #OP0513-07, the Department received a substantial number of public comments as well as comments and additional information (i.e., an updated CAM plan) from PPLM. To address administrative notifications and substantive changes to the CAM plan, the Department made a determination that it was appropriate to re-issue the draft operating permit. This draft permit was assigned #OP0513-08. The Draft Title V Operating Permit #OP0513-08 was issued on August 10, 2012. The 30 day public comment period was set to end on September 10, 2012. On August 17, 2012, the Department received a

request to extend the public comment period on Draft Operating Permit #OP0513-08. The Department granted the request and approved a 14-day extension to the original 30-day public comment period on Draft Operating Permit #OP0513-08. In order to be considered, the comments on Draft Operating Permit #OP0513-08 were to be received by September 24, 2012. The Department prepared responses to the comments received on Draft Title V Operating Permit #OP0513-08 and included within this document at the time of issuance.

Operating Permit #OP0513-08 replaced Operating Permit #OP0513-06.

The Department opened up Operating Permit #OP0513-08 for the purpose of including permit conditions associated with the following:

- 40 CFR 63, Subpart UUUUU - *National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Coal and Oil-Fired Electric Generating Units*
- Montana's Regional Haze Federal Implementation Plan (FIP)

<u>40 CFR 63, Subpart UUUUU</u>

On February 16, 2012, EPA finalized the Mercury Air Toxics Standard (MATS) rule, also known as the Utility Maximum Available Control Technology (MACT) Standard for the utility sector. 40 CFR 63, Subpart UUUUU - *NESHAPs for Coal and Oil-Fired Electric Generating Units* was published final in the Federal Register (77 FR 9464) with an effective date of April 16, 2012.

<u>Montana's Regional Haze FIP</u>

One of the principal elements of the visibility protection provisions of the FCAA is the provision in 42 U.S.C. Sec. 7491 addressing the installation of Best Available Retrofit Technology (BART) for certain existing sources. The FCAA defines the sources potentially subject to BART as major stationary sources, including reconstructed sources, from one of 26 identified source categories which have the potential to emit 250 tons per year or more of any air pollutant, and which were placed into operation between August 1962 and August 1977. Units 1 and 2 within the PPLM Colstrip facility were included under the list of sources potentially subject to BART.

On September 18, 2012, EPA adopted, as a final regulation, revisions to 40 CFR Part 52, Approval and Promulgation of Implementation Plans; State of Montana; State Implementation Plan and Regional Haze FIP. See 77 FR 57863-57919. The final rule became effective October 18, 2012. The EPA promulgated the FIP to address regional haze in the State of Montana and this final rule making affected the PPLM Colstrip facility. The regulation requires that compliance with BART PM limitations, specifically for Units 1 and 2, must be achieved by November 17, 2012. Compliance with specific SO_2 and NO_x limitations set forth within the FIP must be achieved within 180 days after the effective date of the FIP where installation of additional controls is not necessary to comply with the BART limit; otherwise the compliance deadline is five years after the effective date of the FIP. For Units 1 and 2, additional controls would be necessary to comply with the SO_2 and NO_x limitations; therefore, the compliance date is October 18, 2017 for those pollutants.

Construction of Units 3 and 4 fell outside the applicability timeframe identified within the CAA; therefore, a BART analysis was unnecessary for those particular units. In addition, EPA did not require emission limits or controls pursuant to the Reasonable Progress portion of the Regional Haze FIP for Units 3 and 4.

This permit action incorporated requirements associated with 40 CFR Part 63, Subpart UUUUU as well as BART limitations for PM, SO_2, and NO_x established as a result of promulgation of Montana's Regional Haze FIP. **Operating Permit #OP0513-09** replaced Operating Permit #OP0513-08.

On February 12, 2014, PPLM agreed to settlement terms from a challenge of their Title V Operating Permit and petition to EPA by Sierra Club and Montana Environmental Information Center. PPLM agreed to utilize Particulate Matter Continuous Emission Monitoring Systems (PM CEMS) as another performance indicator to the Colstrip Particulate CAM Plan for Units 1 and 3 within six months after the date of the settlement agreement and for Units 2 and 4 within 12 months after the date of the settlement agreement. PPLM would install, operate, and maintain the PM CEMS in accordance with the terms established in the February 12, 2014 settlement agreement. The installation and use of PM CEMS as a Particulate CAM Plan performance indicator at Colstrip is done for the purposes of settlement of the challenge, and such use is not required under Title 40 CFR or "pursuant to other authority under the Clean Air Act or state or local law," as addressed in 40 CFR § 64.3(d).

On August 8, 2014, PPLM submitted to the Department the revised Particulate CAM Plan reflecting the PM CEMS as another performance indicator as required by the February 12, 2014 settlement agreement. The Department responded to the revised CAM Plan on September 8, 2014 with a written request for more information regarding the PM CEMS installation, ongoing QA/QC procedure, establishment of the initial correlations, establishment of the CAM plan excursion limits, and incorporation of ongoing emissions test data with the correlation equations. On September 18, 2014, PPLM responded to this information request with a letter addressing the topics identified by the Department. In addition, Department staff made an onsite visit to the Colstrip facility on September 29, 2014 for a demonstration of the PM CEMS operation, initial correlation calculation methodology, and overview of the recordkeeping and reporting to satisfy the conditions of the Settlement and for use of the monitors as a PM CAM Plan indicator. PPL provided additional information for data validation purposes on October 1 and October 3, 2014. In accordance with ARM 17.8.1225, the Department amended the Operating Permit to update the Particulate CAM plan in Appendix I of the Operating Permit to the version submitted by PPLM on August 8, 2014. **Operating Permit #OP0513-10** became effective on December 11, 2014, and replaced Operating Permit #OP0513-09.

