May 23, 2022

Gordon Criswell – Director, Environmental & Compliance
Talen Montana, LLC
Colstrip Steam Electric Station
P.O. Box 38
580 Willow Avenue
Colstrip, MT 59323

Sent via email: Gordon.Criswell@talenenergy.com

RE: Final Permit Issuance for MAQP #0513-16

Dear Mr. Criswell:

Montana Air Quality Permit (MAQP) #0513-16 is deemed final as of May 21, 2022, by DEQ. This permit is for Colstrip Steam Electric Station, a coal-fired electric generating facility. All conditions of the Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For DEQ,

Julie A. Merkel
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626

Ed Warner
Lead Engineer – Permitting Services Section
Air Quality Bureau
(406) 444-2467

Montana Department of Environmental Quality
Air, Energy & Mining Division
Air Quality Bureau

Montana Air Quality Permit #0513-16

Talen Montana, LLC
Colstrip Steam Electric Station
Section 34, Township 2 North, Range 41 East, in Rosebud County
P.O. Box 38
580 Willow Avenue
Colstrip, MT 59323

May 21, 2022

MONTANA AIR QUALITY PERMIT

Issued To: Talen Montana, LLC
Colstrip Steam Electric Station
580 Willow Ave., P.O. Box 38
Colstrip, MT 59323

MAQP: #0513-16
Application Complete: 03/23/2022
Preliminary Determination Issued: 04/14/2022
Department's Decision Issued: 05/05/2022
Permit Final: 05/21/2022

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Talen Montana, LLC (Talen), Colstrip Steam Electric Station (CSES), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Permitted Facility

Talen operates CSES Units 3 and 4 tangential coal-fired boilers and associated equipment for the generation of electricity. The Talen CSES is located in Section 34, Township 2 North, Range 41 East, in Rosebud County, Montana. A complete listing of facility equipment is found in the Permit Analysis.

B. Current Permit Action

On March 23, 2022, the Montana Department of Environmental Quality (DEQ) received a complete MAQP application from Talen requesting to modify the MAQP for CSES. Talen is proposing to use a dry disposal technology adjacent to the existing paste plant to convert to a "non-liquid" disposal system for coal combustion residuals (CCR) material generated by Units 3 and 4.

On April 7, 2022, DEQ received an administrative amendment request from Talen to remove language associated with the operation of Units 1 and 2. Units 1 and 2 were permanently shut down and decommissioned on January 2, 2020, and January 3, 2020, respectively. In addition, conditions related to temporary equipment that was in use to support the decommissioning of Units 1 and 2 were removed.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. Talen shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

2. Talen shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968,

that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

3. Talen shall not cause or authorize emissions to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

4. Talen shall treat all unpaved portions of the access roads, parking lots, and general plant area with fresh water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.3 (ARM 17.8.749).

5. Talen shall maintain and operate skirting, minimal volumes, and small drop distances at off-loading systems and bin vent filter systems to provide the maximum air pollution control for that which the systems were designed (ARM 17.8.752).

6. Emissions of particulate matter from either Units 3 or 4 shall not exceed the following limits (ARM 17.8.749):

   a. 0.05 pounds per million British thermal units (lb/MMBtu); and
   b. 379 pounds per hour (lb/hr).

7. Emissions of sulfur dioxide (SO_2) from either Units 3 or 4 shall not exceed the following limits (these are stack emission limits; no percent sulfur reduction limit applies) (ARM 17.8.749):

   a. 761 lb/hr, averaged over any rolling 30-day period, calculated each day at midnight, using hourly data calculated each hour on the hour;

   b. 0.18 lb/MMBtu heat input, averaged over any calendar-day, not to be exceeded more than once during any calendar-month;

   c. 1363 lb/hr, averaged over any calendar-day, not to be exceeded more than once during any calendar-month; and

   d. 1% sulfur content of the coal (as received).

8. Talen shall be limited to 4,140 lb/hr of SO_2, averaged over any 3-hour rolling period from both Units 3 and 4 stacks combined (ARM 17.8.749).

9. Emissions of NOx from either Unit 3 or 4 shall not exceed the following limits:

   a. 0.70 lb/MMBtu heat input when burning coal. If fuel other than coal is burned, the allowable NOx emission rate shall be determined by the following equation (40 CFR 60, Subpart D):

$$E = \frac{0.2x + 0.3y + 0.7z}{x + y + z}$$

Where: E is the allowable emissions in lb/MMBtu heat input,
x is the fraction of total heat input derived from gaseous fuels,
y is the fraction of total heat input derived from liquid fuels,
z is the fraction of total heat input derived from solid fuels.

b. 5,301 lb/hr.

10. Beginning January 1, 2008, for Unit 3 and January 19, 2010, for Unit 4, Talen shall not exceed any of the following NOx emission limits from Units 3 or 4 (ARM 17.8.749 and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07):

    a. 30-day rolling average emission rate of:

        i. 0.18 lb/MMBtu weighted average for each hour that either unit is operating above 400 gross megawatts (MW); and

        ii. 0.30 lb/MMBtu weighted average for each hour that either unit is operating at or below 400 gross MW;

    b. 1,363 lb/hr 30-day rolling average emission rate for each unit;

    c. 24-hour average emission rate of:

        i. 0.25 lb/MMBtu weighted average for each hour that either unit is operating above 400 gross MW; and

        ii. 0.30 lb/MMBtu weighted average for each hour that either unit is operating at or below 400 gross MW;

    d. 1,893 lb/hr 24-hour average emission rate for each unit.

    For the purposes of Section II.A.10, if a unit is operating above 400 MW for part of one hour and at or below 400 MW for the remainder of that hour, the applicable emissions limits shall be based on the average load for the hour. In addition, the emission rates for Section II.A.10 limits are considered for an operating day in which any fuel is combusted in the unit.

11. Talen shall operate digital controls, low-NOx burners and overfire air on Unit 3 sufficient to meet the emissions limits in Section II.A.10 (ARM 17.8.749 and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07).

12. By January 1, 2009, Talen shall complete the final design and by January 19, 2010, Talen shall install and operate digital controls, low-NOx burners and overfire air on Unit 4 sufficient to meet the Unit 4 emissions limits in Section II.A.18 (ARM 17.8.749 and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07 with stipulation filed 12/22/2009).

13. The Unit 3 and 4 NOx emission limits specified in Section II.A.10 shall apply at all times, including periods of start-up, shutdown, load fluctuation, maintenance and malfunction, regardless of cause (ARM 17.8.749 and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07).

14. Emissions from either Unit 3 or 4 shall not exhibit an opacity of 20% or greater over any 6-minute period. The opacity provisions of 40 CFR 60.42 are applicable (ARM 17.8.340).

15. Units 3 and 4 shall each be limited to a maximum heat input of 6.63 x 107 MMBtu over any rolling 12-month period (ARM 17.8.749).

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

$$Facility\text{-}wide\ Hg\ emissions = \frac{\left(Unit3_{lbHg/TBtu} + Unit4_{lbHg/TBtu}\right)}{2}$$

Where:

$Unit3_{lbHg/TBtu}$ = rolling 12-month mercury emissions from Unit 3 as an average of the last 12 individual calendar monthly averages.

$Unit4_{lbHg/TBtu}$ = rolling 12-month mercury emissions from Unit 4 as an average of the last 12 individual calendar monthly averages.

17. On Unit 3 and 4, Talen shall install a mercury control system that oxidizes and sorbs emissions of mercury. Talen shall implement the operation and maintenance of mercury control systems on or before January 1, 2010 (ARM 17.8.771).

18. Talen shall comply with all applicable standards and limitations, and the applicable operating, reporting, recordkeeping, and notification requirements contained in 40 CFR Part 75 (ARM 17.8.771).

19. Talen shall operate and maintain the mercury oxidizer/sorbent handling systems, including the bin vent filter systems, to provide the maximum air pollution control for that which the systems were designed (ARM 17.8.749).

20. The mechanical evaporators at the wastewater pond site each shall not exceed 2000 hours of operation during any rolling 12-month time period. This mechanical evaporation system shall consist of no more than (ARM 17.8.749 and 17.8.752):

    a. 8 Minetek (or demonstrated equivalent) evaporator units.

    b. 31 Slimline (or demonstrated equivalent) evaporator units.

21. Talen shall maintain wind fences at the wastewater pond site as shown in Attachment 3, at a minimum or to a greater extent, to provide containment of particulate matter generated from the evaporated water plumes (ARM 17.8.749).

22. Talen shall operate the mechanical evaporation system at the wastewater pond site using best management practices, including specific operational controls based on wind speed, wind direction, ambient air temperature, and relative humidity to help contain the potential evaporation drift within the pond. The evaporators shall not be operated during meteorological conditions that fall outside of the following operational parameters (ARM 17.8.752):

Minetek Operational Parameters

Wind Direction			N	NE	E	SE	S	SW	W	NW
Max Wind Speed (mph)			25	20	5	5	10	10	25	25
Directional Parameters		Center (°)	0	45	90	135	180	225	270	315
		Min (°)	337.5	22.5	67.5	112.5	157.5	202.5	247.5	292.5
		Max (°)	22.5	67.5	112.5	157.5	202.5	247.5	292.5	337.5
Wind Speed (mph)	<=5	Max Humidity (%)	90	90	60	60	60	60	90	90
		Min Temp. (°F)	47	47	47	47	47	47	47	47
	<=10	Max Humidity (%)	90	90					90	90
		Min Temp. (°F)	47	47					47	47
	<=15	Max Humidity (%)	90	90					90	90
		Min Temp. (°F)	47	47					47	47
	<=20	Max Humidity (%)	90	90					90	90
		Min Temp. (°F)	47	47					47	0
	<=25	Max Humidity (%)	90						90	90
		Min Temp. (°F)	47						47	47

Slimline Operational Parameters

Wind Direction (Blowing From)			N	NE	E	SE	S	SW	W	NW
Max Wind Speed (mph)			20	5	5	5	17	20	20	20
Directional Parameters		Center (°)	0	45	90	135	180	225	270	315
		Min (°)	337.5	22.5	67.5	112.5	157.5	202.5	247.5	292.5
		Max (°)	22.5	67.5	112.5	157.5	202.5	247.5	292.5	337.5
Wind Speed (mph)	<=5	Max Humidity (%)	70	65	65	65	65	70	65	65
		Min Temp. (°F)	50	50	50	50	50	50	50	50
	<=10	Max Humidity (%)	65				60	65	60	60
		Min Temp. (°F)	50				55	50	55	55
	<=15	Max Humidity (%)	60				60	60	60	60
		Min Temp. (°F)	55				55	55	55	55
	<=20	Max Humidity (%)	55					60	55	60
		Min Temp. (°F)	60					55	60	55
	<=25	Max Humidity (%)								
		Min Temp. (°F)								
	<=30	Max Humidity (%)								
		Min Temp. (°F)								

23. The Groundwater Capture and Treatment System (GWCTS) Boiler shall only be fired on natural gas or propane and not exceed 64.2 MMBtu/hr heat input capacity (ARM 17.8.749).

24. The GWCTS Boiler shall utilize Low NO_x burners and flue gas recirculation (ARM 17.8.752).

25. The Dry Disposal System shall utilize the following measures to control fugitive PM emissions from the material handling, transportation, and storage of the dried waste material (ARM 17.8.752):

    a. Material transfers like conveyor drops shall have watering as needed or have partial enclosures to ensure no offsite fugitive dust.

    b. Plant roads for transporting dried waste material to the storage pile shall have water and/or chemical dust suppressant applied as necessary, as well as require that haul trucks comply with a posted speed limit not to exceed 25 miles per hour (mph).

    c. Storage piles shall have chemical dust suppressant applied as necessary to inactive areas so that a surface crust is formed. Active areas shall be compacted, and chemical dust suppressant applied as necessary.

26. Talen shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 63, Subpart UUUUU. Subpart UUUUU affected sources include Units 3 and 4 (ARM 17.8.342 and 40 CFR 63, Subpart UUUUU).

27. Talen shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 63, Subpart ZZZZ. Subpart ZZZZ applies to the emergency diesel generators (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. Talen shall conduct annual stack tests, or another testing/monitoring schedule as may be approved by DEQ, for total particulate and demonstrate compliance with the limitations in Section II.A.6. The testing shall be conducted in accordance with 40 CFR 60.46(b)(2)(i). Demonstrations of compliance with the opacity limits, if required during these tests, shall be based on certified opacity monitors unless otherwise specified by DEQ (ARM 17.8.104 and ARM 17.8.105).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

3. DEQ may require further testing (ARM 17.8.105).

C. Monitoring Requirements for Units 3 and 4

1. Talen shall install, operate, calibrate, and maintain continuous emission monitoring systems (CEMS) for the following:

a. A CEMS for the measurement of SO2 shall be operated on each stack (ARM 17.8.340 and 40 CFR 60.45).

b. A CEMS for the measurement of NOx shall be operated on each stack (ARM 17.8.340 and 40 CFR 60.45).

c. A CEMS for measurement of carbon dioxide or oxygen shall be operated on each stack (ARM 17.8.340 and 40 CFR 60.45).

d. A CEMS for the measurement of opacity shall be operated on each stack (ARM 17.8.340 and 40 CFR 60.45).

e. Continuous monitoring for stack gas temperature, stack gas moisture (where necessary), megawatt production, and Btu per hour (as a function of heat rate and megawatt production) shall be performed on each unit (40 CFR 52.21).

f. Talen shall maintain the data acquisition system such that load data in MW is recorded no less than once per minute (ARM 17.8.749 and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07).

2. All continuous monitors shall be operated, excess emissions reported, and performance tests conducted in accordance with the requirements of 40 CFR Part 60, Subpart D, 40 CFR 60.7, 60.8, 60.11, 60.13, and 40 CFR 60,

Appendix B Performance Specifications #1, #2 and #3, subject to the following:

a. The requirements of 40 CFR 60.48da - Compliance Provisions (40 CFR 60, Subpart Da) shall apply to Units 3 and 4 (40 CFR 52.21).

b. The requirements of 40 CFR 60.49da - Emission Monitoring (40 CFR 60, Subpart Da) shall apply to Units 3 and 4 (40 CFR 52.21).

c. The requirements of 40 CFR 60.50da - Compliance Determination Procedures and Methods (40 CFR 60, Subpart Da) shall apply to Units 3 and 4 (40 CFR 52.21).

d. The requirements of 40 CFR 60.51da - Reporting Requirements (40 CFR 60, Subpart Da) shall apply to Units 3 and 4 (40 CFR 52.21).

e. Talen shall operate the required monitors in accordance with the CEMS quality assurance (QA) plan submitted to the Environmental Protection Agency (EPA) in May 1998. This plan may be revised by Talen with the approval of DEQ (40 CFR 52.21).

f. Compliance requirements of 40 CFR 60.11(a) shall be amended per Section II.D (40 CFR 52.21).

g. Each monitor modular part (i.e., opacity, SO_2, NOx, diluent, and data handling units) of a continuous monitoring system shall attain a minimal annual on-line availability time of 85% and a minimal quarterly availability time of 75% for each individual quarter. Should any given yearly or quarterly availability time drop below these respective limits, Talen shall, within 90 days of the end of the first unexcused year or quarter in question, cause to be delivered to the facility factory-tested and compatible monitor module(s) able to replace the monitor module(s) that had unacceptable availability times, unless Talen can excuse the unacceptable performance by demonstrating within 10 calendar-days of the end of such year or quarter, that the reason for the poor availability time has not caused another previous occurrence of unacceptable availability, and the reason for the particular unavailability in question will be prevented in the future by a more effective maintenance/inventory program (40 CFR 52.21).

h. Upon two non-overlapping periods of unexcused, unacceptable availability of a module (yearly, quarterly, or combination), Talen shall (within 30 days of the end of the year or quarter of the second unacceptable availability period) install, calibrate, operate, maintain, and report emission data using the second compatible module required by Section II.C.2.g. above (40 CFR 52.21).

i. Within 60 days of the end of the year of the quarter causing the second unacceptable availability period under Section II.C.2.h., Talen shall conduct a complete performance evaluation of the entire CEMS for that

pollutant under 40 CFR 60.13(c) showing acceptability of the entire CEMS in question unless the module was the data handling unit alone. Within 75 days of the end of the year or quarter causing the second unacceptable availability period, Talen shall furnish DEQ with a written report of such evaluations and tests demonstrating acceptability of the system (40 CFR 52.21).

j. In the event of a conflict between the requirements of the referenced federal regulations and the requirements of this permit, the requirements of this permit shall apply.

