TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 960PLR142

to be issued to:

Platte River Power Authority
Rawhide Energy Station
Larimer County
Source ID 0690053

Cathy Rhodes February, 2001

I. PURPOSE:

This document will establish the basis for decisions made regarding the applicable requirements, emissions factors, monitoring plan and compliance status of emission units covered by the operating permit proposed for this site. It is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. This narrative is intended only as an adjunct for the reviewer and has no legal standing. The conclusions made in this report are based on information provided in the original application submittal of February 15, 1996, subsequent supplemental technical submittals, and previous inspection reports.

Any revisions made to the underlying construction permits associated with this facility in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or an additional or revised Construction Permit.

II. SOURCE DESCRIPTION:

This facility is located approximately 10 miles north of Wellington, Larimer County, Colorado. The area is classified as an attainment area for all pollutants. Wyoming is an affected state within 50 miles of the facility. There are two Federal Class I areas within 100 kilometers of the facility: Rocky Mountain National Park and Rawah Wilderness Area.

The Title V application reports the facility is not subject to the provisions of the Accidental Release Plan provisions of 112(r)(7) of the Clean Air Act.

The entire plant is categorized as a major stationary source for the Prevention of Significant Deterioration (PSD) provisions. The EPA issued the plant a PSD permit in 1980, which was revised in 1984 and 1992.

The Rawhide Energy Station consists of one coal fired steam driven electric generating unit (Unit 1). The boiler is rated at 3,000 mmBtu/hour (based on hourly coal consumption and average coal Btu content) or 3,500 mmBtu/hour (based on 40 CFR, Part 75 Heat hput calculation). Unit 1, with a rated electric generating capacity of 295 MW (gross), was placed in service in 1984. The boiler is equipped with a fabric filter (baghouse) system for controlling particulate matter (PM) emissions, and a spray dry absorber controls suflur dioxide (SO₂). The boiler is equipped with low nitrogen oxide (NO_x) concentric firing system burners and over fire air configuration for minimization of NO_x emissions. A review of the file information indicates no major problems with operation or maintenance of the control equipment.

The unit is subject to the provisions of Title IV, the Acid Rain Program, of the Clean Air Act. The permittee has submitted a compliance plan to the EPA for the election of an early reduction of NOx emissions. The plan was approved and a Title IV permit was issued in April, 1997. The early reduction election allows the permittee to operate at the specified level until 2008, or until noncompliance with the specified level has been demonstrated.

Associated activities covered by the operating permit include coal, ash, and lime handling systems. In addition, the permittee operates numerous insignificant activities.

The Potential-to-Emit in the following tabulation of emissions are based on the Title V application.

	POTENTIAL TO EMIT, TONS PER YEAR					
	PM	PM ₁₀	SO ₂	NO _X	VOC	СО
B101 - Unit 1	423	389	1832	6343	54	251
P201 - Coal Handling	118	54				
P301 – Ash Handling	58	23				
P401 – Lime Handling	neg	Neg				
P501 – Haul Roads and Soda Ash Silo	13	6				
Total	612	473	1832	6343	54	251

The compliance status of each source at the facility is based on the information provided in the application and a review of the office files available. Construction permits were missing for Coal Conveying, Solids Vacuum Conveying System, Dry Unloading of Fly Ash, Recycle Ash Storage Silo Filling, Unpaved Site Roads and Parking Lots, and PRS Soda Ash Storage Silo Filling. In addition, the permittee requested a modification of the Coal Crusher emission limits, based on new emission factors. The required construction permit application documents were submitted and the construction permit requirements generated directly into the Title V permit. The coal handling operations are subject to New Source Performance Standards (NSPS) which limit opacity to 20%. The NSPS requires performance testing using Method 9 to demonstrate compliance with this limit. The NSPS was not referenced in the Construction Permit or the Operating Permit application. Platte River Power performed the required performance test in 1998. In addition, the Operating Permit requires the permittee to perform the testing. The Construction Permits for coal handling do limit opacity to 20% under other regulatory requirements. The permittee certified compliance with the 20% opacity limit, therefore they are only out of compliance with the testing requirements. No other noncompliance issues exist. The Division accepts the facility was in compliance with the substance of all applicable requirements at the time the Title V operating permit was prepared.

III. EMISSION SOURCES

The following sources are specifically regulated under terms and conditions of the Operating Permit for this site:

Unit B101 – Combustion Engineering Boiler 3,000 mmBtu/Hr Firing Coal (Note: Per Title 75, Acid Rain calculation procedures: 3,500 mmBtu/Hr)

Applicable Requirements - The Final Approval Construction Permit 12LR525(1) was issued on November 25, 1986. The EPA issued a PSD permit in 1980, subsequently modified in 1984 and December, 1992. The applicable requirements are as follows.