On September 15, 2014, PPLM submitted a written request for a 1-year compliance extension from meeting the requirements for existing Electric Utility Steam Generating Units (EGU) of 40 CFR 63, Subpart UUUUU, commonly referred to as the "MATS" rule. PPLM provided additional information in an October 29, 2014 letter at the Department's request. As the administrator of the Federal Clean Air Act in Montana, the Department has the authority to grant up to one additional year for an emissions source to comply with a new standard if that time is deemed necessary for the installation of pollution controls. To demonstrate compliance with the standards PPLM proposed to use the weighted average emission rates from all 4 affected units at Colstrip as allowed for by the MATS rule. In order to achieve this, PPLM would enhance the pollution control scrubbers on Units 1 and 2 by installing sieve trays to improve their performance for each of the three main MATS pollutants. The company

proposed an installation schedule during times of preplanned unit outages in order to minimize the impact to their electric supply obligations. The Department announced its intention to conditionally approve the compliance deadline request via Public Notice in the December 20, 2014, issue of the *Billings Gazette* and accepted public comments on the proposed Title V permit conditions until January 2, 2015. Numerous comments were received both in support and in opposition to the compliance deadline extension request; however, no submittals contained information that impacted the Department's conclusion to conditionally approve the request as allowed for by the Federal Clean Air Act. On January 5, 2015, the Department issued PPLM a letter that granted their compliance deadline request. On January 20, 2015, PPLM submitted a request to update their Title V Operating Permit for a minor modification to incorporate the terms of the conditional approval as instructed by the letter granting the compliance deadline extension. **Operating Permit #OP0513-11** became final and effective on May 8, 2015, and replaced Operating Permit #OP0513-10.

On February 2, 2015, PPLM submitted to the Department Revision 3 of the Particulate Matter Compliance Assurance Monitoring Plan. The primary update in this Particulate CAM plan revision was the inclusion of the initial correlation equations for the PM CEMS in place on Units 2 and 4. The installation and use of PM CEMS as a Particulate CAM Plan performance indicator at Colstrip is done for the purposes of a February 12, 2014, settlement, and such use is not required under Title 40 CFR or "pursuant to other authority under the Clean Air Act or state or local law," as addressed in 40 CFR § 64.3(d).

On May 7, 2015, the Department received an administrative amendment request to change the company name from PPL Montana, LLC to Talen Montana, LLC. Except for the name, the company will continue with the same legal ownership interest and operator role concerning the Colstrip Steam Electric Station. Personnel, assets, and organization will continue as is.

This permit action changed the name from PPLM to Talen, as well as updated the PM CAM plan to Revision 3 to include the initial correlation equations for Units 2 and 4. **Operating Permit #OP0513-12** replaced Operating Permit #OP0513-11.

On July 28, 2015, Talen submitted an administrative amendment request to remove conditions and references related to the Montana Regional Haze Federal Implementation Plan (40 CFR 52.1396)). This was based on the Ninth Circuit Court's decision vacating the portions of the FIP setting emission limits and remanding it to EPA (Case 12-73710, 06/09/2015, ID: 9566382, DktEntry: 76-1). This permit action removed the emissions limits for particulate matter, oxides of nitrogen, and sulfur dioxide that were required by the FIP, as well as the corresponding monitoring, recordkeeping, and reporting elements. Operating Permit **#OP0513-13** replaced Operating Permit #OP0513-12.

D. Current Permit Action

On January 4, 2017, Talen submitted a Title V Operating Permit renewal application. Updates associated with this renewal include:

- Removal of EU005 – Auxiliary Propane Boiler (Units 1 & 2). This unit is permanently inoperable and is therefore removed from the permit.
- Removal of EU006 – Building Heating Boiler. This unit is permanently inoperable and is therefore removed from the permit.

- Updating the Pollution Control Device/Practice description for EU009 in Section II of the Operating Permit.
- Clarifying that the Colstrip Steam Electric Station is subject to the filterable particulate matter standards in 40 CFR 60, Subpart D and 40 CFR 63, Subpart UUUUU and ensuring that the term "filterable" appears throughout the permit when referring to these standards.
- Updating some references to the Montana Air Quality Permit that appear in the Operating Permit appendices.
- Including the terms of the Consent Decree filed September 6, 2016 (Case 1:13-cv-00032-DLC-JCL). These settlement terms include the requirement to cease operation of Units 1 & 2 no later than July 1, 2022 as well as SO_2 and NO_x emission limits that apply to Units 1 & 2 until their retirement.
- Removal of the contingency requirements and other references to the compliance deadline extension from permit conditions related to MATS because those requirements had been achieved and were no longer relevant to ongoing compliance with this regulation.

Operating Permit #OP0513-14 replaces Operating Permit #OP0513-13.

E. Taking and Damaging Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or *damaging* of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by Sections 2-10-101 through 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?

YES	NO	
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

F. Compliance Designation

The Talen - Colstrip facility was last inspected on May 19, 2016, with a Full Compliance Evaluation (FCE) finalized on July 19, 2016. The FCE covered an evaluation period from June 12, 2014 through June 30, 2016. The Compliance Monitoring Report (CMR) summarizing this FCE indicated that based upon the information gathered during the facility inspection, observations made at the facility, and review of facility records, the Colstrip facility was in compliance with the applicable air quality regulations for the period covered by the CMR. The Department is scheduled to conduct the next FCE at Talen during the summer of 2018.

SECTION II. SUMMARY OF EMISSION UNITS

A. Facility Process Description

Talen operates Units 1, 2, 3, & 4 tangential coal-fired boilers and associated equipment for the generation of electricity.