D. Compliance

1. Compliance with the particulate emission limits in Section II.A.6 shall be based on the source tests required by Section II.B.1 (ARM 17.8.105).

2. Compliance with the SO_2 emission limits in Section II.A.7 and 8 shall be based on the CEMS required by Section II.C.1.a and from any stack tests required by the state under the authority of ARM 17.8.104 (ARM 17.8.105 and 40 CFR 52.21).

3. Compliance with the SO_2 emission limit in Section II.A.7.d shall be based on available daily composite coal samples as measured by 40 CFR 60, Appendix A, Method 19 or another sampling schedule as approved by DEQ. Records shall be maintained according to II.E.5 (ARM 17.8.749).

4. Compliance with the NOx emission limits in Section II.A.9 shall be based on data from the CEMS required by Section II.C.1.b and from any stack tests required by the state under the authority of ARM 17.8.104 (ARM 17.8.105 and 17.8.104).

5. Compliance with the NOx emission limits in Section II.A.10 shall be based on data from the CEMS required by Section II.C.1.b and from any stack tests required by the state under the authority of ARM 17.8.104. The reference methods for determining NOx emission rates shall be those specified in 40 CFR Part 60. The NOx CEMS shall be used in accordance with the operating requirements in 40 CFR Part 75 (ARM 17.8.104, 17.8.105, and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07).

6. Compliance with the opacity limit in Section II.A.14 shall be based on data from the opacity monitor required by Section II.C.1.d and visual emissions observations in accordance with 40 CFR, Part 60, Appendix A, Method 9 Visual Determination of Opacity of Emissions from Stationary Sources (ARM 17.8.105).

7. Compliance with the heat input limit of Section II.A.15 shall be determined based on the total tons of coal combusted in each unit multiplied by a representative average British thermal unit (Btu) content for the coal (ARM 17.8.105).

8. Enforcement of Section II.A.16, where applicable, shall be determined by utilizing data taken from Mercury Emission Monitoring Systems (MEMS), as required in Section II.F, installed on Units 3 and 4. The MEMS shall be comprised of equipment as required in 40 CFR 75.81(a) and defined in 40 CFR 72.2. The above does not relieve Talen from meeting any applicable requirements of 40 CFR Part 75. Testing requirements shall be as specified in 40 CFR Part 75, Section II.D, and II.F of MAQP #0513-11 (ARM 17.8.771).

9. Talen shall document, by month, the hours of operation for each of the mechanical evaporators at the wastewater pond site. By the 25th day of each month, Talen shall total the hours of operation for each evaporator for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.20 (ARM 17.8.749).

10. Talen shall document the meteorological conditions corresponding to the operational controls as described in Section II.A.22 while the mechanical evaporators are operating. This information will be used to demonstrate compliance with the requirement to not operate the evaporators during meteorological conditions that fall outside of the operational controls as described in Section II.A.22 (ARM 17.8.749).

E. Operational and Emission Inventory Reporting Requirements

1. Talen shall submit a written report of excess emissions and monitoring system performance as required by 40 CFR 60.7(c). For the purposes of the report, excess emissions shall be defined as any 6-minute, 3-hour, 24-hour or 30-day period, as applicable, in which the average emissions of the period of concern for opacity, NOx, or SO_2 as measured by the CEMS, exceed the applicable emission limitation in Section II.A. For the purposes of reporting excess emissions for the periods:

   a. 6-minute average applies to each 6-minute non-overlapping period starting on the hour.

   b. 3-hour period applies to any running 3-hour period containing three contiguous 1-hour periods, starting on the hour.

   c. 24-hour period applies to any calendar-day.

   d. 30-day period applies to any running period of 30 consecutive calendar-days.

2. Talen shall submit the following information along with the excess emission reports:

   a. The fuel feed rate and associated production figures corresponding to all periods of excess emissions (40 CFR 52.21);

b. The proximate analysis of the weekly composite sample of the fuel fired in each unit (40 CFR 52.21); and

c. Date, time, and initial calibration values for each required calibration adjustment made on any monitor during the quarter, including any time that the monitor was removed or inoperable for any reason (40 CFR 52.21).

3. Talen will meet the performance standards and emission limitations established under Section II.A.10, to the number of significant digits provided. Talen shall report data to at least the number of significant digits in which the standard or limit is expressed (ARM 17.8.749 and Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07).

4. Talen shall document, by month, the total Btu value of the fuel combusted in Units 3 and 4, based on the total tons of coal combusted in each unit multiplied by a representative average Btu content for the coal. By the 25th day of each month, Talen shall calculate the total amount of fuel combusted in Units 3 and 4 during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.15. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

5. Talen shall supply DEQ with annual production information for all emission points, as required, by DEQ in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to DEQ by the date required in the emission inventory request. Information shall be in the units required by DEQ. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

6. Talen shall notify DEQ of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include the addition of a new emissions unit, change of control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to DEQ, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

7. All records compiled in accordance with this permit must be maintained by Talen as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by DEQ, and must be submitted to DEQ upon request (ARM 17.8.749).

8. All records compiled in response to Consent Decree CV-07-40-BLG-RFC-CSO shall be retained (Consent Decree CV-07-40-BLG-RFC-CSO entered 5/14/07):

   a. Until December 31, 2020, for records concerning physical or operational changes undertaken in accordance with the require elements contained in Section II.A.10 – II.A.13; and

   b. Until December 31, 2017, for all other records.

9. Talen shall report to DEQ within 30 days after the end of each calendar quarter, as described in Attachment 2 (ARM 17.8.749):

   a. For Units 3 and 4, the monthly average lb/TBtu mercury emission rate, for each month of the quarter;

   b. For Units 3 and 4, the 12-month rolling average lb/TBtu mercury emission rate, for each month of the reporting quarter;

   c. The 12-month facility-wide rolling average lb/TBtu mercury emission rate, calculated according to II.A.16, for each month of the reporting quarter; and

   d. For Units 3 and 4, the number of operating hours that the MEMS were unavailable or not operating within quality assurance limits (monitor downtime).

   e. The first quarterly report must be received by DEQ by April 30, 2010, but shall not include 12-month rolling averages. The first quarterly report to include 12-month rolling averages must be received by DEQ by January 30, 2011.

F. Mercury Emissions Monitoring Systems

A MEMS shall be installed, certified, and operating on Unit 3 and 4 stack outlets on or before January 1, 2010. MEMS shall comply with the applicable provisions of 40 CFR Part 75. The monitors shall also conform with requirements included in Attachment 2 (ARM 17.8.771).

SECTION III: General Conditions

A. Inspection – Talen shall allow DEQ's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (MEMS, continuous emission monitoring system – CEMS, continuous emission rate monitoring system – CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Talen fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Talen of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by DEQ's decision may request, within 15 days after DEQ renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay DEQ's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of DEQ's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, DEQ's decision on the application is final 16 days after DEQ's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by DEQ at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Talen may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Attachment 2 (MEMS)

MEMS

a. For Units 3 and 4, Talen shall install, calibrate, certify, maintain, and operate a MEMS to monitor and record the rate of mercury emissions discharged into the atmosphere from all mercury emitting generating units (units) as defined in the Administrative Rules of Montana 17.8.740.

(1) The MEMS shall be comprised of equipment as required in 40 CFR 75.81(a) and defined in 40 CFR 72.2.

(2) The MEMS shall conform to all applicable requirements of 40 CFR Part 75.

(3) The MEMS data will be used to demonstrate compliance with the emission limitations contained in Section II.A.16.

b. Talen shall prepare, maintain and submit a written MEMS Monitoring Plan to DEQ.

(1) The monitoring plan shall contain sufficient information on the MEMS and the use of data derived from these systems to demonstrate that all the gaseous mercury stack emissions from each unit are monitored and reported.

(2) Whenever Talen makes a replacement, modification, or change in a MEMS or alternative monitoring system under 40 CFR 75 subpart E, including a change in the automated data acquisition and handling system (DAHS) or in the flue gas handling system, that affects information reported in the monitoring plan (e.g. a change to a serial number for a component of a monitoring system), then the owner or operator shall update the monitoring plan.

(3) If any monitoring plan information requires an update pursuant to Section b.(2), submission of the written monitoring plan update shall be completed prior to or concurrent with the submittal of the quarterly report required in c. below for the quarter in which the update is required.

(4) The initial submission of the Monitoring Plan to DEQ shall include a copy of a written Quality Assurance/Quality Control (QA/QC) Plan as detailed in 40 CFR 75 Appendix B, Section 1. Subsequently, the QA/QC Plan need only be submitted to DEQ when it is substantially revised. Substantial revisions can include items such as changes in QA/QC processes resulting from rule changes, modifications in the frequency or timing of QA/QC procedures, or the addition/deletion of equipment or procedures.

(5) The Monitoring Plan shall include, at a minimum, the following information:

(a) Facility summary including:

(i) A description of each mercury emitting generating unit at the facility.

(ii) Maximum and average loads (in megawatts (MW)) with fuels combusted and fuel flow rates at the maximum and average loads for each unit.

(iii) A description of each unit's air pollution control equipment and a description of the physical characteristics of each unit's stack.

(b) Mercury emission control summary including a description of control strategies, equipment, and design process rates.

(c) MEMS description, including:

(i) Identification and description of each monitoring component in the MEMS including manufacturer and model identifications; monitoring method descriptions; and normal operating scale and units descriptions. Descriptions of stack flow, diluent gas, and moisture monitors (if used) in the system must be described in addition to the mercury monitor or monitors.

(ii) A description of the normal operating process for each monitor including a description of all QA/QC checks.

(iii) A description of the methods that will be employed to verify and maintain the accuracy and precision of the MEMS calibration equipment.

(iv) Identification and description of the DAHS, including major hardware and software components, conversion formulas, constants, factors, averaging processes, and missing data substitution procedures.

(v) A description of all initial certification and ongoing recertification tests and frequencies; as well as all accuracy auditing tests and frequencies.

(d) The Maximum Potential Concentration (MPC), Maximum Expected Concentration (MEC), span value, and range value as applicable and as defined in 40 CFR 75 Appendix A, 2.1.7.

(e) Examples of all data reports required in c. below.

c. Talen shall submit written, Quarterly Mercury Monitoring Reports. The reports shall be received by DEQ within 30 days following the end of each calendar quarter, and shall include, at a minimum, the following:

(1) Mercury emissions. The reports shall include:

(a) For Units 3 and 4, the monthly average lb/TBtu mercury emission rate for each month of the quarter;

(b) For Units 3 and 4, the 12-month rolling average lb/TBtu emission rate for each month of the reporting quarter. The rolling 12-month basis is an average of the last 12 individual calendar monthly averages, with each monthly average calculated at the end of each calendar month;

(c) For Units 3 and 4, the total heat input to the boiler (in TBtu) for each 12-month rolling period of the quarter; and

(d) The 12-month facility-wide rolling average lb/TBtu mercury emission rate, calculated according to Permit Section II.A.16, for each month of the quarter.

(2) Mercury excess emissions. The report shall describe the magnitude of excess mercury emissions experienced during the quarter, including:

(a) The date and time of commencement and completion of each period of excess emissions. Periods of excess emissions shall be defined as those emissions calculated on a rolling 12-month basis which are greater than the limitation established in II.A.16.

(b) The nature and cause of each period of excess emissions and the corrective action taken or preventative measures adopted in response.

(c) If no periods of excess mercury emissions were experienced during the quarter, the report shall state that information.

(3) MEMS performance. The report shall describe:

(a) The number of operating hours that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime) during the reporting quarter, broken down by the following categories:

- Monitor equipment malfunctions;
- Non-Monitor equipment malfunctions;
- Quality assurance calibration;
- Other known causes; and
- Unknown causes.

(b) The percentage of unit operating time that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime) during the reporting quarter. The percentage of monitor downtime in each calendar quarter shall be calculated according to the following formula:

$$MEMSDowntime\% = \left(\frac{MEMSDownHours}{OpHours} \right) \times 100 \quad \text{where}$$

MEMSDowntime% = Percentage of unit operating hours classified as MEMS monitor downtime during the reporting quarter.

MEMSDownHours = Total number of hours of MEMS monitor downtime during the reporting quarter.

OpHours = Total number of hours the unit operated during the reporting quarter.

(c) For any reporting quarter in which monitor downtime exceeds 10%, a description of each time period during which the MEMS was inoperative or operating in a manner defined in 40 CFR Part 75 as "out of control." Each description must include the date, start and end times, total downtime (in hours), the reason for the system downtime, and any necessary corrective actions that were taken. In addition, the report shall describe the values used for any periods when missing data substitution was necessary as detailed in 40 CFR 75.30, *et seq*.

(4) The quarterly report shall include the results of any QA/QC audits, checks, or tests conducted to satisfy the requirements of 40 CFR Part 75 Appendices A, B or K.

(5) Compliance certification. Each quarterly report shall contain a certification statement signed by the facility's responsible official based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall indicate:

(a) Whether the monitoring data submitted were recorded in accordance with the applicable requirements of 40 CFR Part 75 including the QA/QC procedures and specifications of that part and its appendices, and any such requirements, procedures and specifications of an applicable excepted or approved alternative monitoring method as represented in the approved Monitoring Plan.

(b) That for all hours where data are substituted in accordance with 40 CFR 75.38, the add-on mercury emission controls were operating within the range of parameters listed in the quality-assurance plan for the unit, and that the substitute values do not systematically underestimate mercury emissions.

(6) The format of each component of the quarterly report may be negotiated with DEQ's representative to accommodate the capabilities and formats of the facility's DAHS.

(7) Each quarterly report must be received by DEQ within 30 days following the end of each calendar reporting period (January-March, April-June, July-September, and October-December).

(8) The electronic data reporting detailed in 40 CFR Part 75 shall not be required unless Montana is able to receive and process data in an electronic format.

d. Talen shall maintain a file of all measurements and performance testing results from the MEMS; all MEMS performance evaluations; all MEMS or monitoring device calibration checks and audits; and records of all adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least five years following the date of such measurements and reports. Talen shall make these records available for inspection by DEQ and shall supply these records to DEQ upon request.