Colorado Regulation No. 1

- Opacity shall not exceed 20%, except as provided in Section II.A.4 (Section II.A.1)
- Opacity shall not exceed 30%, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment of control equipment (Section II.A.4)
- State-only opacity requirement good air pollution control practices exceedance time not to exceed 0.8% (Section II.A.10)
- Particulate emissions shall not exceed 0.1 lbs/mmBtu (Section III. A.1.c)
- Continuous emission monitoring (Section IV)

Continuous Opacity Monitor (COM) requirements (Section IV.B.1), when burning coal Continuous Emission Monitor (CEM) for SO₂ or fuel sampling (Section IV.B.2) if CEM for SO₂ then CEM for either O₂ or CO₂ (Section IV.B.3) Calibration of CEMs (Section IV.F) П Notification and Recordkeeping (Section IV.G) П Recordkeeping duration (Section IV.H) Reporting requirements - if fuel sampling (Section IV.I) П Sulfur dioxide emissions shall not exceed 0.4 lb/mmBtu, when burning coal (Section VI.B.4.a.(iii)), based on a 3 hour average (Section VI.B.2) Use good air pollution control practices when burning coal to reduce sulfur emissions (Section IV.B.4.a(iv)). For this boiler, the regulation defines "good air

pollution control practices as exceeding the standard no more than 1% of the

Colorado Regulation No. 3

APEN reporting (Part A, Section II)

operating time."

PSD requirements for major stationary sources (Part B, IV.D.3)

Best Available Control Technology (BACT)

0.3 lb PM/mmBtu (Construction Permit 12LR525(1) and PSD Permit)

- 0.5 lb NOx/mmBtu, and 65% reduction, 30 day average (PSD Permit)
- 0.5 lb NOx/mmBtu, 3 hour average (Construction Permit 12LR525(1))
- .19 lb SO2/mmBtu, based on a 3 hour average (Construction Permit 12LR525(1)) This limit was based on 70% reduction, per the New Source Performance Standard
- .13 lb SO2/mmBtu and 80% reduction of the potential combustion concentration, based on a 30 day average (PSD Permit)

20% opacity, except for one six minute period of not more than 27% (PSD Permit)

The language in the EPA-issued PSD permit for this facility could be interpreted to indicate that the opacity and particulate limits set forth in the permit were set as Best Available Control Technology (BACT) limits and apply at all times, including startup and shutdown. Following is a discussion of those requirements.

The PSD permit states that:

The Source will be considered to be in violation of the permit if the Administrator determines that the information submitted does not evidence a malfunction or upset condition caused by events beyond the control of the Applicant and the source

exceeded the emission or operational limits described in this permit.

In regard to the opacity limit, there are two reasons that argue against interpreting the 20% opacity standard in the permit as a limit that applies at all times. First, the PSD program is an ambient air-based program. Although one could conduct sufficient Method 5 testing to develop a correlation between opacity and particulate levels at a specific emissions unit, this was obviously not done for any of the units addressed in the PSD permit. Therefore, establishing a BACT limit for opacity for this unit would not result in a direct, measurable impact in regard to ambient air standards. The Division does recognize that, in general, increased opacity is related to the performance of the control device as well as the particulate emission levels. Still, even if the 20% PSD permit limit is found not to apply, it would be supplanted only during startup, and even then the source would be subject to a 30% limit (Colorado Regulation No. 1).

Secondly, a search of the EPA BACT Clearinghouse for all available years did not show a single BACT opacity determination for coal-fired electric utilities. This lends credence to the idea that it was not the intent of drafters of the PSD permit to include opacity in the catch-all language of the permit as a BACT standard that applies at all times. Based on the above discussion, the Division will not consider the 20% opacity limitation to constitute a BACT limit for purposes of Unit B101 at the Rawhide Energy Station.

Therefore, the PSD Permit 20% opacity limit applies at all times, except during startup, shutdown, and malfunction. Note that the PSD Permit limit will apply during some periods when the Regulation No. 1 limit does not (i.e., fire building, cleaning of fireboxes, soot blowing, process modifications and adjustments/cleaning of control equipment).

In regard to particulates, the situation is less clear. There are also two reasons that argue against interpreting the particulate standard in the permit as a limit that applies at all times. The PSD permit for this source uses the NSPS PM standard as the permit limit, although the NSPS may well have represented BACT at the time that the permit was issued. Nevertheless, the NSPS specifically exempts sources from meeting the PM standard during startup and shutdown, so if EPA believes that the NSPS technology cannot allow the source to meet the standards during startup and shutdown and this source has the same standard, it does not seem logical to conclude that this source was expected to meet the PM limits at all times.