B. Emission Units and Pollution Control Device Identification

Emission Units ID	Description	Pollution Control Device/Practice
EU001	Unit #1 – Tangential Coal Fired Boiler	Wet Venturi Scrubber, Low NOx burner firing system and digital controls (Alstom LNCFS II ® System)
EU002	Unit #2 – Tangential Coal Fired Boiler	Wet Venturi Scrubber, Low NOx burner firing system and digital controls (Alstom LNCFS II ® System) modified with a Smartburn ® Low NOx combustion system
EU003	Unit #3 – Tangential Coal Fired Boiler	Wet Venturi Scrubber, advanced low NOx firing and digital controls for NOx control (Alstom LNCFS III® System) modified with a Smartburn ® Low NOx combustion system
EU004	Unit #4 – Tangential Coal Fired Boiler	Wet Venturi Scrubber, advanced low NOx firing and digital controls for NOx control (Alstom LNCFS III® System) modified with a Smartburn ® Low NOx combustion system
EU007	Coal Handling System (1 & 2)	Enclosed conveyors Dust suppressant Enclosed drop chute with elevation doors Dustless transfer chutes (certain locations)
EU008	Coal Handling System – (silos, distribution bin, surge pile tunnel, crushing and sampling house, and vacuum cleaning system) (3 & 4)	Enclosed conveyors Dust suppressant Enclosed downspout with elevation doors Dustless transfer chutes (certain locations)
EU009	Coal Piles (Wind Erosion)	Sealant on some storage piles, Dust suppression system, Enclosures, Wind fences on three coal piles, Water/chemical dust suppressant application through sprays or water trucks
EU010	Emergency Engines	Operation per NSPS and NESHAPS
EU012	Lime Handling System	Pneumatic Unloading

Emission Units ID	Description	Pollution Control Device/Practice
EU013	Plant Roads	Dust suppressant is applied annually and water is applied as needed
EU014	Process Ponds	Material is wet
EU015	Underground Gasoline Tank	None
EU017	Tangential Coal Fired Units 1-4 Mercury Emissions	Mercury oxidizer/sorbent
EU018	Mercury Oxidizer/Sorbent Handling Systems (Units 1-4)	Bin Vent Filter

C. Categorically Insignificant Sources/Activities

The following tables list the emission units included as insignificant in Talen's operating permit.

Emissions Unit ID	Description
IEU01	Hydrazine Bulk Storage Tank Vent
IEU02	LPG Vaporizer
IEU03	Unit #1 Cooling Tower
IEU04	Unit #2 Cooling tower
IEU05	Unit #3 Cooling Tower
IEU06	Unit #4 Cooling Tower
IEU07	Waste Site
IEU08	Boiler Chemical Cleaning Process
IEU09	LPG System Safety Valves and Vents
IEU10	Process Tank Vents
IEU11	Process Ponds
IEU12	Boiler Chemical Cleaning Process
IEU13	Diesel Tanks
IEU14	Scrubber Relining Process

Cooling Towers #3 and #4 were included in the original operating permit application as insignificant emission units. The Department questioned this determination and requested information from MPC (currently Talen). The facility submitted additional information on December 16, 1996, in response to a request for information on the operating permit application for Units 1 & 2, which included a statement that Units 1 & 2 do not use any chromium-based compounds in the cooling towers. This also holds true for Units 3 & 4. Since the cooling towers are not major sources or integral part of a major source as defined in Section 112(a)(1) of the Federal Clean Air Act, and chromium-based water treatments are not used, the Department agreed that the cooling towers are not subject to 40 CFR Part 63, Subpart Q. Therefore, IEU04, IEU05, IEU06, and IEU07 are considered insignificant emission units.

Two small propane fueled emergency backup generators were added to the insignificant unit list in Operating Permit #OP0513-02. One of these generators, the Weigh Scale Propane Emergency Generator, was permanently removed from service in July 2012. The other unit, the Security Building Propane Emergency Generator, was replaced with a larger unit in 2007 and later became subject to 40 CFR 63, Subpart ZZZZ. Therefore, this unit is now covered under EU010 Emergency Engines within the Operating Permit.

The scrubber relining process was removed as an emitting unit and moved to the insignificant unit list in Operating Permit #OP0513-04.

SECTION III. PERMIT CONDITIONS

A. Emission Limits and Standards

Tangential Coal Fired Boilers 1&2 (EU001 and EU002)

Units 1 & 2 (EU001 and EU002) are subject to 40 CFR Part 60, Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators for which Construction Commenced After August 17, 1971. Under this provision, EU001 and EU002 have a PM limit of 0.10 lb/MMBtu, a SO_2 limit of 1.2 lb/MMBtu heat input and a NO_x limit of 0.7 lb/MMBtu heat input.

The Department determined 40 CFR Part 60, Subpart D requirements for the monitors to be less stringent than the requirements of the Acid Rain Provisions contained in 40 CFR Part 75. The basis of this position is that the monitors required by 40 CFR Part 60, Subpart D are used to indicate compliance. The monitoring requirements of this Operating Permit are to be used to determine compliance. The following sections of 40 CFR Part 60 are not included in the Operating Permit as applicable requirements: 40 CFR 60.45(c) and 40 CFR 60.13(a) through (g) and (i) through (j). These requirements are replaced with the requirements contained in 40 CFR Part 75 and Talen is required to demonstrate compliance using the 40 CFR Part 75 CEMS for SO_2, NO_x, and opacity.

Units 1 & 2 are subject to 40 CFR Part 60, Subpart Y – Standards of Performance for Coal Preparation Plants. The facility shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements in Subpart Y. Subpart Y affected sources include the truck dump station, the lime silo bin vent, and any other affected source constructed or modified after October 24, 1974.