Attachment 3
Wastewater Pond Site Wind Fence Locations
(Wind fences shown as blue lines)

Source: Talen Montana, LLC Montana Air Quality Permit modification application #0513-10 (May 2018), Appendix D, Figure 4, Wind Fence Locations

Montana Air Quality Permit (MAQP) Analysis
Talen Montana, LLC – Colstrip Steam Electric Station
MAQP #0513-16

I. Introduction/Process Description

A. Facility Description

Talen Montana, LLC (Talen) operates Colstrip Steam Electric Station (CSES) Units 3 and 4 tangential coal-fired boilers and associated equipment for the generation of electricity. The Talen CSES facility is located in Section 34**,** Township 2 North, Range 41 East, in Rosebud County, Montana. A complete listing of facility equipment is found in the Permit Analysis.

B. Permitted Equipment

Talen operates the following equipment, including, but not limited to:

- Coal Piles
- Emergency Diesel Generators
- Internal Combustion Engine
- Plant Roads
- Process Ponds
- Aboveground Gasoline Tank

Units 3 and 4

- Unit #3 coal-fired boiler (778 Megawatts (MW))
- Unit #4 coal-fired boiler (778 MW)
- 16 venturi-type wet scrubbers (8 per unit) for particulate and sulfur dioxide (SO2) control
- Two stacks - 692 feet in height
- Coal transportation, storage and handling facilities
- Coal sampling facilities
- Auxiliary equipment
- Unit #3 mercury emission control system (oxidizer/sorbent injection system)
- Unit #4 mercury emission control system (oxidizer/sorbent injection system)
- Units 3&4 mercury oxidizer/sorbent handling system (two mercury sorbent storage silos and associated fill and conveyance lines)
- Dry Disposal System for Coal Combustion Residuals (CCR) material

Mechanical Evaporation System

- 8 Minetek (or demonstrated equivalent) evaporator units
- 31 Slimline (or demonstrated equivalent) evaporator units

Groundwater Capture and Treatment System

- Concentrator unit
- Natural gas/propane boiler (64.2 million British thermal units per hour (MMBtu/hr))

C. Permit History

On April 23, 1973, Montana Air Quality Permit **(MAQP) #513-111472 (#0513-00)** was issued to the Montana Power Company (MPC) Colstrip (Colstrip) for the construction of Colstrip Units 1&2, and on August 26, 1981, a permit with the same number was issued to Colstrip for the operation of Colstrip Units 1&2.

MAQP #0513-01 was issued to Colstrip 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 ton 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 Colstrip 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 Environmental Protection Agency (EPA). EPA issued a PSD permit for the construction of the facility on September 11, 1979.

State **MAQP #1187-M** 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).

On October 13, 1996, **MAQP #1187-03** was issued and correctly identified the actual maximum heat input capacity of Colstrip Units 3&4. The units are each rated at a heat-input capacity of 7,573 MMBtu/hour with a production capacity of 778 MW. These are nominal capacities for the facility and, depending on plant operating conditions, actual heat input to the facility may be as high as 8,000 MMBtu/hr.

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 million British thermal units (lb/MMBtu). To ensure that emissions from the facility were not higher than those that the original analysis was based, this permit established emission limits for these pollutants in the units of pounds per hour (lb/hour).

The new emission limits were established based on the nominal heat input to the boilers of 7,573 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 7,573 MMBtu/hr for 8,760 hr/yr. This ensured that emissions of pollutants, that do 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 the Colstrip 3&4 facility. 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 of Environmental Quality Air Quality Bureau (DEQ) and MPC agreed that short-term SO_2 and NO_x emission limits would be implemented. DEQ completed modeling for the short-term SO_2 emission limits. Colstrip was limited to a maximum of 4,273 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, the Montana Power Company and PPL Montana, LLC requested that the permits for Colstrip Units 1&2 and Colstrip 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 DEQ's review, it was determined that Colstrip Units 1, 2, 3, and 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 Colstrip 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 tons per year of any pollutant. Because the emissions from this project were less than 15 tons per year of any pollutant, the project occurred in accordance with the ARM 17.8.745(1)(d). MAQP #0513-03 replaced MAQP #0513-02.

On July 7, 2001, **MAQP #0513-04** was issued to Colstrip to add petroleum coke to the list of fuels to be used in Units 1 and 2 that are currently permitted to burn Syncoal and Rosebud coal. The permitting action limited the amount of petroleum coke that may be burned in Units 1 and 2 and was not considered a major modification under the PSD regulations because the facility was capable of accommodating petroleum coke. The conditions associated with this permitting action are Section II.A.9, 10, 11, 12, and 13, Section II.B.3 and Section II.E. MAQP #0513-04 replaced MAQP #0513-03.

On January 11, 2005, Arnold & Porter LLP, on behalf of Colstrip, 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 DEQ 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 and 4. Included in the permit application, Colstrip submitted AERMOD modeling to demonstrate compliance with the Class I PSD increment for SO_2 on the Northern Cheyenne Reservation. DEQ, in consultation with 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. Colstrip 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, Colstrip submitted a request to DEQ 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, DEQ approved the removal of the monitoring requirements. DEQ sent a letter on October 19, 2001, after PPL demonstrated that the potential to cause a violation of the ambient standard is 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 current Department permit format, language and rule references. **MAQP #0513-05** replaced MAQP #0513-04.

On October 23, 2007, PPL Montana, LLC submitted a request for an administrative amendment to MAQP #0513-05. The request was to incorporate revised NO_x standards for Colstrip's Units 3 and 4, as stipulated by Consent Decree CV-07-40-BLG-RFG-CSO entered on May 14, 2007 (Consent Decree). In addition, DEQ 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, with additional information submitted on January 8, 2009. The modification was to establish a mercury emission limit for each of PPLM Colstrip 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 also included a proposed mercury emission control strategy. MAQP #0513-07 established a mercury emission limit and associated operating requirements for Colstrip Units 1-4 in order to comply with ARM 17.8.771. **MAQP #0513-07** replaced MAQP #0513-06.

On January 28, 2010, PPLM requested an administrative amendment to MAQP #0513-07. 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 is 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, DEQ received an administrative amendment request to change the company name from PPL Montana, LLC to Talen Montana, LLC. Except for the name, the company continued with the same legal ownership interest and operator role concerning the Colstrip Steam Electric Station. Personnel, assets, and organization remained unchanged. The MAQP was also updated to reflect the current Department format and references to applicable federal regulations. **MAQP #0513-09** replaced MAQP #0513-08.

On May 7, 2018, DEQ received a permit application from Talen to authorize the operation of a mechanical evaporation system for the existing wastewater ponds. Additional information was provided on May 24, 2018. The existing wastewater ponds are located approximately 2.5 miles southeast of the main power plant. The pond area is approximately 367 acres and contains several wastewater cells. Talen installed mechanical evaporators for the existing wastewater ponds between 2006 and 2017 to aid in the reduction of excess water, to reduce potential of seepage from the ponds and help protect the groundwater, and to help ensure compliance with the United States Environmental Protection Agency (EPA) rules on disposal of Coal Combustion Residuals (CCR) from electric utilities under subtitle D of the Resource Conservation and Recovery Act (RCRA). As the water currently stored in the pond contains dissolved solids, the mechanical evaporation of water forms droplets that may result in the formation of PM as the water droplets evaporate. Talen had not considered the evaporation system to be a new source of air emissions since the wastewater ponds were already accounted for in the Title V Operating Permit. In

October 2017, Talen conducted an emission factor development study to measure the ambient particulate matter concentrations resulting from emissions from these units and to reverse-model an emission rate for the two models of evaporators on site. These emission rates, in conjunction with the proposed limits on operation of the evaporators, were used to determine the maximum potential emissions from the evaporators. Talen had ceased operation of the evaporators since discovering that they trigger the need for an MAQP modification and did not restart them until issuance of this permit. Based on comments received during the public comment period on the draft permit, DEQ added the specific operational parameters for wind speed, wind direction, ambient air temperature, and relative humidity that are part of the strategy to contain the potential evaporation drift within the pond to the permit condition related to best management practices before issuing DEQ Decision. The condition at Section II.D.10 of the draft permit, which had required that Talen document these operational parameters and provide them to DEQ upon request, was eliminated because they are now included in the enforceable permit condition at Section II.A.22. **MAQP #0513-10** replaced MAQP #0513-09.

On January 22, 2019, DEQ received a permit application from Talen for the construction of a coal unloading facility. The application provided six different alternate operating scenarios and estimated the maximum potential increase in emissions from each scenario. The maximum amount of coal to be brought to the CSES facility via truck and/or railcar is 7 million tons per year. The scenarios summarized in the following table show the rank by particulate matter (PM) emissions from each throughput scenario. The maximum emissions scenario is ranked "1st".

Scenario	Coal Throughput (Tons Per Year)	Delivery Method	PM Emissions Rank
1	1 Million	Haul Truck	6th (Low)
2	3.5 Million	Haul Truck	3rd
3	7 Million	Haul Truck	1st (High)
4	1 Million	Railcar	5th
5	3.5 Million	Railcar	4th
6	7 Million	Railcar	2nd

The coal would be unloaded from truck and/or rail and transferred via conveyor(s) or front end loader (FEL) to a coal storage pile and/or directly to the existing plant conveyor and coal storage system. Only a portion of the new storage pile would be active at any given time, and the remainder would be inactive and have chemical surfactants applied in order to create a crust and prevent wind erosion. A FEL would be used to move the coal around the new storage pile. Coal would be transported via FEL to conveyors from the new storage pile into the existing plant conveyor and storage system. Only one new storage pile would be constructed as part of this project for Scenarios 2-6. Scenario 1 would use existing storage piles. Emissions would be generated from the new paved haul road, truck/railcar unloading, unpaved FEL path, conveyor material transfers, and wind erosion from the storage pile. **MAQP #0513-11** replaced MAQP #0513-10.

On April 8, 2019, DEQ received an MAQP application in accordance with the requirements of ARM 17.8.771(9) to address the Best Available Control Technology (BACT) requirement for mercury emissions. ARM 17.8.771(9) requires that no later than 10 years after issuance of a permit containing a mercury emission limit under ARM 17.8.771(1)(b)(i), and every 10 years thereafter, the affected facility must file an application to establish a revised mercury emission limit. PPL Montana, LLC, the name of the operators of the CSES facility at the time, was issued an MAQP establishing a mercury emissions limit for Units 1 – 4 on April 9, 2009. This application fulfilled the ARM 17.8.771(9) requirement. Talen proposed to retain the mercury emission limit of 0.9 pounds per trillion British thermal units (lb/TBtu) on a rolling 12-month average basis. DEQ concurred with the findings of the BACT analysis and maintained the mercury emission limit of 0.9 lb/TBtu on a rolling 12-month average basis in the MAQP. **MAQP #0513-12** replaced MAQP #0513-11.

On October 25, 2019, DEQ received notification from Talen of their intent to place two temporary, diesel-fired boiler units for emergency heating of maintenance and operations buildings on CSES Units 3 and 4. These boilers would provide auxiliary steam for heating systems in the event that both Units 3 and 4 experienced a simultaneous outage during the timeframe beginning January 1, 2020 and concluding April 30, 2020. After January 1, 2020, the loss of the usual source of heat in these areas (auxiliary steam from Units 3 and/or 4) could lead to adverse effects on facility safety. Operation during this scenario is consistent with the exemption from requiring an MAQP as described in ARM 17.8.744(1)(g); however, the exemption only extends to operation to alleviate the adverse effects on facility safety.

On October 28, 2019, DEQ received notification from Talen for the use of temporary propane-fired heating equipment for maintenance and operations buildings on CSES Units 1 and 2. The operation of these units meets the exemption from requiring an MAQP as a de minimis change described in ARM 17.8.745 when their operation is restricted by production limits as depicted in the notification and made enforceable in accordance with ARM 17.8.745(2).

This permit action amended the MAQP in accordance with ARM 17.8.745(2) and ARM 17.8.764 to establish production limits on the operation of the equipment described in the October 25 and 28, 2019 notifications. **MAQP #0513-13** replaced MAQP #0513-12.

On September 3, 2020, DEQ received a request to administratively amend MAQP #0513 from Talen. Talen requested to remove the permit modifications made in March 2019 (MAQP #0513-11) authorizing (but not requiring) the construction and operation of coal unloading facilities to accommodate the use of coal obtained from certain mines other than the Rosebud Mine. Talen made this request pursuant to the Settlement Agreement dated August 31, 2020 between DEQ, Talen, Westmoreland Mining LLC, and Westmoreland Rosebud Mining LLC. Also addressed in the correspondence was the rescission of the 2019 Major Facility Siting Act (MFSA) certificate amendment which provided Talen with an option to procure and utilize coal from certain mines other than the Rosebud Mine. Rescission of the MFSA amendments and administrative amendment of the MAQP, as agreed to by the parties under the Settlement Agreement, is intended to restore the relevant MAQP

and MFSA certificate to the situation as though the relevant March 2019 MAQP changes and the May 2019 MFSA amendments related to the coal unloading facilities and use of non-Rosebud coal never occurred. This permit action removes the permit conditions associated with coal unloading facilities established as part of MAQP #0513-11. **MAQP #0513-14** replaced MAQP #0513-13.

On October 6, 2020, DEQ received a complete MAQP application from Talen requesting to modify MAQP #0513-14. Talen proposed to install a groundwater capture treatment system (GWCTS) as part of Talen's Administrative Order on Consent related to wastewater facilities at CSES and to meet remediation requirements. Captured groundwater is fed to the GWCTS concentrator unit where dissolved solids are removed. The concentrator unit boils the groundwater by utilizing steam aided by creation of a vacuum, creating pure water and removed solids. The pure water returns to the plant for reuse. The removed solids are fed to the plant's existing crystallizer system, where they undergo further heating, vacuum processing, and centrifuging to further separate liquids from solids. The slightly moist solid product of salts and brine crystals are loaded into transport vehicles and transported to the existing solids disposal area. The steam for the GWCTS operation primarily comes from Units 3 and 4, but also required the installation of a 64.2 MMBtu/hr propane/natural gas-fired boiler (GWCTS Boiler) to provide steam when Units 3 and 4 are offline. The GWCTS Boiler may also provide building heat for Units 3 and 4 during winter months if those units are both offline. There was no impact to Units 3 and 4. This action incorporated these emitting units into the CSES air quality permit. **MAQP #0513-15** replaced MAQP #0513-14.

D. Current Permit Action

On March 23, 2022, DEQ received a complete application from Talen requesting to modify the MAQP for CSES. Talen is proposing installation of a Dry Disposal System to convert to a "non-liquid" disposal system for coal combustion residuals (CCR) material generated by Colstrip Units 3 & 4. The new Dry Disposal System is designed to receive the wet fly-ash paste from the existing paste plant and process it through a pressure filtration system to further reduce the moisture content to meet the "nonliquid" meaning that is used in the Resource Conservation and Recovery Act Solid Waste Disposal Rules, including Title 40 Code of Federal Regulations (40 CFR) §258.28(c)(1). The resulting fly-ash filter cake will be conveyed to a holding bin where it will then be dropped into dump trucks for transport. The trucks will haul the filter cake to a receiving cell within the process pond disposal area and will deposit the material into a storage pile for final disposition. Particulate matter emissions not previously accounted for through permitting the disposal of the fly-ash slurry as a wet material are expected to be generated from: transferring the filter cake between conveyors to the holding bin, dropping the filter cake from the holding bin into dump trucks, the dump trucks driving on the unpaved haul roads, dumping the filter cake onto the storage pile, and wind erosion from the active portions of the storage pile.