In addition, the PSD permit states that compliance with the PM limit is via Reference Method 5, however, Part 60, 60.8(c) requires that performance tests be conducted under representative conditions and states that \Box periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test. Therefore, is does not seem logical to have set BACT limits for PM since compliance could never be monitored using an EPA reference method test.

Despite the above discussion, there are two BACT determinations for PM in the EPA

Clearinghouse for coal-fired electric utility boilers prior to 1991 (both in Hawaii). Also, unlike opacity, PM emissions do have a direct relationship to ambient air standards.

Based on the above discussion, the Division believes that the particulate limits set forth in the EPA-issued PSD permit for the Rawhide Energy Station Unit B101 apply at all times, including startup and shutdown. Note, however, that there are neither continuous nor Reference Method monitoring available for compliance monitoring purposes during startup or shutdown. Therefore, good operating practices will serve as periodic monitoring to monitor compliance with the PM limit during startup and shutdown. Reference method stack tests will be used as periodic monitoring to monitor compliance with the PM limit during all other operational periods.

Based on this determination, the Division has revised the PSD permit excess emission reporting language as follows:

The Source will be considered to be in violation of the permit if the Administrator determines that the information submitted does not evidence a malfunction or upset condition caused by events beyond the control of the Applicant and the source exceeded the emission or operational limits described in this permit. This applies to all emission limits, except for the opacity limit. An exceedance of the opacity limit during startup or shutdown will not be considered a violation as long as good operating practices are followed, as set forth in Condition 8.0 of this permit.

Thus, the permittee will still report excess emissions, including excess opacity emissions, as required in the PSD permit, however, exceedances of the opacity during startup and shutdown will not be considered a violation as long as good operating practices are followed.

Colorado Regulation No. 6, Part B

- Sulfur dioxide emissions shall not exceed 0.4 lb/mmBtu, when burning coal (Section II.D.1.c)
- Use good air pollution control practices when burning coal to reduce sulfur emissions. NOTE: During the rulemaking for revisions to Regulation No. 1 and No. 6 regarding opacity and SO₂ emissions from coal fired utilities, the language concerning good air pollution control practices was inadvertently not included in Regulation No. 6. The intent was to include the same language in Regulation No. 6 as in Regulation No. 1.

Colorado Regulation No. 8

Lead (Pb) emissions shall not be such that emissions result in an ambient lead concentration exceeding 1.5 Fg/scm averaged over a one-month period (Reg 8, Part C) - This is a **State-only** requirement

NSPS Subpart Da (40 CFR, Part 60, Subpart Da, as adopted by reference in Colorado Regulation No. 6, Part A)

- Emissions of Particulate Matter shall not exceed 0.03 lb/mmBtu does not apply during startup, shutdown, or malfunction (*Note: Subpart Da also requires 99% reduction of the potential combustion concentration when burning solid fuel. The potential combustion concentration of PM is defined in NSPS Da, 60.41 (7 lbs/mmBtu for solid fuel). The Background Information Document, and Subpart Da, indicate that compliance with the percentage reduction requirement will be satisfied if the facility is in compliance with the 0.03 standard, thus the 99% reduction requirement is not included in this Operating Permit.)*
- Opacity shall not exceed 20%, except for one six-minute period of not more than 27% does not apply during startup, shutdown, or malfunction
- 70% reduction of SO₂ emissions, 30 day rolling average, based on the average emisson rate for 30 successive boiler operating days does not apply during periods of startup, shutdown, or during emergency conditions (as defined in Subpart Da)
- NO_X emissions shall not exceed 0.50 lbs/mmBtu heat input, 30 day rolling average, based on the average emission rate for 30 consecutive boiler operating days does not apply during startup, shutdown, or malfunction (*Note: Subpart Da also requires 65% reduction of the potential combustion concentration when burning solid fuel. The Background Information Document, and Subpart Da, indicate that compliance with the percentage reduction requirement will be satisfied if the facility is in compliance with the 0.50 standard, thus the 65% reduction requirement is not included in this Operating Permit.)*
- Source shall install, calibrate, maintain and operate continuous monitoring systems for measuring opacity, SO_2 , and NO_X emissions and either O_2 or CO_2 , and the inlet scrubber SO_2 and CO_2 concentration

Construction Permit 12LR525(1)

Consumption of coal shall not exceed 1.5 x 10⁶ tons/year

Acid Rain (Title IV) Requirements

- The Code of Federal Regulations lists 1789 SO₂ allowances (as listed in 40 CFR 73.10(b)) for this unit. Note that additional allowances can be obtained as needed per 40 CFR Part 75.
- \square NO_x emissions of 0.45 lbs/mmBtu heat input (\square 76.7(a)(2))
- Acid rain permitting requirements per 40 CFR Part 72.
- Continuous emission monitoring requirements per 40 CFR Part 75.
- The source is also subject to the sulfur dioxide allowance system (40 CFR Part 73) and excess emissions (40 CFR Part 77).