The Phase II permit requirements for SO_2 have been included in this Operating Permit.

Units 1 & 2 are subject to 40 CFR Part 63, Subpart UUUUU - NESHAPs for Coal and Oil-Fired Electric Generating Units, also referred to as the Mercury and Air Toxics Standards (MATS). The facility shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements in Subpart UUUUU. PPLM (currently Talen) requested, and the Department conditionally granted, a 1-year compliance extension for meeting the requirements of Subpart UUUUU as allowed for by the Federal Clean Air Act. To demonstrate compliance with the standards PPLM has proposed to use the weighted average emission rates from all 4 affected units at Colstrip as allowed for by the MATS rule. PPLM (currently Talen) needs to install scrubber modifications on Units 1 & 2 in order to achieve the desired compliance margins for the combined weighted average emission rates of the averaging group for demonstrating compliance with the MATS rule.

<u>NO_x History</u>

MPC (currently Talen) submitted a Phase I Permit Application, NO_x Compliance Plan to EPA Region VIII in August 1996. The application was submitted in accordance with the requirements of 40 CFR 76.9 for an early election unit with a deadline of submittal of January 1, 1997. Units 1 & 2 are Group 1, Phase II boilers. MPC (currently Talen) was required to comply with the emission limit of 0.45 lb/MMBtu of heat input on an annual average basis for tangentially fired boilers (40 CFR 76.5) beginning with January 1, 1997, emissions and ending with December 31, 2007.

In accordance with 40 CFR 76.8(d)(1)(ii), EPA was responsible for issuing the early NO_x reduction permit. The state has not been delegated this authority. Under 40 CFR 72.73(b)(2), the Department was required to include, not later than January 1, 1999, the acid rain permit requirements for nitrogen oxides. PPLM, under 40 CFR 76.9(b), submitted a Phase II NO_x permit application by January 1, 1998.

On January 1, 2008, the early election plan expired and PPLM became subject to the NO_x limitations for Group I, Phase II boilers under 40 CFR 76.7.

Per the Consent Decree filed September 6, 2016 (Case 1:13-cv-00032-DLC_JCL), Talen agreed to the following conditions:

a. Units 1 & 2 shall each achieve and maintain a 30-day rolling average emission rate for SO_2 of no greater than 0.40 lb/MMBtu.

b. Unit 1 shall achieve and maintain a 30-day rolling average emission rate for NO_x of no greater than 0.45 lb/MMBtu.

c. Unit 2 shall achieve and maintain a 30-day rolling average emission rate for NO_x of no greater than 0.20 lb/MMBtu.

d. On or before July 1, 2022, Talen and Puget Sound Energy shall cease combustion of fuel at and permanently cease operation of the boilers for Colstrip Power Plant Units 1 and 2 and shall not, thereafter, burn any fuel in or otherwise operate those boilers. This obligation applies to Talen and Puget Sound Energy (hereinafter, "Owners of Colstrip Units 1 and 2") as the current owners of Units 1 and 2. This obligation is transferable pursuant to section VI of Consent Decree in Case 1:13-cv-00032-DLC-JCL.

These emissions limits have been incorporated into Title V Operating Permit #OP0513-14 and will remain in effect until Units 1 & 2 cease operation in accordance with this Consent Decree. This Consent Decree included compliance demonstration methods for the SO_2 and NO_x emissions limits by requiring the use of CEMS according to the procedures of 40 CFR Part 75, except that emissions data need not be bias adjusted and the missing data substitution procedures of 40 CFR Part 75 shall not apply to such determinations. The Department has determined that the recordkeeping and reporting requirements that already apply to the SO_2 and NO_x CEMS in use for Units 1 & 2 and contained in Appendix H and Appendix G of the Title V Operating Permit #OP0513-14 are sufficient for administering these Consent Decree emissions limits.

Tangential Coal Fired Boilers 3 & 4 (EU003 and EU004)

In the original permit application, PPLM (currently Talen) identified the exhaust gas temperature, (190ºF) and the limit of 1.225 lb/MMBtu on SO_2 emissions as applicable requirements for EU003 and EU004. The minimum exhaust gas temperature and this SO_2 limit were not identified in any air quality permits issued by the Department or by the EPA for EU003 or EU004. These requirements come from the certificate issued as part of the Major Facility Siting Act (MFSA). The Department does not consider these requirements as applicable requirements for operating permit purposes. The MFSA certificate required the Department to issue an MAQP. Based on this, the Department's position is that all the applicable requirements for operating permit purposes are contained in the MAQP.

Talen's EU003 and EU004 are subject to 40 CFR 60.40 (Subpart D) since construction of the units began after 1971 and before September 18, 1978.

The Department determined Subpart D requirements for the monitors to be less stringent than the requirements of the Acid Rain Provisions contained in 40 CFR Part 75. The basis of this position is that the monitors required by 40 CFR Part 60, Subpart D are used to indicate compliance. The monitoring requirements of this Operating Permit are to be used to determine compliance. The following sections of 40 CFR Part 60 are not included in the Operating Permit as applicable requirements: 40 CFR 60.45(c) and 40 CFR 60.13(a) through (g) and (i) through (j). These requirements are replaced with the requirements contained in 40 CFR Part 75 and Talen is required to demonstrate compliance using the Part 75 CEMS for SO_2, NO_x, and opacity.

The Department has determined the monitoring requirements contained in Appendix III of the EPA PSD permit issued September 11, 1979, and Sections II.C.1.e., II.C.2., II.E.1., and II.E.2. in MAQP #1187-03 issued October 13, 1996, are duplicate requirements. The Department has determined compliance with 40 CFR Part 75 will be compliance with these requirements for the SO_2, NO_X, and opacity monitors.