On April 7, 2022, DEQ received an administrative amendment request from Talen to remove language associated with the operation of Units 1 and 2. Units 1 and 2 were permanently shut down and decommissioned on January 2, 2020, and January

3, 2020, respectively. In addition, conditions related to temporary equipment that was in use during the decommissioning of Units 1 and 2 was removed. DEQ was able to incorporate the April 7, 2022, amendment request into the March 23, 2022, modification action.

The current permit action authorizes use of the dry disposal technology in the MAQP and removes conditions related to the operation of Units 1 and 2. **MAQP #0513-16** replaces MAQP #0513-15.

E. Response to Public Comments

Person/Group Commenting	Permit Reference	Comment	Department Response
Talen	Section II.A.25.a	The control efficiency used for material transfers presented in the MAQP application was based on ensuring no offsite fugitive dust would occur and reasonable precautions would be taken to control emissions of airborne particulate matter, but not a specific technology. Since the proposed Dry Disposal System project is to dewater the coal combustion residuals (CCR) material and form a "cake" for disposal, Talen proposes to only water as needed to ensure reasonable precautions are taken to control airborne particulate matter and no offsite fugitive dust. It may not be possible to have partial enclosures at each transfer, especially when transferring to the haul truck. Again, Talen will ensure the Montana particulate matter requirements are met but would prefer Condition 25.a. be revised to indicate, "Material transfers like conveyor drops shall have watering as needed or have partial enclosures to ensure no offsite fugitive dust."	DEQ has made the requested change.
Talen	Draft Environmental Assessment, page 3, paragraph 1	When describing PM 10, there is a minor typo: "micros" should be "microns".	DEQ has made the requested change.
Talen	Draft Environmental Assessment, page 3, Duration box	Talen proposes to start operation of the Dry Disposal System in July 2022, but it could be as late as October 1, 2022.	DEQ has made the requested change.
Talen	Draft Environmental Assessment, page 4, Personnel Onsite box	The Operations description currently indicates that there will be no change in permanent staff necessary to accommodate the Dry Disposal System. While this statement accurately matches the information presented in Talen's original application, Talen has determined that twelve (12) additional permanent staff will be hired to accommodate the operation of this new system. Talen respectfully requests	DEQ has made the requested change.

Person/Group Commenting	Permit Reference	Comment	Department Response
		updating the information in this block to reflect this addition of 12 permanent employees.	
Talen	Draft Environmental Assessment, page 6, paragraph 2	Talen proposes revised wording as follows: "Upon review of the air quality permit application, Talen would need to modify their Title V Operating Permit with the proposed changes within 12 months after commencing ~~construction~~ operation, ARM 17.8.1205."	DEQ has made the requested change.
Talen	Draft Environmental Assessment, page 13, Section 14	Talen respectfully requests updating the information in this section to reflect the addition of 12 permanent employees.	DEQ has made the requested change.
Talen	Draft Environmental Assessment, page 14, Section 19	Talen respectfully requests updating the information in this section to reflect the addition of 12 permanent employees. This slight increase in staff is not expected to have any significant impact on the local area's population density, distribution, or availability of housing.	DEQ has made the requested change.
Talen	Draft Environmental Assessment, Table III, Traffic Increases and Employee Exposure to New Equipment row	Talen respectfully requests updating the information in this section to reflect the addition of 12 permanent employees.	DEQ has made the requested change.
Talen	Draft Environmental Assessment, Table III, Tax Base and Employment Would Remain Unchanged row	Talen respectfully requests updating the information in this section to reflect the addition of 12 permanent employees.	DEQ has made the requested change.

F. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARM and are available, upon request, from DEQ. Upon request, DEQ will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of DEQ, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by DEQ.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by DEQ, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   Talen shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from DEQ upon request.

4. ARM 17.8.110 Malfunctions. (2) DEQ must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.213 Ambient Air Quality Standard for Ozone
5. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
7. ARM 17.8.221 Ambient Air Quality Standard for Visibility
8. ARM 17.8.222 Ambient Air Quality Standard for Lead
9. ARM 17.8.223 Ambient Air Quality Standard for PM-10

Talen must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. (1) This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. (2) This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Talen shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million British thermal units (Btu) fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule, or is a pressure tank as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS).

   a. 40 CFR 60, Subpart A, General Provisions. This subpart applies to all equipment or facilities subject to an NSPS Subpart as listed below:

b. 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel Fired Steam Generators. This subpart does apply to Units 3 or 4 because they have the capabilities of firing fossil fuel at a heat input rate of more than 250 MMBtu/hr and were constructed after August 17, 1971.

c. 40 CFR 60, Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978. This section does not apply to Units 3 and 4 because construction on the units had commenced prior to 1978. However, some sections of Subpart Da have been incorporated by reference into this permit.

d. 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This subpart applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. The GWCTS Boiler is an affected unit of this subpart; however, the regulation does not apply any emission standards for propane/natural gas-fired units.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart as listed below:

b. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source. The emergency RICE at Talen CSES are subject to this regulation.

c. 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. This subpart applies to industrial, commercial, and institutional boilers located at major sources of HAP. The GWCTS Boiler is an affected unit of this subpart; however, the regulation does not apply any emission standards for propane/natural gas-fired units. The regulation does require compliance with work practice requirements, recordkeeping and reporting requirements, and initial notification.

d. 40 CFR 63, Subpart UUUUU – National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam

Generating Units. Units 3 and 4 meet the definition of an affected source under this subpart.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to DEQ. Talen submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to DEQ by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by DEQ. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. DEQ may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tpy of any pollutant. Talen CSES has the PTE greater than 25 tons per year of NOx, SO_2, carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM), and particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}); therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Talen submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Talen submitted an affidavit of publication of public notice for the March 28, 2022, issue of the *Billings Gazette*, a newspaper of general circulation in the Town of Colstrip in Rosebud County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by DEQ must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by DEQ at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Talen of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes DEQ's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of

Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to DEQ.

15. ARM 17.8.771 Mercury Emission Standards for Mercury-Emitting Generating Units. This rule identifies mercury emission limitation requirements, mercury control strategy requirements, and application requirements for mercury-emitting generating units. (9) No later than ten years after issuance of the permit containing the mercury emission limit, and every ten years thereafter, the owner or operator of a mercury-emitting generating unit, for which DEQ has established a mercury emission limit under this rule, shall file an application with DEQ to establish a revised mercury emission limit. The application associated with MAQP #0513-12 fulfills this requirement.

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is a listed source and has a PTE of 100 tpy or more of pollutants subject to regulation under the FCAA; therefore, the facility is major. However, this permit action will not result in a significant net emissions increase and therefore does not require a Prevention of Significant Deterioration (PSD) analysis.

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

   a. PTE > 100 tpy of any pollutant;

   b. PTE > 10 tpy of any one hazardous air pollutant (HAP), PTE > 25 tpy of a combination of all HAPs, or lesser quantity as DEQ may establish by rule; or

   c. PTE > 70 tpy of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #0513-16 for CSES, the following conclusions were made:

   a. The facility's PTE is greater than 100 tpy for several pollutants.

   b. The facility's PTE is greater than 10 tpy of any one HAP and less than 25 tpy of all HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

   d. This facility is subject to 40 CFR 60, Subparts A, D, Dc, and Y.

   e. This facility is subject to 40 CFR 63, Subparts A, UUUUU, and ZZZZ.

   f. This source is a Title IV affected source.

   g. This source is not an EPA designated Title V source.

   Based on these facts, DEQ has determined that Talen CSES is a major source of emissions as defined under Title V. Talen was issued a final and effective renewal of their Title V Operating Permit (#OP0513-14) on July 17, 2018.

III. BACT Determination

A BACT determination is required for each new or modified source. Talen shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

Talen provided a BACT analysis as part of the permit application for the fugitive particulate matter emissions from the dry disposal system. Particulate matter emissions not previously accounted for through permitting the disposal of the fly-ash slurry as a wet material are expected to be generated from: transferring the filter cake between conveyors to the holding bin, dropping the filter cake from the holding bin into dump trucks, the dump trucks driving

on the unpaved haul roads, dumping the filter cake onto the storage pile, and wind erosion from the active portions of the storage pile. DEQ reviewed the information that Talen provided, as well as other recently-issued BACT determinations.

Material Transfers

The byproducts slurry currently processed in the paste plant within the process ponds disposal area will remain active. Instead of continuing to pump the resultant fly-ash paste into one of the existing disposal cells, it will instead be routed to the proposed dry disposal system. There it will be processed through a pressure filtration system to further reduce the moisture content to meet the "non-liquid' meaning that is used in the Resource Conservation and Recovery Act Solid Waste Disposal Rules, including 40 CFR §258.28(c)(1). The processed filter cake will be released onto an Under Filter Conveyor, which will then take it to one of two Takeaway Conveyors (one for primary operation, one for backup), which will then transfer the filter cake to a truck load out holding bin. Fugitive particulate matter emissions are expected to be generated from transferring the filter cake onto/off the conveyors into the holding bin, and when the holding bin is opened to drop the filter cake into a receiving dump truck for transport. The dump trucks will transport the filter cake across the process ponds disposal area and dump it into a solid waste receiving cell. Fugitive PM emissions are also expected to be generated from the dumping of the filter cake onto the disposal storage pile.

Haul Roads

After the filter cake is dropped into a receiving dump truck, it must be transported across the process ponds disposal area for final disposition in a storage pile. Fugitive PM emissions are expected to be generated from the proposed new unpaved haul routes for these dump trucks.

Storage Pile

Talen has identified an approximately 27-acre area within the existing process ponds disposal area suitable for receiving the solid matter. Only a small (approximately 1.35 acres) portion of the storage pile area will be active at any given time. The remainder of the storage pile area will be inactive and will have compaction and surface treatments applied to create a crust to minimize wind erosion.

Step 1 – Identify Air Pollution Control Technologies

Common pollution control technologies and/or practices for fugitive PM emissions from material transfers, haul roads, and storage piles include the following:

- Water sprays;
- Application of chemical surfactants;
- Roadway speed limits; and
- Best management practices/Dust control plan.

Water sprays and chemical surfactants increase the moisture content of the disposed filter cake in order to minimize particulate matter generated from wind erosion or material

transfer. Chemical surfactants can be used to cause a protective crust to form over storage piles or to increase moisture retention. The best management practices include minimizing conveyor drop distances and inspections for airborne dust.

Steps 2-5 – Eliminate, Rank, Evaluate Controls, and Select BACT

Steps 2 through 5 are combined for this analysis because Talen has proposed a combination of control options to satisfy BACT for the Dry Disposal System.

Material transfers like conveyor drops would have watering to the extent practicable or partial enclosure. The EPA's Control of Open Fugitive Dust Sources report has indicated a range of control efficiencies for water suppression systems from 42% to 75%. In addition, the Western Regional Air Partnership (WRAP) Fugitive Dust Handbook identifies 50% for watering and 75% control efficiency for a 3-sided enclosure. A default control scenario with a control efficiency of 50% has been applied to all conveyor material transfers. A 50% control efficiency is consistent with other BACT determinations and applied as default to demonstrate reasonable precautions are taken to control emissions of airborne particulate matter.

Plant roads for transporting filter cake to the storage pile would be unpaved and trucks would comply with posted speed limits of 25 miles per hour (mph). Unpaved roads would be periodically treated with water and/or chemical dust suppressant. The WRAP Fugitive Dust Handbook identifies 44% control for speed limited to 25 mph, 10-74% control for applying water, and 84% control for applying dust suppressant; based on these values and their combined application, a 90% control efficiency has been identified and applied to the unpaved haul road traffic.

Storage piles would have the inactive portion crusted over and non-emitting; the active portion would be compacted, and chemical dust suppressants would be applied to limit fugitive dust, particularly when wind events are declared. The WRAP Fugitive Dust Handbook has indicated a control efficiency for watering storage piles by hand of 90%. For purposes of emission calculations, a conservative 75% control efficiency has been identified and applied to all active storage pile areas for compaction and application of dust suppressants.

DEQ concurs that the proposed practices satisfy BACT for fugitive PM emissions for the Dry Disposal System. The control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

Dry Disposal System for Coal Combustion Residuals (MAQP Application #0513-16)

Dry Disposal System Emissions Summary

Area	Daily Emissions (lb/day)		Hourly Emissions (lb/hr)			Annual Emissions (tpy)		
	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Material Transfer	0.56	0.08	0.05	0.02	0.00	0.22	0.10	0.02
Haul Roads	6.25	0.62	1.01	0.26	0.03	3.74	0.97	0.10
Storage Pile	20.37	3.08	1.79	0.85	0.13	7.86	3.72	0.56
Totals	**27.17**	**3.79**	**2.85**	**1.13**	**0.16**	**11.82**	**4.78**	**0.67**
Major Source Modification SER [1]	--	--				25	15	10
Emissions Exceeding SER?	--	--				No	No	No
MAQP Threshold [2]	--	--				5	5	5
Project above MAQP Threshold?	--	--				Yes	No	No
Modeling Guidance Levels [3]	274	63.9				--	50	12
Project above Modeling Guidance Level?	No	No				--	No	No

[1] The SERs are obtained from 40 CFR 52.21(b)(23)(i) and 52.21(b)(49)(iv)(b).

[2] Per ARM 17.8.745, a Montana air quality permit is required for changes at a facility which increase PTE by more than five tons per year of any criteria pollutant.

[3] Per MDEQ Modeling Guideline for Air Quality Permit Applications, not Montana regulation. Also daily emission thresholds of 274 lbs PM10/day or 63.9 lbs PM2.5/day.

Dry Disposal System Material Handling Emissions Factors and Emissions Calculations

Pollutant	k[1]	Emission Factor [2] (lb/ton)
PM	0.74	2.74E-04
PM_{10}	0.35	1.30E-04
$PM_{2.5}$	0.053	1.96E-05

[1] Particle size multiplier obtained from EPA AP-42, Section 13.2.4, Page 13.2.4-4.

[2] Emission factor calculated using EPA AP-42, Section 13.2.4, Equation 1:

$$E = k * (0.0032) * ((U/5)^{1.3})/((M/2)^{1.4})$$

U: mean wind speed (mph) = 10.14 Based on 3-year average of Colstrip Facility 2012-2014 meteorological data

M: material moisture content (%) = 18.00 Based on target filter cake moisture content per process design.