Streamlining of Applicable Requirements

 NO_x emission limits: The NSPS Subpart Da and the Construction Permit emission limits are less stringent than the PSD Permit BACT limit. The BACT limit applies at all times except malfunction or upset conditions. The Division has determined that the permittee will not be in violation of the NSPS or Construction Permit requirements if the PSD emission limit included in this operating permit is met. The NSPS and Construction Permit limits are therefore streamlined out of the permit and provided the permit shield.

SO₂ emission limits: The NSPS Subpart Da, Regulation No. 1 Section VI.B.4.a(iii), and Regulation No. 6, Part B emission limits are less stringent than the PSD BACT limits. The BACT limit applies at all times except malfunction or upset conditions. The Division has determined that the permittee will not be in violation of the NSPS or Regulation No.1 and 6 requirements if the PSD emission limit included in this operating permit is met. The NSPS and Regulation No. 1 and 6 limits are therefore streamlined out of the permit and provided the permit shield.

PM emission limit: The Colorado Regulation No. 1, III.A.1.c PM emission limit is streamlined out because the Construction Permit, NSPS, and PSD Permit limits are more stringent.

Emission Factors - The combustion of coal in the boilers results in emissions of NO_x , SO_2 , PM, PM₁₀, CO, VOC, and Pb. CEMs are used to determine compliance with emission standards and to estimate annual emissions of NO_x , and SO_2 . The heat input to the bilier is needed for many of these determinations. The heat input can be determined from the carbon dioxide, and flow monitor CEMs, as required under the Acid Rain Program, or be calculated from the measured coal consumption, and coal Btu content determined through coal sampling and analysis. For PM, periodic stack test results, along with monitored heat content of the fuel are used to determine compliance and estimate annual emissions for APEN reporting. Standard factors from the AP-42 manual, or other emission factors/procedures acceptable to the Division and allowed in Regulation No. 3 APEN guidance, along with appropriate removal efficiencies for control equipment, are used to estimate VOC, and Pb emissions for APEN reporting. CO is directly measured with the combustion control CEM for APEN reporting.

Monitoring Plan - CEMs are used to monitor compliance with the NO_x and SO_2 lb/mmBtu limits. The CEMS monitoring will be performed according to 40 CFR Part 60 specified monitoring requirements. Periodic stack tests and a bagfilter maintenance plan are used to monitor compliance with the PM limits. The required frequency for PM stack testing can be reduced, depending on the test results in relation to the emission standard.

Compliance with opacity limits is demonstrated using a COM.

Belt scales and/or feeder data are used to measure the amount of coal combusted in the boiler. These data are used to monitor compliance with the annual coal throughput limit.

To demonstrate compliance with the Regulation No. 8 lead requirements, the permittee performed a one-time modeling exercise.

Compliance Status - The Division accepts the Unit was in compliance at the time the Title V application was submitted.

Unit B101 – Combustion Engineering Boiler
3,000 mmBtu/Hr - Oil Startup Fuel Coal (Note: Per Title 75, Acid Rain calculation procedures: 3,500 mmBtu/Hr)

Coal is the primary fuel for these boilers. Secondary fuels (fuel oil) are used during non-routine periods such as startup and shutdown, adding to or removing from service coal pulverizers, or other flame stability efforts.

Applicable Requirements – The Construction and PSD Permits did not directly address secondary fuels. The NSPS, Subpart Da sets forth emission limits when fuels are combined for combustion. The permittee submitted information which indicates that, for the past five years, "alternative" fuel use has comprised less than 1% of total heat input. By calculation, the Subpart Da emission limits for the this amount of fuel oil remain essentially unchanged from the coal emission limit. The Division therefore assumes the source is in compliance with the Subpart Da emission limits whenever alternative fuel use comprises less than 1% of total heat input. If alternate fuel use comprises more than 5% of total heat input on an annual basis, the permit must be reopened to include Subpart Da requirements for combined fuel combustion. In addition, this source is subject to Regulation No. 1 and Regulation No. 6 emission limits, which are equal to or less stringent than Subpart Da provisions. The Division therefore also assumes the source is in compliance with Regulation No. 1 and No. 6 requirements whenever alternate fuel use comprises less than 1% of total heat input.

P201 - Coal Unloading, Handling, Crushing, and Conveying

Coal is unloaded from train cars and is then transported by conveyor belt into two storage silos. When the silos are full, coal is diverted to the active coal pile, where it is either reclaimed or moved to the inactive storage pile. Coal in the silos is conveyed to the coal crusher building. The coal is then either diverted to the emergency stockout system or conveyed to four in-plant storage bunkers. From the bunkers, the coal is pulverized and dried prior to being burned in the boiler. Bagfilters control emissions from all of the sources except coal stockout and the coal storage areas. A telescopic chute minimizes emissions from stockout, and particulate emission minimization measures are used at the storage areas.