The Phase II permit requirements for SO_2 have been included in this Operating Permit.

Units 3 & 4 are subject to 40 CFR Part 63, Subpart UUUUU - NESHAPs for Coal and Oil-Fired Electric Generating Units, also referred to as the Mercury and Air Toxics Standards (MATS). The facility shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements in Subpart UUUUU. PPLM requested, and the Department conditionally granted, a 1-year compliance extension for meeting the requirements of Subpart UUUUU as allowed for by the Federal Clean Air Act. To demonstrate compliance with the standards PPLM has proposed to use the weighted average emission rates from all 4 affected units at Colstrip as allowed for by the MATS rule. Talen needs to install scrubber modifications on Units 1 & 2 in order to achieve the desired compliance margins for the combined weighted average emission rates of the averaging group for demonstrating compliance with the MATS rule.

NO_x History

MPC (currently Talen) submitted a Phase I Permit Application, NO_x Compliance Plan to EPA Region VIII in August 1996. The application was submitted in accordance with the requirements of 40 CFR 76.9 for an early election unit with a deadline of submittal of January 1, 1997. Units 3 & 4 are Group 1, Phase II boilers. MPC (currently Talen) was required to comply with the emission limit of 0.45 lb/MMBtu of heat input on an annual average basis for tangentially fired boilers (40 CFR 76.5) beginning with January 1, 1997, emissions and ending with December 31, 2007.

In accordance with 40 CFR 76.8(d)(1)(ii), EPA was responsible for issuing the early NO_x reduction permit. The state has not been delegated this authority. Under 40 CFR 72.73(b)(2), the Department was required to include, not later than January 1, 1999, the acid rain permit requirements for nitrogen oxides. MPC (currently Talen), under 40 CFR 76.9(b), submitted a Phase II NO_X permit application by January 1, 1998.

On January 1, 2008, the early election plan expired and PPLM became subject to the NO_x limitations for Group I, Phase II boilers under 40 CFR 76.7.

Other than Units 1-4, no other emission units at the facility contain source specific NO_x emissions limits or conditions.

Emergency Diesel Engines (EU10)

This emitting unit is subject to provisions of 40 CFR Part 63, Subpart ZZZZ.

Tangential Coal Fired Units 1-4 Mercury Emissions

New mercury control requirements implemented under the preconstruction permitting program have required that PPLM (now Talen) obtain an MAQP to include mercury provisions under the Administrative Rules of Montana (ARM) 17.8.771 for the Colstrip Plant. On April 9, 2009, the Department issued MAQP #0513-07 with the following mercury limits and operating requirements, which were also reflected in Section III.L of Operating Permit #OP0513-05:

- Beginning January 1, 2010, facility-wide emissions of mercury (Hg) shall not exceed 0.9 pounds per trillion British thermal units (lb/TBtu), calculated as a rolling 12-month average (ARM 17.8.771).

- On each Unit 1-4, PPLM shall install a mercury control system that oxidizes and sorbs emissions of mercury. PPLM shall implement the operation and maintenance of mercury control systems on or before January 1, 2010 (ARM 17.8.771).

40 CFR 63, Subpart UUUUU – Mercury & Air Toxic Standards

Talen requested and the Department conditionally approved a 1 year extension to the initial compliance deadline of 40 CFR Part 63, Subpart UUUUU – *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units*, also referred to as the Mercury & Air Toxics Standard (MATS). As provided for in 40 CFR Part 63, Subpart A § 63.6(i)(4)(i)(A), Talen requested a deadline extension of 1 year because they would be unable to comply with MATS upon the initial compliance deadline for existing sources of April 16, 2015

due to the time required to complete the installation of the pollution control equipment that was necessary for achieving the standards on all of the affected units. Talen submitted the appropriate Title V operating permit application to include the deadline extension and any contingency conditions that the extension would be based upon, which the Department issued in Operating Permit #OP0513-13. The Department applied the 1-year compliance deadline exemption to the following dates describes in MATS:

a. 40 CFR § 63.9984(b) – the initial compliance deadline for an existing Electric Utility Steam Generating Unit (EGU) was extended to April 16, 2016. Any MATS provisions referring to the date in § 63.9984(b) would refer to this extended date.

b. 40 CFR § 63.10009(d)(1) and (2) – the date referenced in the criteria for an existing EGU to be eligible for inclusion in an emissions averaging group was extended to 180 days after April 16, 2016.

c. 40 CFR § 63.10009(e) – the date referenced in the criteria for demonstrating the ability of an emissions averaging group to be in compliance with MATS was extended to 180 days after April 16, 2016.

d. 40 CFR § 63.10009(f) – the date referenced for the due date for the submittal of the averaging plan and supporting data was extended to at least 120 days before April 16, 2016.

e. 40 CFR § 63.10009(g) – the date referenced for the beginning of the first available averaging period for determining the weighted average emission rate was extended to 30 (or 90 for mercury) days after February 16, 2016.

f. 40 CFR § 63.10009(j)(1)(i) – the date referenced in the criteria for identifying the applicable emissions level or control technology installed for each existing EGU in the emissions averaging group was extended to 180 days after February 16, 2016.

g. 40 CFR § 63.10009(j)(2) – the date referenced as a due date for the submittal of the emissions averaging plan to the Department for review and approval was extended to at least 120 days before April 16, 2016.