Description	Number of Transfers	Process Type	Control Efficiency (%) [1]	Throughput [2] (ton/hr)	(ton/day)	(ton/yr)	Hourly Emissions (lb/hr) PM	PM_{10}	$PM_{2.5}$	Daily Emissions (lb/day) PM	PM_{10}	$PM_{2.5}$	Annual Emissions (tpy) PM	PM_{10}	$PM_{2.5}$
Transfer on/off Under Filter Press and Take-away conveyor	3	Material Handling	50%	72	1,728	630,720	0.03	0.01	2.12E-03	0.71	0.34	0.05	0.13	0.06	0.01
Filter Cake Drop into Truck	1	Material Handling	50%	72	1,728	630,720	0.01	4.66E-03	7.06E-04	0.24	0.11	0.02	0.04	0.02	3.09E-03
Truck Dump to Storage Pile	1	Material Handling	50%	72	1,728	630,720	0.01	4.66E-03	7.06E-04	0.24	0.11	0.02	0.04	0.02	3.09E-03
Total:							**0.05**	**0.02**	**0.00**	**1.18**	**0.56**	**0.08**	**0.22**	**0.10**	**0.02**

[1] Control efficiency based on controls needed to ensure no offsite fugitive dust and reasonable precautions to be taken to control emissions of airborne particulate matter.

[2] Throughput based on maximum annual throughput. 365 days per year operation, 24 hrs per day.

Dry Disposal System Unpaved Haul Road Emissions Factors and Emissions Calculations

	silt (s)[1] (%)	Unloaded Weight[2] (lb)	Loaded Weight[3] (lb)	Average Weight[4] (W) (tons)	Average Load Hauled per Truck[5] (tons)	Control[6] (%)	Controlled Emission Factor (lb/VMT)[7] PM	PM_{10}	$PM_{2.5}$
Cat 777 - Filter Cake Truck	5.1	124,403	294,403	104.7	85.0	90.0%	1.332	0.343	0.034

[1] Silt content of road surface material obtained from EPA AP-42, Section 13.2.2, Table 13.2.2-1 for Western surface coal mining, Plant road.

[2] Unloaded weight based on specifications for an empty Cat 777 dump truck.

[3] Loaded weight estimated as the sum of the unloaded weight and the average load hauled per truck.

[4] Weight (tons) calculated as the average of the unloaded and loaded weights for each truck.

[5] Average load hauled per truck based on maximum truck capacity.

[6] Control efficiency for unpaved roads is an engineering estimate based on: 1) unpaved haul roads receive annual application of dust suppressant chemical; 2) all plant roads are watered for dust control as necessary, and; 3) a 25 mph speed limit.

[7] Emission factor in lb/VMT calculated per EPA AP-42, Section 13.2.2, Equation 1a as follows:

$$E = k\,(s/12)^a\,(W/3)^b \qquad \text{Controlled } E = E * (1 - \text{Control \%})$$

k: Particle Size Multiplier (lb/VMT)

W: Mean vehicle weight (tons)

s: Silt content of road surface material (%)

	PM	PM_{10}	$PM_{2.5}$
k	4.9	1.5	0.15
a	0.7	0.9	0.9
b	0.45	0.45	0.45

	Paved/ Unpaved	Round Trip Distance (miles)[1]	Number of Trucks[2] Per Hour	Per Day	Per Year	Vehicle Miles Travelled (VMT)[3] Hourly VMT	Daily VMT	Annual VMT	Hourly Emissions (lb/hr) PM	PM_{10}	$PM_{2.5}$	Daily Emissions (lb/day) PM	PM_{10}	$PM_{2.5}$	Annual Emissions (tpy) PM	PM_{10}	$PM_{2.5}$
Cat 777 - Filter Cake Truck	Unpaved	0.76	1	24	7,420	0.76	18.18	5621.4	1.01	0.26	0.03	24.21	6.25	0.62	3.74	0.97	0.10
Total:									**1.01**	**0.26**	**0.03**	**24.21**	**6.25**	**0.62**	**3.74**	**0.97**	**0.10**

[1] Haul distance is based on round trip distance from paste plant and dry disposal processing area to disposal location in Pond Area.

[2] Number of haul trucks is based on potential throughput and average load per truck.

[3] Vehicle miles travelled calculated as the Number of Trucks x Round trip distance per truck.

Dry Disposal System Storage Pile Emissions Factors and Emissions Calculations

Description	silt (s)[1] (%)	p[2]	f[3]	Pile Surface Area (Acres)[4]	Active Portion of Pile	Surface Area (Acres)[4]	Short Term Emission Factor (lb/hr/acre)[5] PM	PM_{10}[6]	$PM_{2.5}$[6]	Emission Factor (lb/hr/acre)[5] PM	PM_{10}[6]	$PM_{2.5}$[6]	Control Efficiency (%)[7]	Emissions (lb/hr)[8] PM	PM_{10}	$PM_{2.5}$	Emissions (lb/day) PM	PM_{10}	$PM_{2.5}$	Emissions (tpy)[9] PM	PM_{10}	$PM_{2.5}$
Filter Cake & Slag storage pile	53	95	27.54	27.02	0.05	1.35	5.312	2.513	0.380	5.312	2.513	0.380	75.0%	1.79	0.85	0.13	43.07	20.37	3.08	7.86	3.72	0.56
Total:														**1.79**	**0.85**	**0.13**	**43.07**	**20.37**	**3.08**	**7.86**	**3.72**	**0.56**

[1] Silt content obtained from EPA AP-42, Section 13.2.4, Table 13.2.4-1 - Storage Piles based on fly ash (mean) and slag at 65%/35% ratio.

[2] p is the number of days with greater than 0.01 in. of precipitation per year. The value of p is obtained from EPA AP-42, Section 13.2.2, Figure 13.2.2-1.

[3] f is the % of time the unobstructed wind speed exceeds 12 mph at the mean pile height. The value of f, 27.54%, is based on 2012-2014 meteorological data from the Colstrip Facility.

[4] Surface area of storage pile estimated from site plan for facility and expected maximum height of 25 feet. Only a small portion of the pile will be active and the remainder will be crusted over with no wind erosion emissions.

[5] Emission factor for PM in lb/hr/acre calculated using the following equation from Chapter 4 of Control of Open Fugitive Dust Sources:

$$E = 1.7\left(\frac{s}{1.5}\right)\left(\frac{365 - p}{235}\right)\left(\frac{f}{15}\right)\left(\frac{1}{24}\right) \text{ (lbs / hr /acre)}$$

[6] PM_{10} and $PM_{2.5}$ emission factor obtained using ratios with respect to total PM from EPA AP-42, Section 13.2.4, particle size multiplier ratios on page 13.2.4-4.

[7] Control efficiency based on controls including compaction and chemical dust suppression (as needed). Talen will ensure reasonable precautions are taken to control emissions of airborne particulate matter.

[8] Short term emissions based lb/hr/acre emission factor multiplied by exposed surface area in acres and 1 minus the control efficiency.

[9] Emissions (tpy) = Emissions (lb/hr) x Annual Hours of Operation (8,760 hr/yr) / (2,000 lb/ton).

GWCTS and GWCTS Boiler (MAQP #0513-15)

GWCTS Concentrator Emissions

Source Description	PM_{10} / $PM_{2.5}$ lb/hr	tpy
Concentrator Vent	0.04	0.16
Concentrator PRV	0.22	<0.01
Total GWCTS Concentrator	0.26	0.16

Talen Colstrip GWCTS Concentrator
Calculation of Particulate Emissions
Source: Evaporator/Dearator Vent

Emissions = Vent Rate x pollutant concentration(ppm)/1,000,000	lb/hr
Emissions = Vent Rate x pollutant concentration(ppm)/1,000,000 x 8760 hrs/yr ÷ 2000 lb/ton	tpy
Assumptions:	
Operation for 8760 hour per year	
Evaporative Emissions - As in AP-42, Chapter 13.4 Emissions are assumed to be 100% PM10	

Vent Rate	Pollutant	Concentration of Pollutant		Pollutant Mass Rate			
3633 lb/hr	PM10	10	ppm	**0.04**	**lb/hr**	**0.16**	**tpy**

Note: Based upon engineering estimates by system supplier

Talen Colstrip GWCTS Concentrator
Calculation of Particulate Emissions
Source: Concentrator Evaporator Vapor Body Pressure Relief Valve

Emissions = Valve Rate x pollutant concentration(ppm)/1,000,000	lb/hr
Emissions = Valve Rate x pollutant concentration(ppm)/1,000,000 x No. of operations per year x operation duration(hrs) x 8760 hrs/yr ÷ 2000 lb/ton	tpy
Assumptions:	
No. of operations per Year: 3 (Conservative assumption for emergency equipment; system supplier estimates a probability of only 0.3 times per year)	
Operation duraton: 1 hour (Conservative assumption for emergency equipment; relief valves normally operate for only a few seconds or minutes)	
Evaporative Emissions - As in AP-42, Chapter 13.4 Emissions are assumed to be 100% PM10	

Valve Rate		Pollutant	Concentration of Pollutant		Pollutant Mass Rate		No. of operations per year	Operation Duration		Annual Emissions	
21,500	lb/hr	PM10	10	ppm	**0.22**	**lb/hr**	3	1	hr	**0.0003**	**tpy**

Note: Based upon engineering estimates by system supplier and conservative assumptions

GWCTS Boiler Emissions (Worst case of natural gas or propane)

Pollutant	Max. Emission Rate (lb/MMBtu)[a]	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
CO	3.70E-02	2.38	10.4
NO_X	3.60E-02	2.31	10.1
PM_{10}	2.19E-03	0.49	2.2
$PM_{2.5}$	7.65E-03	0.49	2.2
SO_2	5.90E-04	0.04	0.2
VOC	1.09E-02	0.70	3.1

a. NO_X and CO are based on manufacturer guarantees. PM, SO_2, and VOC are based on US EPA AP-42 Section 1.4 and Section 1.5 for natural gas and propane fuel, respectively.

Evaporator Emission Factors based on Emission Factor Study

Evaporator Model	PM_{10} Emission Controlled Factor (lb/hr/unit)	$PM_{2.5}$ Controlled Emission Factor (lb/hr/unit)
Minetek Evaporators	0.51	0.42
Slimline Turbomist Evaporators	0.16	0.15

Evaporator Emissions for MAQP #0513-10

Evaporator Type	Number of Units	Flowrate (10^3 gal/hr)	Hours of Operation per Year	PM_{10} Emissions (tpy)	$PM_{2.5}$ Emissions (tpy)
Minetek Evaporators	8	168	2,000	4.07	3.39
Slimline Turbomist Evaporators	31	149	2,000	4.94	4.57
TOTAL	39	317	2,000	9.01	7.96

Emission Source	**Tons per Year**					
	Hg	**PM_{10}**	**NO_x**	**CO**	**VOC**	**SO_2**
Unit 3 boiler	0.03	224.0	5,970.5	999.1	139.9	3,333.2
Unit 4 boiler	0.03	224.0	5,970.5	999.1	139.9	3,333.2
Unit 3&4 Sorbent Handling System	--	0.00005	--	--	--	--
Total Emissions	0.06	448	11,941	1998	280	6,666

Note: The inventory is based on information provided in the mercury control application for #0513-07, and is specific to impacts from the operation of mercury control equipment.

Boiler Units 3 and 4 (emission per boiler)

Maximum nominal operating capacity: 456.2 tons coal per hour
Maximum operation: 8,760 hours per year
Heat content of coal (design value): 8,300 Btu/lb

Mercury Emissions
Emission Factor: 0.9 lb/TBtu (Montana limit)
Calculations: (456.2 tons coal/hr) * (8,760 hr/yr) * (2000 lb coal/ton coal) * (8,300 Btu / lb coal) * (TBtu/
10^{12} Btu) * (0.9 lb Hg/TBtu) * (ton/2000 lb) = 0.03 tons Hg/yr

PM_{10} Emissions
Percent ash in coal (accounting for added sorbent): 9.75%
Emission Factor: 2.3 lb PM_{10} per ton coal, per % ash (AP42)
Control Efficiency: 99.5% (wet scrubber)
Calculations: (456.2 tons coal/hr) * (8,760 hr/yr) * 9.75 % ash in coal * (2.3 lb PM_{10}/ton coal/%ash) * (1 – 99.5/100) * (ton/2000 lb) = 224.0 tons PM_{10}/yr

NOx Emissions (No change with mercury control, but change because of May 14, 2007 Consent Decree standard)
Emission Factor: 0.18 lb NOx/MMBtu (May 14, 2007 Consent Decree standard)
Calculations: (456.2 tons coal/hr) * (8,760 hr/yr) * (2000 lb coal /ton coal) * (8,300 Btu/lb coal) * (MMBtu/ 10^6 Btu) * (0.18 lb NOx/MMBtu) * (ton/2000 lb) = 5,970.5 tons NOx/yr

CO Emissions (No change with mercury control)
Emission Factor: 0.5 lb per ton coal (FIRE)
Calculations: (456.2 tons coal/hr) * (8,760 hr/yr) * (0.5 lb CO/ton coal) * (ton/2000 lb) = 999.1 tons CO/yr

VOC Emissions (No change with mercury control)
Emission Factor: 0.07 lb per ton coal (AP-42)
Calculations: (456.2 tons coal/hr) * (8,760 hr/yr) * (0.07 lb VOC/ton coal) * (ton/2000 lb) = 139.9 tons VOC/yr

SO_2 Emissions (No change with mercury control)
Emission Factor: 761 lb SO_2 /hr (PSD Permit)
Calculations: (8,760 hr/yr) * (761 lb SO_2/hr) * (ton/2000 lb) = 3,333.2 tons SO_2/yr

Unit 3&4 Sorbent Handling System

Maximum operation: 8,760 hours per year
Maximum silo pass-through: 400 lb sorbent per hour
Emission Factor: 0.06 lb PM_{10}/ton sorbent (1998 and 2000 Syncoal and petroleum coke air quality permit amendments for Colstrip Units 1&2)
Control Efficiency: 99.9% (bin filter)

Note: There are two storage silos for mercury sorbent. The emissions from the silo will be generated when the silos are filled and are comprised of filtered emissions through the silo bin vents. The silos are pneumatically loaded through sealed connections from material trucks. The maximum consumption of mercury sorbent is estimated to be 400 lb/hr. A 99.9% control efficiency is assumed. This is the rated control efficiency of the bin vent filter. Because of the sealed nature of the silo, fill and conveyance lines, no other emissions are expected. The only regulated pollutant emissions anticipated from this source is PM_{10}.

Calculations: (400 lb sorbent/hr) * (8,760 hr/yr) * (t sorbent/2000 lb sorbent) * (0.06 lb PM_{10}/ton sorbent) * (t/2000 lb) * (1 – 99.9/100) = 0.00005 tons PM_{10}/yr

V. Existing Air Quality

The facility is located in Section 34, Township 2 N, Range 41 E in Rosebud County, Montana. The air quality of this area is classified as unclassified/attainment for the National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

VI. Ambient Air Impact Analysis

The current permit action represents a minor increase in allowable emissions from the facility. Therefore, DEQ believes the permitting action will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, DEQ conducted the following private property taking and damaging assessment which is located in the attached environmental assessment.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

Talen Montana, LLC

Final Environmental Assessment for

Montana Air Quality Permit #0513-16

Air Quality Bureau

APPLICANT: Talen Montana, LLC (Talen)		
SITE NAME: Colstrip Steam Electric Station (CSES)		
PROPOSED PERMIT NUMBER: Montana Air Quality Permit (MAQP) #0513-16		
APPLICATION RECEIVED: 03/23/2022		
APPLICATION DEEMED COMPLETE: 03/30/2022		
LOCATION: 580 Willow Avenue Colstrip, MT 59323		**COUNTY: Rosebud**
PROPERTY OWNERSHIP:	**FEDERAL ____ STATE ____ PRIVATE _X___**	
EA PREPARER:	**E. Warner**	
EA Draft Date	**EA Final Date**	**Permit Final Date**
04/14/2022	**05/05/2022**	**05/21/2022**

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to determine the need to prepare an Environmental Impact Statement (EIS) through an initial evaluation and determination of the significance of impacts associated with the proposed action. However, an agency is required to prepare an EA whenever, as here, statutory

requirements do not allow sufficient time for the agency to prepare an EIS (ARM 17.4.607(3)(c)). This document may disclose impacts over which DEQ has no regulatory authority.