Applicable Requirements – This system includes several processes and pieces of equipment covered by Final Approval Construction Permits 12LR525(2-5), (7-11), (14), and (18). The EPA also included these processes in the PSD permit. Coal conveying is an existing operation that was not previously covered in any permit. In addition, the permittee requested a revision to the PM emission limits for the coal crusher, based on new emission factors. The appropriate documents were submitted and the construction permit requirements generated directly in the Title V permit.

The Construction Permits limit annual coal consumption for the processes in this system. The PSD analysis was based on coal consumption rates submitted in the PSD application. In some cases, the Construction Permit limits exceed the rates used in the PSD analysis. The following table compares Construction Permit and PSD analysis rates. Limits for coal conveying were directly incorporated into the Operating Permit, based on inforamtion supplied with the Construction Permit application.

Comparison of Construction and PSD Permit Coal Consumption					
Source	Construction Permit Limit	PSD Permit Analysis Rate			
	(tons/year)	(tons/year)			
S201 & S202 - Train	2.5 x 10 ⁶	900,000			
Unloading Facility					
S203 – Active Coal Pile	1.5 x 10 ⁶	30,000			
Reclaim					
S204 - Coal Silo Filling &	1.5 x 10 ⁶	870,000			
Temporary Storage					
S205 – Coal Silo Discharge	1.3 x 10 ⁶	870,000			
S206 - Coal Crushing	1.3 x 10 ⁶	870,000			
S207 – Coal Belt Transfer	1.3 x 10 ⁶	900,000			
S208 - In-Plant Silo Filling	1.3 x 10 ⁶	870,000			
S209 – Coal Pile Stockout	1.5 x 10 ⁶	30,000			
S211 – Coal Conveying	2.5 x 10 ⁶	None			
S212 – Active Coal Storage	30,000	30,000			
Area					
S213 - Inactive Coal Pile	330,000	220,000			
Storage Area					

The Construction Permit, Regulation No. 1.II.A.1 and 40 CFR Part 60 Subpart Y, the NSPS for Coal Preparation Plants, limit opacity from all sources except the active and inactive storage piles to 20%. Bagfilters control PM emissions from all sources except the coal pile stockout and the storage piles. A telescopic chute is used to control PM emissions from the coal pile stockout. Subpart Y is not mentioned in the Construction Permits or the Operating Permit application. Subpart Y applies to coal preparation plants which commenced construction after October 24, 1974, therefore it is applicable to this plant. Sources covered by Subpart Y

include all coal processing, conveying, storage, transfer and loading equipment, therefore Subpart Y applies to all sources in the coal handling process except for the Active and Inactive Storage Areas.

Construction Permit 12LR525(7) contains an annual PM emission limit for the coal crusher. The revised PM emission limit and the PM₁₀ emission limit were incorporated directly into the Operating Permit, based on information supplied in the application to modify the Construction Permit. Likewise, an emission limit for coal conveying was incorporated directly into the Operating Permit.

Construction Permits for the active and inactive coal storage areas listed annual fugitive particulate emissions. The emission estimates are based on production rates provided in the Construction Permit application. This information is listed in the Construction Permit to inform the permittee of the Division's analysis of the emissions, and is listed on the Division's emission inventory system. This information and appropriate factors or equations are used for APEN reporting purposes.

The Construction Permits list Particulate Matter Emission Control Plans for the active and inactive coal storage areas. The active coal storage area is below grade, and chemical stabilizers or water are applied to minimize emissions. The inactive storage area is compacted and a crusting agent is applied. In addition, water is used when the inactive storage area is disturbed.

Emission Factors – PM emissions result from transferring, conveying, crushing, and storing coal. The Construction Permits do not list emission limits for any of the sources except the coal crusher. Emission limits for coal conveying were incorporated directly into the Operating Permit. Emission estimates are listed in the Construction Permits for the coal storage areas for informational purposes only. AP-42 emission factors or other appropriate methods set forth in Regulation No. 3 APEN guidance, along with appropriate emission control efficiencies are used for APEN reporting purposes.

Monitoring Plan – Belt Scales weigh the coal while it is being conveyed. The coal weighing system consists of four belt scales which weight coal being delivered, reclaimed from the storage pile, conveyed to the crusher, and conveyed into the plant. Belt scale or coal feeder data can be used to identify compliance with the coal handling limits.