The granting of the 1-year extension for complying with MATS included the following contingencies for Units 1&2:

a. Talen shall complete the installation of the remaining sieve tray components for 2A and 2C scrubbers no later than June 2015. If the installation is delayed by events beyond Talen's control, Talen shall not operate 2A or 2C scrubbers until the remaining sieve tray components have been installed.

b. Talen shall notify the Department when the Unit 2 sieve tray modifications are complete.

c. Talen shall submit to the Department its emissions averaging plan for review and approval as described at 40 CFR § 63.10009(j)(2).

d. Talen shall begin onsite construction activities for the installation of the final sieve tray modification components on Unit 1 no later than March 20, 2016.

e. Talen shall notify the Department when the onsite construction activities have begun for the sieve tray modification for Unit 1 scrubber 1A.

f. Talen shall shut down Unit 1 as part of the installation of the final sieve tray modification components and not operate Unit 1 again until all of the sieve tray components have been installed.

g. Talen shall notify the Department when the Unit 1 sieve tray modifications are complete.

h. Talen shall include emissions data from Units 1 and 2 as part of the emissions averaging group for use in an initial compliance demonstration as described at 40 CFR § 63.10009(e), 40 CFR § 63.10009(g), and 40 CFR § 63.10011. Since completion of the Unit 1 sieve tray modifications is anticipated to occur after April 16, 2016, Talen will need to incorporate Unit 1 emissions data immediately upon startup for initial compliance demonstration purposes.

Units 3&4 included the following contingencies for the 1-year MATS compliance deadline extension:

a. Talen shall submit to the Department its emissions averaging plan for review and approval as described at 40 CFR § 63.10009(j)(2).

b. Talen shall include emissions data from Units 3 and 4 as part of the emissions averaging group for use in an initial compliance demonstration as described at 40 CFR § 63.10009(e), 40 CFR § 63.10009(g), and 40 CFR § 63.10011.

Talen met all of the contingency requirements for the 1-year MATS compliance deadline extension and demonstrated initial compliance by the extended deadline of April 16, 2016. The contingency requirements and other references to the compliance deadline extension were removed from permit conditions related to MATS as part of the issuance of #OP0513-14 because those requirements had been achieved and were no longer relevant to ongoing compliance with this regulation.

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements are contained in Operating Permits. In addition, when the applicable requirement does not require periodic testing or monitoring, a permit must require periodic monitoring that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance do not require the permit to impose the same level of rigor for all emission units. Furthermore, they do not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for an insignificant emissions unit is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo **(i.e., no monitoring**) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emission units.

This permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by Talen to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to determine compliance with the emission limits and standards.

Units 1-4 are required to maintain CEMS for SO_2, NO_x, CO_2, and opacity. In addition, the Department determined continuous monitoring is also required for stack gas temperature, stack gas moisture (where necessary), megawatt production, and Btu per hour (as a function of heat rate and megawatt production). Units 1-4 are also required to maintain Mercury Emissions Monitoring Systems (MEMS) for mercury as of January 1, 2010.

As agreed to in a February 12, 2014 settlement of a challenge to the Operating Permit by Sierra Club and Montana Environmental Information Center, Talen shall operate PM CEMS on Units 1-4 as a performance indicator of the Particulate CAM plan. The PM CEMS are to be installed, operated, and maintained in accordance with the terms of the February 12, 2014 settlement agreement. The installation and use of PM CEMS as a Particulate CAM Plan performance indicator at Colstrip is done for the purposes of settlement of the challenge, and such use is not required under Title 40 CFR or "pursuant to other authority under the Clean Air Act or state or local law," as addressed in 40 CFR § 64.3(d).

As part of the Title V Operating Permit Renewal application received on January 4, 2017, Talen provided an updated PM CAM plan. These updates are as follows.

- For the average opacity level indicator, the averaging time was reduced from a daily average to a 6-hour average. The shortened averaging time would provide a more timely notification to plant personnel that the pollution control device may not be operating properly.
- For the calibration of the PM CEMS, the practice of forcing the initial and ongoing linear regression curves through the origin to accommodate a zero level data point will be discontinued. Instead, Talen will now assume a zero level PM CEMS response and a corresponding zero level particulate matter level and use this value as one of the data points when developing an initial and ongoing correlation curves. While Talen is not required to operate their PM CEMS in accordance with federal regulations that pertain to PM CEMS that are used for compliance demonstration, estimating a zero or low level data point in this manner is consistent with those regulations.
- For the calibration of the PM CEMS, Talen will now plot the PM CEMS response as the X-axis and the Reference Method 5 PM test results as the Y-axis. While Talen is not required to operate their PM CEMS in accordance with federal regulations that pertain to PM CEMS that are used for compliance demonstration, plotting the data in this manner is consistent with those regulations.

- For the plumb bob Δp indicator, the indicator level was increased from 17 inches water column to 21 inches water column. In general, an increase in plumb bob Δp corresponds with increased scrubber performance in controlling PM emissions. Talen determined that 21 inches water column more closely represented the minimal level of normal scrubber operation than the previous indicator level and that a daily average of less than 21 inches water column would indicate a need to investigate the scrubber operation.
- The venturi spray system monitoring was removed as a CAM indicator because Talen determined that it is not an effective operational parameter to initiate further investigation of the control device. Operation of the scrubber is dependent on the venturi sprays being in service and if there are no venturi sprays, the scrubber is removed from service in a matter of minutes due to high temperatures and the unit is reduced in load accordingly.

The Department determined that fugitive emission units located at the facility require weekly visual inspections. The method of demonstrating compliance includes a requirement to observe specific sites and to log the information. The log will be kept at the plant site and be available for review during inspections. The compliance demonstration requires verification that visual inspections were performed and they were recorded and a log maintained.

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntarily conduct compliance testing to confirm its compliance status.

D. Recordkeeping Requirements

The permittee is required to keep, as a permanent business record, for at least five years following the date of the generation of the record, each record listed in the operating permit. All source test recordkeeping shall be performed in accordance with the Montana Source Test Protocol and Procedures Manual.