INCORPORATION BY REFERENCE

Where appropriate, DEQ incorporates by reference the Final EA that was prepared for Talen CSES for the groundwater capture treatment system (GWCTS) permitted under Montana Air Quality Permit (MAQP) #0513-15 dated December 10, 2020. That permit and accompanying EA covered different activities and equipment located at CSES but the December 10, 2020, EA still contained relevant information on cultural resources and species of concern.

COMPLIANCE WITH THE CLEAN AIR ACT OF MONTANA

The state law that regulates air quality permitting in Montana is the Clean Air Act of Montana (CAA), §§ 75-2-101, *et seq.*, Montana Code Annotated (MCA). DEQ may not approve a proposed action contained in an application for an air quality permit unless the project complies with the requirements set forth in the CAA and the administrative rules adopted thereunder, ARMs 17.8.101 *et. seq.* The project is subject to approval by the DEQ Air Quality Bureau (AQB) as the potential project emissions exceed the 5 tons per year threshold of regulated pollutants for modifications of permitted facilities (ARM 17.8.743). DEQ's approval of an air quality permit application does not relieve Talen from complying with any other applicable federal, state, or county laws, regulations, or ordinances. Talen is responsible for obtaining any other permits, licenses, or approvals (from DEQ or otherwise) that are required for any part of the proposed action. Any action DEQ takes at this time is limited to the pending air quality permit application currently before DEQ's AQB and the authority granted to DEQ under the Clean Air Act of Montana. This action is not indicative of any other action DEQ may take on any future (unsubmitted) applications made pursuant to any other authority (*e.g.* Montana's Water Protection Act). DEQ will decide whether to issue the pending air quality permit pursuant to the requirements of the CAA alone. DEQ may not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), MCA.

SUMMARY OF THE PROPOSED ACTION

Talen has applied for an MAQP modification under the CAA to install and operate a dry disposal technology adjacent to the existing paste plant to convert to a "non-liquid" disposal system for coal combustion residuals (CCR) material generated by Units 3 and 4. The new Dry Disposal System is designed to receive the wet fly-ash paste from the existing paste plant and process it through a pressure filtration system to further reduce the moisture content to meet the "nonliquid" meaning that is used in the Resource Conservation and Recovery Act Solid Waste Disposal Rules, including Title 40 Code of Federal Regulations (40 CFR) §258.28(c)(1). The resulting fly-ash filter cake would then be conveyed to a holding bin where it would then be dropped into dump trucks for transport. The trucks would haul the filter cake to a receiving cell within the process pond disposal area and would deposit the material into a storage pile for final disposition. Particulate matter emissions not previously accounted for through permitting the disposal of the fly-ash slurry as a wet material are expected to be generated from: transferring the filter cake between conveyors to the holding bin, dropping the filter cake from the holding bin into dump trucks, the dump trucks driving on the unpaved haul roads, dumping the filter cake onto the storage pile, and wind erosion from the active portions of the storage pile.

Talen's estimated emissions increase from the Dry Disposal System is less than 12 tons per year (tpy) for particulate matter (PM), 5 tpy for PM with an aerodynamic diameter of 10 microns or less (PM_{10}), and 1 tpy for PM with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), which means this permit action does not trigger major modification requirements.

The Dry Disposal System application was combined with an administrative amendment to remove all permitted equipment related to Units 1 and 2. Since the removal of equipment from an existing permit is an administrative action, the EA does not address the removal of that equipment.

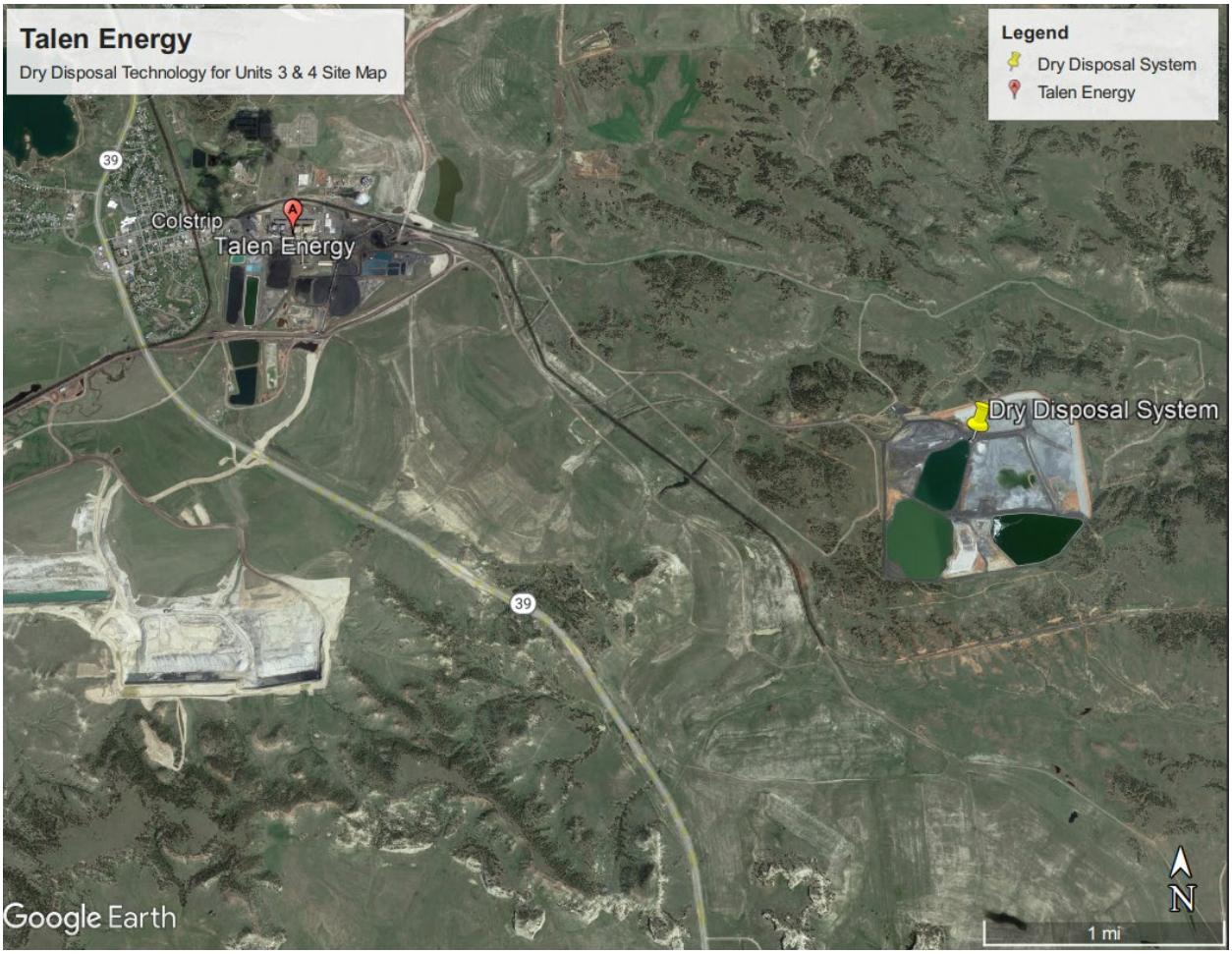
All information included in the EA is derived from the permit application, discussions with the applicant, analysis of aerial photography, topographic maps, and other research tools.

Table 1: Proposed Action Details

Proposed Action	
General Overview	The new Dry Disposal System is designed to receive the wet fly-ash paste from the existing paste plant and process it through a pressure filtration system to further reduce the moisture content. The resulting fly-ash filter cake would then be conveyed to a holding bin where it would then be dropped into dump trucks for transport. The trucks would haul the filter cake to a receiving cell within the process pond disposal area and would deposit the material into a storage pile for final disposition. The Dry Disposal System would generate PM emissions from: o transferring the filter cake between conveyors to the holding bin; o dropping the filter cake from the holding bin into dump trucks; o dump trucks driving on the unpaved roads; o dumping the filter cake onto the storage pile; and o wind erosion from the active portions of the storage pile.
Proposed Action Estimated Disturbance	
Disturbance	Disturbance for construction would be approximately 27 acres, all within the existing boundaries of the CSES property.
Proposed Action	
Duration	**Construction:** Construction or commencement for the new or modified sources must start within three years of issuance of the final air quality permit, otherwise the authority to construct expires. Construction of the Dry Disposal System would occur as soon as possible with planned start of operations in July 2022, but potentially as late as October 2022. **Operational Life:** Although equipment may have functional lives of 20

	to 30 years depending on equipment maintenance efforts, the facility has been operational since 1975 and would be expected to remain operational as long as economic conditions are favorable.
Construction Equipment	Typical construction equipment, including cranes, earth moving equipment (excavators, dump trucks, etc.), forklifts, manlifts, and a concrete pump truck would be used for the construction of the Dry Disposal System.
Personnel Onsite	**Construction:** Talen would hire a contractor for construction of the Dry Disposal System which could have up to 70 people onsite for the construction work. **Operations:** Talen anticipates that 12 additional permanent staff would be hired to accommodate the Dry Disposal System.
Location and Analysis Area	**Location**: The proposed action is located at the CSES property whose street address is 580 Willow Avenue, Colstrip, Montana, 59323. The legal location is Section 34, Township 2 North, Range 41 East, in Rosebud County, Montana and the location of the planned Dry Disposal is shown in Figure 1 below. **Analysis Area**: The area being analyzed as part of this environmental review includes the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered.
Air Quality	The Draft EA will be attached to the Preliminary Determination Air Quality Permit which would include all enforceable conditions for operation of the emitting units. Any revisions to the EA would be addressed and included in the Final EA attached to the Department's Decision.
Conditions Incorporated into the Proposed Action	The conditions developed in the Preliminary Determination of the MAQP dated April 14, 2022, and updated in the Department Decision dated May 5, 2022, set forth in Sections II.A.25.

Figure 1: Map of the Talen CSES and location of the Dry Disposal System from MAQP application #0513-16 (March 2022)



PURPOSE AND BENEFIT FOR PROPOSED ACTION

DEQ's purpose in conducting this environmental review is to act upon Talen's air quality permit application No. 0513-16 to install and operate the Dry Disposal System which includes approval for the particulate matter emissions that will result from the new equipment.

The benefits of the proposed action, if approved, include: authorizing Talen to construct and operate the facility allowing for the conversion to a "non-liquid" disposal system for coal combustion residuals (CCR) material generated by CSES Units 3 and 4.

Authority to Talen for operation of the Dry Disposal System would continue until the permit is revoked, either at the request of Talen or by DEQ because of non-compliance with the conditions within the air quality permit.

REGULATORY RESPONSIBILITIES

In accordance with ARM 17.4.609(3)(c), DEQ must list any federal, state, or local, authorities that have concurrent or additional jurisdiction or environmental review responsibility for the proposed action and the permits, licenses, and other authorizations required. Talen must conduct its operations according to the terms of its permit, the CAA, §§ 75-2-101, *et seq*., MCA, and ARMs 17.8.101, *et seq*.

Upon review of the air quality permit application, Talen would need to modify their Title V Operating Permit with the proposed changes within 12 months after commencing construction, ARM 17.8.1205.

Talen must cooperate fully with, and follow the directives of, any federal, state, or local entity that may have authority over CSES. These permits, licenses, and other authorizations may include: City of Colstrip, Rosebud County Weed District, Occupational safety and Health Administration (worker safety), DEQ AQB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), and Montana Department of Transportation and Rosebud County (road access).

Talen's new Dry Disposal System would be located within the perimeter of the current CSES property boundary. CSES is currently located on 1,755 acres. During construction of the Dry Disposal System, approximately 27 acres of land would be disturbed.

EVALUATION AND SUMMARY OF POTENTIAL IMPACTS TO THE PHYSICAL AND HUMAN ENVIRONMENT IN THE AREA AFFECTED BY THE PROPOSED ACTION:

The impact analysis will identify and evaluate direct and secondary impacts. Direct impacts are those that occur at the same time and place as the action that triggers the effect. Secondary impacts mean "a further impact to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action." ARM 17.4.603(18). Where impacts are expected to occur, the impacts analysis estimates the duration and intensity of the impact.
The duration of an impact is quantified as follows:

- **Short-term**: Short-term impacts are defined as those impacts that would not last longer than the proposed operation of the site.
- **Long-term**: Long-term impacts are defined as impacts that would remain or occur following shutdown of the proposed facility.

The severity of an impact is measured using the following:

- **No Impact**: There would be no change from current conditions.
- **Negligible Impact**: An adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor Impact**: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.
- **Moderate Impact**: The effect would be easily identifiable and would change the function or integrity of the resource.

- **Major Impact**: The effect would alter the resource.

1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

The CSES site is located immediately to the east and southeast of the town of Colstrip in Rosebud County, Montana. The elevation is 3,375 feet as referenced by the nearest topographic map on the Montana DEQ GIS website. The elevation of the proposed Dry Disposal System storage area is 3,289 and located approximately 3.5 miles southeast of Colstrip.

The site is in the Fort Union Formation, in the area of the Rosebud coal seam. This seam has been mined out in the area. All activity would be conducted on previously disturbed plant property. This surface activity would not impact the productivity or fertility of the soil at the site. The site is not utilized for any agricultural activity.

Direct Impacts: The information provided above is based on the information provided to DEQ for the Dry Disposal System detailing the geology of the local area. Available information includes the permit application, analysis of aerial photography, topographic maps, and other research tools. None of the planned disturbance at the site is considered first time disturbance. Soils would be disturbed during construction and operation of the proposed action, approximately 27 acres of disturbance would occur for the life of the project. There is no impact expected to topography and geology.

Secondary Impacts: No secondary impacts to topography, geology, stability, and moisture would be expected because the Dry Disposal System is located within the existing CSES property.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION:

No wetlands have been identified on the site. No discharges to surface waters are proposed in the current project.

Direct Impacts: The information provided above is based on the information provided by the applicant for the purpose of obtaining the pending air quality permit. Talen's air permit application indicated that no changes to their water quality or Montana Pollutant Discharge Elimination System (MPDES) stormwater permit are necessary.

No fragile or unique water resources or values are present. No impacts to water quality and quantity, which are resources of significant statewide and societal importance are expected.

Secondary Impacts: No secondary impacts to water quality, quantity and distribution would be expected, nor any impacts from stormwater runoff.

3. AIR QUALITY:

Rosebud County is designated as an Unclassifiable/Attainment area for all criteria pollutants according to 40 CFR 81.327.