Bagfilters control PM (and opacity) emissions from all sources except the coal pile stockout and the storage piles. A telescopic chute is used to control PM emissions from the coal pile stockout. The bagfilters and the telescopic chute are equiped with malfunction alarms which monitor parameters of the control equipment and alert operators when a problem occurs. When abnormal bagfilter operation exists, and visible emissions persist for more than six minutes, Method 9 opacity observations will be used to monitor compliance with the opacity limits. The malfunction alarm for the telescopic chute monitors the drop height distance. A drop height of five feet or less is considered to be normal operation. In addition, the stockout is

located in the center of the storage pile, therefore emissions normally do not persist beyond the edge of the stockout area. When drop height exceeds five feet, and when visible emissions beyond the stockout area persist for more than six minutes, a Method 9 observation will be used to monitor compliance with the opacity limits.

Compliance with the annual PM and PM₁₀ emission limits will be verified using the annual coal consumption and appropriate emission factors and control equipment efficiencies.

Records of the amounts of chemical stabilizer and crusting agents used on the coal storage area are maintained. The Annual Compliance Certification report will indicate if all Particulate Emission Control Measures have been implemented.

Compliance Status – While the applicant was out of compliance by not having a permit for coal conveying at the time of the Title V application was submitted, the applicant has submitted documents needed to obtain a construction permit. The incorporation of the coal conveying applicable requirements into this operating permit allow the Division the discretion to accept that coal conveying is now in compliance. The Division accepts the process was in compliance with all other applicable requirements at the time the Title V application was submitted.

P301 – Coal Combustion Ash Handling, Hauling, and Disposal

Baghouse waste and bottom-ash waste are produced during combustion of the coal in the boiler and from scrubber waste due to the use of lime for removal of SO2 from the boiler emissions. Bottom-ash is periodically washed out of the boiler and transported in a slurry state to bottom ash storage ponds. When the pond is filled with bottom ash the water is transferred to the other pond and the remaining water allowed to evaporate. After the water has been decanted and evaporated, the pond is dredged and the solid waste is put in the disposal area.

Fly ash and sulfate laden flue gas particles from the boiler are separated from the fluegas in the boiler baghouse before the flue gas passes through the boiler stack. The ash is conveyed to a storage silo, and is periodically removed, wetted, and transported by truck to the solid waste disposal area.

Applicable Requirements – This system consists of various processes and equipment covered in Final Approval Construction Permits 12LR525(16)F and (17), as well as the PSD permit. The Solids Vacuum Conveying System and Silo Filling, and Fly Ash and Solid Waste Dry Unloading and Haul Truck Loading are existing sources previously not reported and previously not permitted. The appropriate application documents were submitted and the construction permit requirements generated directly in the Title V permit.

Construction Permit 12LR525(16)F limits the processing of baghouse waste to 148,650 tons per year and bottom-ash waste to 24,750 tons per year. The PSD permit analysis used a

throughput rate for the fly ash silo of 57,700 tons per year. Since the increase in fly ash processed did not result in a significant increase in emissions, therefore not triggering PSD review, the Division believes the Construction Permit limits supersede the rate used in the PSD analysis.

Regulation No. 1.II.A.1 and Construction Permit 12LR525(17) limit opacity from Solid Wastes Silo Filling, the Solids Vacuum Conveying System and Silo Filling, the Solid Wastes Silo Rotary Unloader Discharge, and the Fly Ash and Solid Waste Silo Dry Unloading and Haul Truck Loading to 20%.

Solid Wastes Haul Truck Unloading, Bottom Ash Excavation and Loading, Waste Landfilling/Reclamation, Solid Wastes Hauling to Landfill, and the Active/Exposed Landfill Area are all fugitive emission sources. Construction Permit 12LR525(16)F lists an annual PM emission estimate. The emission estimates are based on production rates provided in the Construction Permit application. This information is listed in the Construction Permit to inform the permittee of the Division's analysis of the emissions, and is listed on the Division's emission inventory system. This information and appropriate emission factors or equations are used for APEN reporting purposes. No emission limits are listed in the Construction or PSD permits for any of the other sources.

Construction Permit 12LR525(16)F contains particulate matter emission control measures for the fugitive sources listed in the above paragraph. Haul roads and haul trucks are subject to the no off-property transport of visible emissions requirements. Water is used to control fugitive emissions during earthmoving operations. The waste storage silo is equipped with a rotary dustless unloader which mixes water with the waste material as it is transferred from the silo to haul trucks. Haul roads are graveled and calcium chloride, magnesium chloride, or magnesium acetate and water are applied as necessary to remain viable as a fugitive emission control measure. Waste material is unloaded while still wet to reduce fugitive emissions. Soil replacement and revegetation at the landfill shall take place after an area of approximately 1.5 acres in size has been completely filled.