E. Reporting Requirements

Reporting requirements are included in the permit for each emissions unit, and Section V of the Operating Permit "General Conditions" explains the reporting requirements. However, Talen is required to semi-annual and annual monitoring reports to the Department, and to annually certify compliance with the applicable requirements contained in the permit. The reports must include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation. Talen is also required to submit quarterly reports as required by Section III.B, III.C, and Appendices E, F, G, H, I, and J of Operating Permit #OP0513-14.

F. Public Notice

In accordance with ARM 17.8.1232, a public notice was published in the *Billings Gazette* and *Forsyth Independent Press* newspapers on or before March 15, 2018. The Department provided a 30-day public comment period on the draft operating permit from March 15, 2018 to April 16, 2018. ARM 17.8.1232 requires the Department to keep a record of both comments and issues raised during the public participation process. The comments and issues received by April 16, 2018 will be summarized, along with the Department's responses, in the following table. All comments received during the public comment period will be promptly forwarded to Talen so they may have an opportunity to respond to these comments as well.

Summary of Public Comments

Person/Group Commenting	Comment	Department Response
No comments were received		

G. Draft Permit Comments

Summary of Permittee Comments

Permit Reference	Permittee Comment	Department Response
Page 1, Talen Montana, LLC mailing address	Talen Montana is in the process of vacating its Billings, MT headquarters. To ensure timely and reliable communication, this address should be changed to: Talen Montana, LLC Colstrip Steam Electric Station 580 Willow Avenue P.O. Box 38 Colstrip, MT 59323	The Department has made the requested change.
Page 3, Section A. Facility Wide Table of Conditions	Consent Decree in Case 1:13-cv-00032-DLC-JCL Filed 09/06/16 is also an applicable requirement.	The Department has added reference to this Consent Decree within this section.
Page 11, Conditions B.6 and B.7	The letters "ARM" in front of the referenced Federal Regulations appears to be in error.	The Department has removed "ARM" from these references to Federal Regulations.
Page 11, Condition B.8.e	The rule citation 40CFR52.21 does not appear to relate to the monitoring of these parameters. Reference to 40 CFR 75.59 seems to be more applicable.	The block of conditions at B.8 describe some specific requirements of 40 CFR 60, Subpart D which are applicable to Units 1 & 2. Section III.A of this TRD describes a Department determination that the CEMS on Units 1 & 2 should be operated according to 40 CFR Part 75 for demonstrating compliance. Therefore, the Department concurs with the comment that a rule reference of 40 CFR 75.59 is more

Permit Reference	Permittee Comment	Department Response
		appropriate and has updated the condition.
Page 22, Condition C.24.e	The rule citation 40CFR52.21 does not appear to relate to the monitoring of these parameters. Reference to 40 CFR 75.59 seems to be more applicable.	The block of conditions at C.24 describe some specific requirements of 40 CFR 60, Subpart D which are applicable to Units 3 & 4. Section III.A of this TRD describes some Department determinations that the CEMS on Units 3 & 4 should be operated according to 40 CFR Part 75 for demonstrating compliance. Therefore, the Department concurs with the comment that a rule reference of 40 CFR 75.59 is appropriate. However, this block of conditions at C.24 also appears in MAQP #0513-09 with the rule reference of 40 CFR 52.21. Therefore, the Department has maintained the 40 CFR 52.21 rule reference to remain consistent with the underlying MAQP condition but has added the 40 CFR 75.59 reference to the Operating Permit.
Page 28, Section III.D., Table of Conditions	Talen understands the reporting requirements for all conditions to be "semiannually"; therefore the horizontal line in that column appears to be unnecessary.	The Department has removed the horizontal line.
Page 53, Condition M.4	Per Consent Decree in Case1:13-cv-00032-DLC-JCL Filed 09/06/16, Talen is required to submit a renewal application 1 year before permit expiration. Since this is different than six months, our reading of this condition is that the Department is required to send Talen a notice of the due date of the renewal application at least one year before the due date of the renewal application. We would like the Department to confirm this understanding of the condition.	The Department's current practice is to provide the renewal application due date upon final issuance of a Title V Operating Permit. The renewal application due date is provided along with the other dates related to the permit issuance on Page i. The Department considers this listing of the renewal application due date at the beginning of the operating permit's 5 year term to satisfy the requirement to provide written notice at least one year prior to the due date. If Talen would like to receive a separate notification in addition to listing of the renewal application due date, the Department can do so upon request.
Appendix J, Page J-1, Section a.(3)	Change referenced section from III.J.1 to III.I.1.	The Department has made the correction.
Appendix J, Page J-3, Section c.(1)(d)	Change referenced section from III.J.1 to III.I.1.	The Department has made the correction.

Permit Reference	Permittee Comment	Department Response
Appendix J, Page J-3, Section c.(2)(a)	Change referenced section from III.J.1 to III.I.1.	The Department has made the correction.
TRD, Page 21, Section entitled "NOx History"	Talen interprets the last sentence reading, "No other emission units at the facility contain source specific emission limits or conditions." To apply only to *NOX* emission limits. We would like the Department to confirm this understanding.	Talen is correct in interpreting this statement to apply only to NOx emission limits. The Department has edited this sentence to clarify that other than Units 1-4, no other emissions units at the facility contain NO_x emission limits.
TRD, page 28, Section D. Risk Management Plan	The first and last sentences of this section contradict each other. Talen believes that while 40 CFR Part 68 applies to Units 1&2 and Units 3&4, the provisions of this regulation exempt these units from the requirements to have a Risk Management Plan because the facility has not had a threshold quantity of listed substance present. We ask the Department to clarify this section.	The Department has clarified this section to indicate that while 40 CFR Part 68 applies to these units, Talen is not required to have a Risk Management Plan because it has not had a threshold quantity of listed substances as described in that regulation.