Any stationary source falling under one of the 28 source categories listed in the "major stationary source" definition in ARM 17.8.801(22) would be a major stationary source if it emits, or has the potential to emit, 100 tpy or more of any regulated Prevention of Significant Deterioration (PSD) pollutant, except for GHGs. The Talen CSES is a "fossil fuel-fired steam electric plan of more than 250 million British thermal units per hour heat input", which is one of the 28 listed source categories and has the potential to emit 100 tpy or more of a regulated PSD pollutant. A proposed action is considered a significant modification under the PSD rules if the proposed action's emission increase exceeds the PSD significant thresholds under ARM 17.8.818. The project emissions from Talen's proposed action does not qualify as a major PSD modification as demonstrated in Table 2 below.

Table 2: Dry Solids Disposal Project – Project-only Potential to Emit Emission Increase Summary

Pollutant	Potential to Emit (tpy)	PSD Significant Modification Threshold (tpy)	Project-only Emissions Increase PSD Significant? (Yes/No)
PM (filterable only)	11.82	25	No
PM_{10}	4.78	15	No
$PM_{2.5}$	0.67	10	No

Direct Impacts: Expected emissions from the proposed action, as submitted in the air quality permit application, are in Table 2. Each pollutant is less than the PSD significant modification threshold; therefore, the proposed action would not require PSD review. No analysis of greenhouse gases is required for a non-major action at a PSD major facility.

Air quality standards, set by the federal government and DEQ are enforced by the AQB and allow for pollutants at the levels permitted within the MAQP. The project emissions would consist of fugitive particulate matter (PM) species. These emissions come from transferring the filter cake between conveyors to the holding bin, dropping the filter cake from the holding bin into dump trucks, the dump trucks driving on the unpaved haul roads, dumping the filter cake onto the storage pile, and wind erosion from the active portions of the storage pile.

The owner or operator of a new or modified facility or emitting unit for which an MAQP is required shall employ the maximum air pollution control capability that is technically practicable and economically feasible (ARM 17.8.752(1)), except that Best Available Control Technology (BACT) must be utilized (ARM 17.8.752(1)(a)). BACT is defined in ARM 17.8.740(2) as an emission limitation; however, the definition also addresses that if the measurement of emissions from a particular class of emissions units would prove technically or economically infeasible then a design or work practice standard may be prescribed as BACT. Prescribing a work practice

standard is common practice for sources of fugitive PM emissions due to the technical infeasibility of directly measuring the amount of emissions generated. As part of the air quality permit application, Talen submitted work practice standards as BACT for each emissions source associated with the Dry Disposal System. These proposed work practice standards were reviewed by DEQ and incorporated into MAQP #0513-16 as federally enforceable conditions.

During construction and installation of new equipment, fugitive dust may be generated from earth work and from construction vehicle activity. Pursuant to ARM 17.8.304(2), fugitive dust emissions would need to meet an operational visible opacity standard or 20 percent or less averaged over 6 consecutive minutes. Pursuant to ARM 17.8.308(1), Talen is required to take reasonable precautions to control emissions of airborne particulate matter from all phases of operation including material transport. Reasonable precautions would include items such the use of water during construction periods to minimize dust emissions. Air quality standards are regulated by the federal Clean Air Act, 42 U.S.C. 7401 *et seq.* and CAA, § 50-40-101 *et seq.* MCA, and are implemented and enforced by DEQ's AQB. As stated above, Talen is required to comply with all applicable state and federal laws. Minor air quality impacts would be anticipated for the proposed action.

Secondary Impacts: Impacts from the operation of the Dry Disposal System are to be regulated by an MAQP and therefore should have minor secondary air quality impacts.

4. VEGETATION COVER, QUANTITY AND QUALITY:

There are no known rare or sensitive plants or cover types present in the site area. No fragile or unique resources or values, or resources of statewide or societal importance, are present. CSES has been operating at this site since 1975. An air quality permit for the site was first issued in 1973 for Units 1 and 2 which have since been permanently retired. Currently operating Units 3 and 4 were first issued an air quality permit in 1977. The proposed action is located within the CSES property in an area already in use as an industrial site.

Direct Impacts: The information provided above is based on the information that DEQ had available to it at the time of completing this EA and provided by the applicant. Available information includes the permit application, analysis of aerial photography, topographic maps, and other research tools. As the proposed action would be located within the CSES property at a previously disturbed area, the vegetation is very limited at the site. The aerial photo contained in the air quality permit application does appear to show some vegetation to the north of the process ponds area where the Dry Disposal System would be installed, but this is outside the area of any planned disturbance. No impacts to vegetation cover, quantity and quality are expected.

Secondary Impacts: No secondary impacts are expected since land disturbance at CSES would occur in an area already disturbed and in use as an industrial site.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

As described earlier in Section 4. Vegetation Cover, the area is represented by commercial and industrial operations. The location of the Dry Disposal System is within the existing process ponds area which is not a natural habitat for any local terrestrial, avian, or aquatic life. Air

emissions associated with the proposed project are minor by industrial and regulatory standards and are not expected to impact the surrounding areas.

Direct Impacts: The potential impact (including cumulative impacts) to terrestrial, avian and aquatic life and habitats would be negligible, due to the long-term industrial nature of the site.

Secondary Impacts: No secondary impacts to terrestrial, avian and aquatic life and habitats stimulated or induced by the direct impacts analyzed above or from the development and operation of the Dry Disposal System would be expected.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

DEQ incorporates by reference the EA conducted for issuing MAQP #0513-15 to Talen on December 10, 2020, where the Montana Natural Heritage Program (MTNHP) identified any unique endangered, fragile, or limited environmental resources in the area. In this case, the area was defined by the section, township, and range of CSES with an additional 1-mile buffer zone. The following table summarizes identified occurrences of species of concern within the search radius.

Birds	Mammals	Plants	Reptiles
Pinyon Jay Brewer's Sparrow Golden Eagle Greater Sage-Grouse Red-headed Woodpecker	Marriam's Shrew Spotted Bat	Astragalus barrii Amorpha canescens	Greater Short-horned Lizard Western Milksnake Plains Hog-nosed Snake

The surface activities would be conducted entirely within the existing facility boundaries on previously disturbed land. No habitat or breeding grounds for species of concern would be expected to be impacted.

Direct Impacts: These species would not be displaced by the proposed action as the site is industrial and has been since 1975. The potential impact (including cumulative impacts) to species would be negligible.

Secondary Impacts: The proposed action and the development and operation of the Dry Disposal System would have no secondary impacts to endangered species because the permit conditions are protective of human and animal health and all lands involved in the proposed action are currently used for industrial operations and would not change the effect to the environment.

7. HISTORICAL AND ARCHAEOLOGICAL SITES:

DEQ incorporates by reference the EA conducted for issuing MAQP #0513-15 to Talen on December 10, 2020, where the Montana State Historic Preservation Office (SHPO) was contacted to conduct a file search for historical and archaeological sites within the project area. SHPO provided a letter dated October 8, 2020, that indicated there have been a few previously recorded sites within the designated search location. Two of the sites were determined to be eligible for

registration as a historical site and the remaining site was undetermined. It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are within the Area of Potential Effect, and are over fifty years old, SHPO recommends that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place.

However, should structures need to be altered, or if cultural materials are inadvertently discovered during this proposed action, SHPO requests their office be contacted for further investigation.

Direct Impacts: Although the search by SHPO has identified some historical and archaeological sites, the proposed project is not expected to impact any new locations that are not already in industrial activity. Therefore, no impacts to historical and archeological sites would be expected.

Secondary Impacts: No secondary impacts to historical and archaeological sites are anticipated since the proposed action and construction and operation of the Dry Disposal System is located on land currently in industrial use.

8. SAGE GROUSE EXECUTIVE ORDER:

The Montana Sage Grouse Oversight Team (MSGOT) approved an exception from consultation requirements for activities within an area defined by an Administrative Order on Consent (AOC). This exception was approved based on previous impacts from construction/operation of the Colstrip facility throughout the defined area, no new areas outside the boundary of the AOC-defined area would be impacted, no leks are present within the AOC-defined area, and no records of sage grouse sightings within the AOC-defined area. The current project activities would all occur within the boundaries of the AOC-defined area. Therefore, consultation with the MSGOT is not required.

Direct Impacts: Sage Grouse would not be displaced by the proposed action as the site is industrial and has been since 1975. The potential impact (including cumulative impacts) to this species and habitat would be negligible.

Secondary Impacts: No secondary impacts to sage grouse or sage grouse habitat would be expected.

9. AESTHETICS:

The proposed action would occur on private land. The nearest residents to the proposed action reside to the northwest at a distance of approximately 3.5 miles. It is not expected that the nearest residences to the proposed site would experience any noticeable change in noise levels. The noise levels at the property boundary would not be expected to change.

The CSES is situated on approximately 1,755 acres of private land. The construction activity at CSES associated with the proposed project would disturb approximately 27 acres.

Direct Impacts: There would be temporary construction activities including noise and dust. Equipment planned for construction could include cranes, backhoes, graders/dozers, passenger trucks, delivery trucks, cement trucks, and various other types of smaller equipment. Once the

proposed action is constructed, no discernable change in noise level would be expected during operation of the Dry Disposal System. The facility profile would change slightly with the erection of Dry Disposal System facility and storage piles but remain consistent with current usage and appearance. Impacts would be negligible. Noise levels are not expected to change beyond the facility boundary.

Secondary Impacts: The development of the Dry Disposal System would not expect to have an impact on the aesthetics because it would be situated on property currently in industrial use and its noise would not be expected to differ any from the surrounding facility.

10. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

The site is located in an area already developed and in use for industrial activity within the CSES property boundary. The operation of the CSES generates electricity for consumers offsite.

Direct Impacts: During construction of the proposed action there would be minor increase in energy use to construct the Dry Disposal System. Once operational, energy and electric demands would continue for the duration of the facility's lifetime at or near current levels. See the Air Quality and Water Quality sections of the EA to review the potential impacts from the proposed action regarding air and water resources.

Secondary Impacts: During operations, the proposed action would allow for the use of a dry disposal technology for CCR material. This change is expected to have no significant change in impact.

11. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

The Dry Disposal System site is located on the same property as CSES.

Direct Impacts: No other environmental resources are known have been identified in the area beyond those discussed above. Hence, there is no impact to other environmental resources.

Secondary Impacts: No secondary impacts to other environmental resources are anticipated as a result of the proposed action.

12. HUMAN HEALTH AND SAFETY:

The applicant would be required to adhere to all applicable state and federal safety laws. The access to the public would continue to be restricted to this property.

Direct Impacts: Negligible change in impacts to human health and safety are anticipated as a result of this project action. There would be some additional haul road traffic within the site as the filter cake is transported from the Dry Disposal System to the storage piles. This activity is consistent with current activities at CSES.

Secondary Impacts: No secondary impacts to human health and safety are anticipated as a result of the proposed action.

13. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

There is no agricultural activity at the site**.**

Direct Impacts: The proposed action would not affect the capacity of CSES. Impacts on the industrial, commercial, and agricultural activities and production in the area would be negligible.

Secondary Impacts: No secondary impacts to industrial, commercial, and agricultural activities and production are anticipated as a result of the proposed action.

14. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Talen determined that 12 additional permanent staff would be necessary to accommodate the Dry Disposal System.

Direct Impacts: Talen would hire a contractor for construction of the Dry Disposal System which could have up to 70 people onsite for the construction work. 12 additional permanent staff would be necessary to accommodate the Dry Disposal System. This influx of temporary and permanent employment could have minor impacts on the local distribution of employment.

Secondary Impacts: Although a number of temporary construction and contractor jobs will be associated with construction, no secondary impact is expected on long term employment from the from the temporary employment. The addition of 12 permanent staff would have a negligible secondary impact on the quantity and distribution of employment.

15. LOCAL AND STATE TAX BASE AND TAX REVENUES:

The proposed action would be expected to have minor impacts on the local and state tax base and tax revenue.

Direct Impacts: Local, state, and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, from the companies, employees, or landowners benefitting from this operation. A minor impact is expected on the tax base and revenue with the proposed action.

Secondary Impacts: No secondary impacts to local and state tax base and tax revenues are anticipated as a result of the proposed action.

16. DEMAND FOR GOVERNMENT SERVICES:

The proposed action is in a heavy industrial and commercial area.

Direct Impacts: Compliance review and assistance oversight by DEQ AQB would be conducted in concert with other area activity when in the vicinity. The proposed action would have only minor impacts on demand for government services, mainly through oversight by DEQ AQB.

Secondary Impacts: No secondary impacts are anticipated on government services with the proposed action.

17. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

A review was also conducted of the City of Colstrip website on April 11, 2022. A zoning map from the website indicated that the proposed action would be within the Power Generation District.

Direct Impacts: Talen's proposed action is on property which is already zoned for Power Generation. No impacts from the proposed action would be expected relative to any locally adopted community planning goals.

Secondary Impacts: No secondary impacts to the locally-adopted environmental plans and goals are anticipated as a result of the proposed action.

18. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

The current site of the proposed action is in an area of industrial use. No wilderness areas or other recreational sites are in the vicinity.

Direct Impacts: There would be no impacts to the access to wilderness activities as none are in the vicinity of the proposed action.

Secondary Impacts: No secondary impacts to access and quality of recreational and wilderness activities are anticipated as a result of the proposed action.

19. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Talen determined that 12 additional permanent staff would be necessary to accommodate the Dry Disposal System.

Direct Impacts: Talen would hire a contractor for construction of the Dry Disposal System which could have up to 70 people onsite for the construction work. Talen has historically conducted activities that require a temporary influx of contract employees and the community has the infrastructure to accommodate this. The project would require 12 new permanent employees which could add to the permanent population or require additional housing; therefore, a minor short-term impact to density and distribution of population and housing is anticipated.

Secondary Impacts: Negligible secondary impacts to density and distribution of population and housing are anticipated as a result of the proposed action.

20. SOCIAL STRUCTURES AND MORES:

Based on the required information provided by Talen, DEQ is not aware of any native cultural concerns that would be affected by the proposed action on this existing facility.

Direct Impacts: The proposed action is located on an existing industrial site, no disruption of native or traditional lifestyles would be expected, therefore, no impacts to social structure and mores are anticipated.

Secondary Impacts: No secondary impacts to social structures and mores are anticipated as a result of the proposed operations.

21. CULTURAL UNIQUENESS AND DIVERSITY:

Based on the required information provided by Talen, DEQ is not aware of any unique qualities of the area that would be affected by the proposed action on this existing facility.

Direct Impacts: No impacts to cultural uniqueness and diversity are anticipated from this project.

Secondary Impacts: No secondary impacts to cultural uniqueness and diversity are anticipated as a result of the proposed action.

22. PRIVATE PROPERTY IMPACTS:

The proposed action would take place on privately-owned land. The analysis below in response to the Private Property Assessment Act indicates no impact. DEQ does not plan to deny the application or impose conditions that would restrict the regulated person's use of private property so as to constitute a taking. Further, if the application is complete, DEQ must take action on the permit pursuant to § 75-2-218(2), MCA. Therefore, DEQ does not have discretion to take the action in another way that would have less impact on private property—its action is bound by a statute.

There are no private residences in the area of the proposed action. The closest residence is located approximately 3.5 miles to the northwest from the project location. Other residences are located near the northwestern property boundary.

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?

YES	NO	
		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?
	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, DEQ determined there are no taking or damaging implications associated with this permit action.

23. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Due to the nature of the proposed action, no further direct or secondary impacts are anticipated from this project.