Emission Factors – PM emissions are generated from transferring solid wastes, from trucks hauling the waste to the landffill over unpaved roads, and from landfilling the solid wastes. The Construction Permits do not list emission limits for any of the waste handling sources. Emission estimates are listed in Construction Permit 12LR525(16)F for the fugitive emission sources for information purposes only. AP-42 emission factors, or other factors and methods approved by the Division as set forth in the Regulation No. 3 APEN guidance, along with appropriate emission control efficiencies are used for APEN reporting purposes.

Emission factors were not used for the Solids Vacuum Conveying System and Silo Filling. A worst case assumption that all of the material would be emitted to the atmosphere was used, along with appropriate control efficiency factors for primary and a secondary separators and two bagfilter systems.

Monitoring Plan – Compliance with the annual baghouse waste handling limit will be calculated from the coal consumption data, and the average percent ash results from coal analyses performed during the year, assuming a 85% fly-ash factor. Also included in the annual baghouse waste total is the annual lime throughput total and the annual mass sulfate calculated from the mass SO₂ emissions and annual average SO₂ removal rate. The belt scale data and/or feeder or purchasing records are used to document the total lime consumption, and the CEMS data are used to calculate the sulfate contribution. Rotary unloader process water is not included in the annual waste handling limit.

Compliance with the annual bottom ash waste handling throughput limits will be calculated from the coal consumption data, the average percent ash results from coal analyses performed during the year – assuming a 85% fly-ash factor and 15% bottom ash factor. The belt scale data are used to determine the annual total coal consumption. The bottom ash sluice water weight is not included in the waste handling limits.

Solid Wastes Silo Filling, and the Solids Vacuum Conveying System and Silo Filling are equipped with bagfilters to control PM emissions. The bagfilters are equipped with malfunction alarms which monitor parameters of the control equipment and alert operators when a problem occurs. During control equipment malfunctions, when visible emissions persist for more than six minutes, Method 9 opacity observations will be used to monitor compliance with the opacity limit. Baghouse operation and maintenance plan and an annual Method 9 opacity observation are also used to monitor opacity.

The rotary unloaders at the Solid Wastes Rotary Unloader Discharge operation are manually operated systems. The haul truck driver operates and monitors the operational status of the rotary unloader and its particulate control effectiveness. In addition, each rotary unloader is equipped with a malfunction alarm. The alarm evaluates each unloader for water supply pressure and seal purge air pressure. In absence of credible evidence to the contrary, compliance with the opacity limit for this unit is presumed whenever the water sprays are in use. Here and throughout this document, the word "credible" as it is uesed in the term "credible evidence" shall be applied under the provisions of the permit as defined by Colorado and Federal Rules of Evidence.

The dry product unloader used in the Fly Ash and Solid Waste Silo Dry Unloading and Haul Truck loading operation is equipped with a telescopic chute which is a manually operated system. The driver of the haul truck operates and monitors the operational status of the dry unloader and its particulate control effectiveness. In absence of credible evidence to the contrary, compliance with the opacity limit for this unit is presumed whenever the driver properly operates the dry unloader.

Compliance Status – While the applicant was out of compliance by not having permits for Solids Vacuum conveying System and Silo Filling and Fly Ash and Solid Waste Silo Dry Unloading and Haul Truck Unloading at the time the Title V application was submitted, the applicant has submitted documents needed to obtain a construction permit. The incorporation

of the missing applicable requirements into this operating permit allow the Division the discretion to accept that these sources are now in compliance. The Division accepts the process was in compliance with all other applicable requirements at the time the Title V application was submitted.

P401 - Spray Dry Absorber Sulfur Dioxide Scrubber Slurry Preparation Process

Lime for the spray dry absorber (SDA) is brought to the plant by truck and unloaded to the lime storage silo. A bagfilter system controls PM emissions from the silo. Lime feeder belts are used to move the lime to the ball mills for slaking. Some of the flyash is used to make recycle slurry which is mixed with the lime milk slurry to make a feed slurry for use in the SDA atomizers. A silo is used to store recycled ash for this purpose. This silo is also equipped with a bagfilter system.

Applicable Requirements – Final Approval Construction Permit 12LR525(12) was issued for the lime storage silo. This silo was also included in the PSD permit. The recycle ash storage silo is an existing source previously not reported and previously not permitted. The appropriate application documents were submitted and the construction permit requirements generated directly in the Title V permit.

Construction Permit 12LR525(12) limits the throughput of lime to the storage silo to 8,400 tons per year. The PSD permit analysis used a throughput rate of 5,600 tons per year. Since the increase in lime throughput did not result in a significant increase in emissions, therefore not triggering PSD review, the Division believes the Construction Permit limits supersede the rate used in the PSD analysis. An annual throughput limit of 275,000 tons per year recycled flyash was incorporated directly into the Operating Permit, based on information supplied in the construction permit application.

Colorado Regulation No. 1.II.A.1 and Construction Permit 12L525(12) limit opacity from both silos to 20%.