Summary of EPA Comments

Permit Reference	EPA Comment	Department Response

SECTION IV. NON-APPLICABLE REQUIREMENTS

The Department reviewed the rules and regulations contained in Section 8 of the original application that PPLM (currently Talen) identified as non-applicable. The Department included those rules and regulations that it agreed were non-applicable to Units 3 & 4 in the Operating Permit in Section IV along with the reasons for non-applicability.

The Department did not, however, include as non-applicable all of the rules or regulations identified by PPLM (currently Talen). Rules and regulations that address procedural requirements and those that do not establish emission limits or applicable requirements on the facility were not included.

40 CFR Part 60, Subpart Da is not applicable because construction of the facility began prior to September 18, 1978, except the CEMS for Units 3 & 4 were determined to be subject to this NSPS.

SECTION V. OTHER CONSIDERATIONS

A. MACT Standards (40 CFR Part 63)

As of the date of issuance of this permit, the Department is unaware of any proposed or pending MACT standards, in addition to those that are mentioned, that are applicable to this facility.

B. NESHAP Standards (40 CFR Part 61)

As of the issuance of this permit, the Department is unaware of any proposed or pending NESHAP standards, in addition to those that are listed, that are applicable to this facility.

C. NSPS Standards

As of the issuance date of this permit, the Department is unaware of any future NSPS Standards that may be promulgated that will affect this facility.

D. Risk Management Plan

40 CFR Part 68 applies to Units 1 & 2 and Units 3 & 4. The facility must comply with 40 CFR Part 68 requirements no later than June 21, 1999; 3 years after the date on which a regulated substance is first listed under 40 CFR 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later. The facility has not had a threshold quantity of listed substance present as defined within this regulation and therefore has had no requirement for a Risk Management Plan.

E. Compliance Assurance Monitoring (CAM) Plan

An emitting unit located at a Title V facility that meets the following criteria listed in ARM 17.8.1503 is subject to ARM Title 17, chapter 8, subchapter 15 and must develop a CAM Plan for that unit:

- The emitting unit is subject to an emission limitation or standard for the applicable regulated air pollutant (unless the limitation or standard is exempt under ARM 17.8.1503(2));
- The emitting unit uses a control device to achieve compliance with such limit; and
- The emitting unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than major source thresholds.

The Talen Colstrip facility meets the above criteria for particulate matter (PM). Refer to Appendix I of Operating Permit #OP0513-14 for a summary of the PM CAM plan.

F. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule

On May 7, 2010, EPA published the "light duty vehicle rule" (Docket # EPA-HQ-OAR- 2009-0472, 75 FR 25324) controlling greenhouse gas (GHG) emissions from mobile sources, whereby GHG became a pollutant subject to regulation under the Federal and Montana Clean Air Act(s). On June 3, 2010, EPA promulgated the GHG "Tailoring Rule" (Docket # EPA-HQ-OAR-2009-0517, 75 FR 31514) which modified 40 CFR Parts 51, 52, 70, and 71 to specify which facilities are subject to GHG permitting requirements and when such facilities become subject to regulation for GHG under the PSD and Title V programs.

Under the Tailoring Rule, any PSD action (either the construction of a new major stationary source or a major modification at a major stationary source) taken for a pollutant or pollutants other than GHG that would become final on or after January 2, 2011, would be subject to PSD permitting requirements for GHG if the GHG increases associated with that action were at or above 75,000 TPY of carbon dioxide equivalent (CO_2e) and greater than 0 TPY on a mass basis. Similarly, if such action were taken, any resulting requirements would be subject to inclusion in the Title V Operating Permit. Facilities that hold Title V permits due to criteria pollutant emissions over 100 TPY would need to incorporate any GHG applicable requirements into their operating permits for any Title V action that would have a final decision made on or after January 2, 2011.

Starting on July 1, 2011, PSD permitting requirements would be triggered for a modification that was determined to be major under PSD based on GHG emissions alone, even if no other pollutant triggered a major modification. In addition, a source that is not considered a PSD major source based on criteria pollutant emissions would become subject to PSD review if its facility-wide potential emissions equaled or exceeded 100,000 TPY of CO_2 equivalent (CO_2e) and 100 or 250 TPY of GHG on a mass basis depending on its listed status in ARM 17.8.801(22) and it undertook a permitting action with increases of 75,000 TPY or more of CO_2e and greater than 0 TPY of GHG on a mass basis. With respect to Title V, a source not currently holding a Title V permit that has potential facility-wide emissions equal to or exceeding 100,000 TPY of CO_2e and 100 TPY of GHG on a mass basis would be required to obtain a Title V Operating Permit.

The Supreme Court of the United States (SCOTUS), in its *Utility Air Regulatory Group v. EPA* decision on June 23, 2014, ruled that the Clean Air Act neither compels nor permits EPA to require a source to obtain a PSD or Title V permit on the sole basis of its potential emissions of GHG. SCOTUS also ruled that EPA lacked the authority to tailor the Clean Air Act's unambiguous numerical thresholds of 100 or 250 TPY to accommodate a CO_2e threshold of 100,000 TPY. SCOTUS upheld that EPA reasonably interpreted the Clean Air Act to require sources that would need PSD permits based on their emission of conventional pollutants to comply with BACT for GHG. As such, the Tailoring Rule has been rendered invalid and sources cannot become subject to PSD or Title V regulations based on GHG emissions alone. Sources that must undergo PSD permitting due to pollutant emissions other than PSD may still be required to comply with BACT for GHG emissions.