ADDITIONAL ALTERNATIVES CONSIDERED:

No Action Alternative: In addition to the analysis above for the proposed action, DEQ is considering a "no action" alternative. The "no action" alternative would deny the approval of the proposed action. The applicant would lack the authority to conduct the proposed activity. Any potential impacts that would result from the proposed action would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

Other Ways to Accomplish the Action: In order to meet the project objective to convert to a "non-liquid" disposal system for CCR material, specific technologies are necessary as well as a mechanism to store or remove the waste material. While the configuration for these processes could be modified for a different physical layout, the relative disturbed area and associated emissions would not be substantially different than the proposed action.

If the applicant demonstrates compliance with all applicable rules and regulations as required for approval, the "no action" alternative would not be appropriate. Pursuant to, § 75-1-201(4)(a), (MCA) DEQ "may not withhold, deny, or impose conditions on any permit or other authority to act based on" an environmental assessment.

CUMULATIVE IMPACTS:

Cumulative impacts are the collective impacts on the human environment within the borders of the proposed action when considered in conjunction with other past and present actions related to the

proposed action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures.

On April 7, 2022, DEQ received an air quality permit amendment request from Talen requesting for removal of conditions applicable to Units 1 and 2 which have been permanently retired. The amendment request is not related to the Dry Disposal System; however, DEQ was able to incorporate the changes requested in the amendment into MAQP #0513-16. No other permit applications for this facility are currently pending before DEQ. Although additional permits may be necessary for this facility in the future, without a pending permit application containing the requisite information, DEQ cannot speculate about which permits may be necessary or which permits may be granted or denied. For example, at this time DEQ does not have sufficient information to determine whether or not a modification is required to the MPDES permit—and therefore cannot predict whether there would be a discharge associated with this proposed action. There may, therefore, be additional cumulative impacts (*e.g.* to water) associated with this facility in the future, but those impacts would be analyzed by future environmental reviews associated with those later permitting actions. (For example, if Talen applies for a MPDES permit modification DEQ would analyze the cumulative impacts of the already issued air quality permit and the then-pending MPDES permit.) This environmental review analyzes only the proposed action submitted by Talen, which is the air quality permit regulating the emissions from the equipment as listed in the "proposed action" section, above.

There are other sources of industrial emissions in the vicinity. The Colstrip Energy Limited Partnership is another power generating facility approximately 6.5 miles to the north of CSES which would have emissions including CO, SO_2, NO_X and particulate matter as detailed in MAQP #2035-07. These emissions are limited thru enforceable conditions within the air quality permit. Immediately to the west of CSES there is the Rosebud County Western Energy Mine operating under MAQP #1483-09 that also has limits in place for PM emissions primarily via work practice requirements and annual production limitations. Collectively, these sources and the proposed action can all contribute to the ambient air quality and when future permit actions occur at CSES, these actions may require future analysis. The proposed action would not be expected to have any discernable impact. No change in the EPA air quality designation would be expected. Rosebud County is currently designated as an Unclassifiable/Attainment area for all criteria pollutants.

DEQ considered potential impacts related to this project and potential secondary impacts. Due to the limited activities in the analysis area, cumulative impacts related to this proposed action would be minor. The cumulative table for any direct and secondary impacts is located at the end of this EA. See Table III.

PUBLIC INVOLVEMENT:

Scoping for this proposed action consisted of internal efforts to identify substantive issues and/or concerns related to the proposed action. Internal scoping consisted of internal review of the EA document by DEQ Air Permitting staff.

Internal efforts also included queries to the following websites/ databases/ personnel:
- Montana State Historic Preservation Office
- Montana DEQ

• Rosebud County
• City of Colstrip
• Montana Natural Heritage Program
• Montana Cadastral Mapping Program

A fifteen day public comment period occurs along with the Preliminary Determination on MAQP #0513-16 and is posted to the DEQ website.

OTHER GOVERNMENTAL AGENCIES WITH JURSIDICTION:

The proposed action would be fully located on privately-owned land. All applicable local, state, and federal rules must be adhered to, which, at some level, may also include other local, state, federal, or tribal agency jurisdiction. Other Governmental Agencies which may have overlapping or sole jurisdiction include but may not be limited to: City of Colstrip, Rosebud County Commission or County Planning Department (zoning), Rosebud County Weed Control Board, Occupational Safety and Health Administration (worker safety), DEQ AQB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT and Rosebud County (road access).

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

Under ARM 17.4.608, DEQ is required to determine the significance of impacts associated with the proposed action. This determination is the basis for the agency's decision concerning the need to prepare an environmental impact statement and also refers to DEQ's evaluation of individual and cumulative impacts. DEQ is required to consider the following criteria in determining the significance of each impact on the quality of the human environment:

1. The severity, duration, geographic extent, and frequency of the occurrence of the impact.

   "Severity" is analyzed as the density of the potential impact while "extent" is described as the area where the impact is likely to occur. An example could be that a project may propagate ten noxious weeds on a surface area of 1 square foot. In this case, the impact may be a high severity over a low extent. If those ten noxious weeds were located over ten acres there may be a low severity over a larger extent.

   "Duration" is analyzed as the time period in which the impact may occur while "frequency" is analyzed as how often the impact may occur. For example, an operation that occurs throughout the night may have impacts associated with lighting that occur every night (frequency) over the course of the one season project (duration).

2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur.

3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts.

4. The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values.

5. The importance to the state and to society of each environmental resource or value that would be affected.

6. Any precedent that would be set as a result of an impact of the proposed action that would commit the DEQ to future actions with significant impacts or a decision in principle about such future actions.

7. Potential conflict with local, state, or federal laws, requirements, or formal plans.

The significance determination is made by giving weight to these criteria in their totality. For example, impacts with moderate or major severity may be determined to be not significant if the duration of the impacts is considered to be short-term. As another example, however, moderate or major impacts of short-term duration may be considered to be significant if the quantity and quality of the resource is limited and/or the resource is considered to be unique or fragile. As a final example, moderate or major impacts to a resource may be determined to be not significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Preparation of an EA is the appropriate level of environmental review under MEPA if statutory requirements do not allow sufficient time for an agency to prepare an environmental impact statement, pursuant to ARM 17.4.607. An agency determines whether sufficient time is available to prepare an environmental impact statement by comparing statutory requirements that establish when the agency must make its decision on the proposed action with the time required to obtain public review of an environmental impact statement plus a reasonable period to prepare a draft environmental review and, if required, a final environmental impact statement.

SIGNIFICANCE DETERMINATION

The severity, duration, geographic extent, and frequency of the occurrence of the primary, secondary, and cumulative impacts associated with the proposed action would be limited. Talen proposes to modify operations at CSES as described in MAQP application #0513-16. The modification would occur completely on the CSES property. The project would be located on private land. The estimated construction disturbance will be minimal and estimated to consist of about 27 acres.

DEQ has not identified any significant impacts associated with the proposed action for any environmental resource. Approving Talen's air quality permit application would not set precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If Talen submits another permit application, DEQ is not committed to approve the application. DEQ would conduct a new environmental assessment for any subsequent air quality permit applications sought by Talen. DEQ would make a decision on Talen's subsequent application based on the criteria set forth in the CAA.

DEQ's issuance of a modified MAQP to Talen for this proposed operation also does not set a precedent for DEQ's review of other applications, including the level of environmental review. A decision of on the appropriate level of environmental review is made based on case-specific considerations of the criteria set forth in ARM 17.4.608.

DEQ does not believe that the proposed action has any growth-inducing or growth-inhibiting aspects or that it conflicts with any local, state, or federal laws, requirements, or formal plans. Based on a consideration of the criteria set forth in ARM 17.4.608, the proposed state action is not predicted to significantly impact the quality of the human environment. Therefore, at this time, preparation of an EA is determined to be the appropriate level of environmental review under MEPA.

Environmental Assessment and Significance Determination Prepared By:

E. Warner	**Lead Engineer – Permitting Services Section**
Name	**Title**

EA Reviewed By:

J. Merkel	**Permitting Services Section Supervisor**
Name	**Title**

References

Air Quality Permit Application Received March 23, 2022
Comments on Draft MAQP #0513-16 received from Talen on April 27, 2022
Montana State Historical Preservation Office (SHPO) Report Received October 8, 2020
Montana Natural Heritage Program Report Received October 8, 2020
Montana Cadastral GIS Layer – Through-Out Project Up Until Decision Issuance
Air Quality Bureau Permitted Source List-GIS Layer
Air Quality Permit MAQP #0513-15
Air Quality Permit MAQP #1483-09
Air Quality Permit MAQP #2035-07
City of Colstrip Website – Zoning Map

ABBREVIATIONS and ACRONYMS

AQB – Air Quality Bureau
ARM - Administrative Rules of Montana
BACT – Best Available Control Technology
BMP - Best Management Practices
CAA – Clean Air Act of Montana
CFR - Code of Federal Regulations
CO - carbon monoxide
CSES – Colstrip Steam Electric Station
DEQ – Department of Environmental Quality
DNRC – Department of Natural Recourses and Conservation
EA – Environmental Assessment
EIS – Environmental Impact Statement
EPA - U.S. Environmental Protection Agency
FCAA Federal Clean Air Act
MAQP – Montana Air Quality Permit
MCA – Montana Code Annotated
MEPA – Montana Environmental Policy Act
MPDES - Montana Pollutant Discharge Elimination System
MTNHP - Montana Natural Heritage Program
NO_X - oxides of nitrogen
PM - particulate matter
PM_{10} - particulate matter with an aerodynamic diameter of 10 microns and less
$PM_{2.5}$ - particulate matter with an aerodynamic diameter of 2.5 microns and less
PPAA - Private Property Assessment Act
Program - Sage Grouse Habitat Conservation Program
PSD - Prevention of Significant Deterioration
SHPO - Montana State Historic Preservation Office
SOC - Species of Concern
SO_2 - sulfur dioxide
Talen – Talen Montana, LLC
tpy – tons per year
U.S.C. - United States Code
VOC - volatile organic compound

Table III: Summary of Potential Impacts from the Dry Disposal System Project.

Potential Impact	Affected Resource and EA Section Reference	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability[5] Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Soil Disturbance/ Stormwater Runoff	I. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE. II. WATER QUALITY, QUANTITY, AND DISTRIBUTION	**S**-low: The 27-acre disturbance both during construction and following construction, could be susceptible to erosion. **E**-low: Total surface disturbance would be 27 acres. **D/F**- Impacts from the proposed action will continue throughout the duration of CSES operation. **U/F**-Not unique or particularly fragile.	Certain	There would be limited change to the impact on this site from the proposed action which has been used as an electric generating facility since 1975.	Talen will continue follow reasonable precautions for storm run-off and fugitive dust.	No
Fugitive dust	III. AIR QUALITY	**S**-low: Talen conservatively estimated the increase in emissions due to new activities. **E**-small: Total surface disturbance is estimated at 27 acres. **D/F**- Impacts from the proposed action will continue throughout the duration of the CSES operation. **U/F**-Not unique or particularly fragile.	Certain	There would be limited change to the impact on this site from the proposed action which has been used as an electric generating facility since 1975.	Emission control practices consistent with reasonable precautions for minimizing fugitive PM emissions associated with material transfers, haul roads, and storage piles. These include water/chemical dust suppressant and partial enclosures.	No
Impacts to Historical and Archaeological Sites	VII. HISTORICAL AND ARCHAEOLOGICAL SITES:	**S** -low: All areas proposed for disturbance have been previously disturbed. No impact to sites would be anticipated. **E** – small: Site has been an electric generating facility since 1975. **D/F** – Impacts from the proposed action will continue throughout the duration of the CSES operation and, any disturbance to archaeological sites would be permanent. **U/F**-Not unique or particularly fragile.	Unlikely	Impacts to historical and archaeological sites associated with the proposed action would minimally add to the cumulative impacts around the area since the property has previously been disturbed.	SHPO recommendations would be followed by Talen upon discovery of any historical site significance.	No

Potential Impact	Affected Resource and EA Section Reference	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability[5] Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Noise Increases and Visual Changes	IX. AESHETICS	**S**-low: Noise would not be expected to increase above current baseline. Visual changes would include buildings, haul trucks, and storage piles. **E**-small: The equipment would be installed on the interior of an existing parcel. Not readily visible to public. **D/F**- Impacts from the proposed action will continue throughout the duration of CSES operation. **U/F**-Not unique or particularly fragile.	Unlikely	No discernable changes in noise would likely occur. Visual differences would not change the fact the site is already an electrical generating facility.	Equipment would be located away from exterior of property boundary.	No
Energy Use Increase Onsite and Transportation Energy Use Increases	X. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	**S**-low: Power for Dry Disposal System and fuel for haul trucks. **E**-small: Minimal change is expected. **D/F**- Energy use at CSES would be on-going for the duration of the facility life. **U/F**-Not unique or particularly fragile.	Unlikely	Minimal change of cumulative impacts are expected from the proposed action.	None proposed	No
Traffic Increases and Employee Exposure to New Equipment	XII. HUMAN HEALTH AND SAFETY	**S**-low: The proposed action anticipates an increase of 12 staff and some new equipment. Additional haul truck traffic within the plant would occur. **E**-small: the facility would add 12 staff to support the proposed action. **D/F**- Traffic and employee personnel impacts would be on-going for the duration of the facility life. **U/F**-Not unique or particularly fragile.	Certain	Overall traffic and personnel impacts are expected to be minimal.	None proposed.	No
Property's Continued Use for Industrial Activities	XIII. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION	**S** -low: 27 acres of the existing industrial property have been identified to be modified. **E** – small: 27 acres of the existing industrial property have been identified to be modified. **D/F** – Duration of the life	Certain	No cumulative impacts are expected.	None proposed.	No

Potential Impact	Affected Resource and EA Section Reference	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability[5] Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
		of the facility. **U/F**-Not unique or particularly fragile.				
Tax Base and Employment	XIV. QUANTITY AND DISTRIBUTION OF EMPLOYMENT XV. LOCAL AND STATE TAX BASE AND TAX REVENUES XIX. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING	**S** -low; Temporary contract employees would be present during construction phase of the proposed action. 12 new permanent staff would be needed to accommodate the Dry Disposal System. **E** – low: Increase of 12 permanent employees for area. **D/F** – Duration of the life of the facility. **U/F**-Not unique or particularly fragile	Certain	No expected change.	None proposed.	No

Definitions are quantified as follows:

• Short-term: Short-term impacts are defined as those impacts that would not last longer than the proposed operation of the site.

• Long-term: Long-term impacts are defined as impacts that would remain or occur following shutdown of the proposed facility.

1. Severity describes the density at which the impact may occur. Levels used are low, medium, high.

The severity of an impact is measured using the following:

• No impact: There would be no change from current conditions.

• Negligible: An adverse or beneficial effect would occur but would be at the lowest levels of detection.

• Minor: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.

• Moderate: The effect would be easily identifiable and would change the function or integrity of the resource.

• Major: The effect would alter the resource.

2. Extent describes the land area over which the impact may occur. Levels used are small, medium, and large.

3. Duration describes the time period over which the impact may occur. Descriptors used are discrete time increments (day, month, year, and season).

4. Frequency describes how often the impact may occur.

5. Probability describes how likely it is that the impact may occur without mitigation. Levels used are: impossible, unlikely, possible, probable, certain