Emission Factors - AP-42 factors and equations, or other factors or procedures approved by the Division in accordance with Regulation No. 3 APEN guidance, and appropriate control measure/equipment control efficiencies are used to estimate emissions.

Monitoring Plan – Lime feed belt and scale data or purchase and delivery records are used to verify compliance with the annual lime throughput limit. Recycle ash throughput is calculated from recycle slurry flow rates and percent solids measurement.

Both lime silos are equiped with bagfilters to control PM emissions. Operations personnel monitor the dust collectors operational status while lime is being conveyed into the storage

silos. The baghouses exhaust inside the SDA building. In absence of evidence to the contrary, compliance with the opacity limits is assumed at all ti mes when the discharge is exhausted inside the building.

Compliance Status – While the applicant was out of compliance by not having a permit for the Recycle Ash Storage Silo at the time the Title V application was submitted, the applicant has submitted documents needed to obtain a construction permit. The incorporation of the missing applicable requirements into this operating permit allows the Division the discretion to accept that this source is now in compliance. The Division accepts the process was in compliance with all other applicable requirements at the time the Title V application was submitted.

P501 – Unpaved Site Roadways and Parking Lots PRS Soda Ash Storage Silo Filling

Unpaved access roads and parking lots exist at the plant site. Soda ash if required, can be used at the water treatment facility to treat the cooling water supply. A bagfilter system controls PM emissions from the silo during filling.

Applicable Requirements – Both of these sources are existing sources previously not reported and previously not issued a Construction Permit. Unpaved site roadways and parking lots, however, were addressed in the PSD permit analysis. The appropriate application documents were submitted and the construction permit requirements generated directly in the Title V permit.

Throughput of soda ash is limited to 1,000 tons per year (incorporated directly into the Operating Permit based on information supplied in the construction permit applications.)

Colorado Regulation No.1.II.A.1 limits opacity from the silo bagfilter stack to 20%.

Measures to minimize particulate matter emissions are in place for the unpaved roads and parking lots, as required in Colorado Regulation No. 1 (incorporated directly into the Operating Permit based on information supplied in the construction permit application.)

Emission Factors – PM emissions are generated from transferring soda ash to the silo, and from traffic and wind erosion on unpaved roads and parking lots. Fugitive emission estimates were provided in the Operating Permit application for the unpaved roads and parking lots. These estimates are used for inventory and APEN reporting purposes. Standard AP-42 factors and equations, or other emission factors/procedures acceptable to the Division, and appropriate control measure/equipment control efficiencies are used to estimate emissions for APEN reporting purposes.

Monitoring Plan – Soda ash consumption is tracked using purchase records.

The silo is equipped with a bagfilter system to control PM emissions. The dust collectors are only used when the PRS soda ash storage silos are being filled. Operations personnel monitor the dust collector's operational status while soda ahs is being conveyed into the storage silos. During control equipment malfunctions, when visible emissions persist for more than six minutes, Method 9 opacity observations will be used to verify compliance with the opacity limit. A baghouse operation and maintenance plan and annual Method 9 observations are also used to monitor compliance.

To minimize particulate matter emissions from unpaved roads and parking lots, the n off-property transport of visible emissions applies. Unpaved roads and parking lots shall be graveled and calcium chloride, magnesium chloride, or magnesium acetate and water shall be applied as necessary to remain viable as a fugitive emission control measure.

The PSD permit requires that dust control on unpaved roads shall be accomplished by the application of chemical stabilizing agents supplemented with water. The water and chemicals shall be added at a rate and frequency to minimize visible emissions when vehicles are using the roads. Records will be kept on the type, amount, and frequency that the chemicals are applied.

Compliance Status – While the applicant was out of compliance by not having permits for all of these sources at the time the Title V application was submitted, the applicant has submitted the documents needed to obtain construction permits. The incorporation of the applicable requirements in this operating permit allows the Division the discretion to accept that these sources are now in compliance.

Cooling System with Pond

The cooling system at Rawhide is a once-through system in which water is pumped through a condenser, where it is cooled, and then is sent to a retaining pond. Prior to being pumped, a clorox solution is added to the water for biocide treatment, in addition, anti-scale chemicals are used. Chloroform is produced and is emitted from the pond.

Applicable Requirements – This source is exempt from Construction Permit requirements because emissions are below permitting de minimis levels. The source is subject to APEN reporting requirements, based on chloroform emissions greater than the reporting de minimis level.

Emission Factors – An emission factor from "Toxic Air Pollution Emission Factors<" EPA-450/2-90-011, October 1990, was used to estimate chloroform emissions for this source.

Monitoring Plan – The permittee will maintain records of the estimated amount of water circulated through the system. This information is needed to estimate emissions.

Compliance Status – At the time of initial Operating Permit application submittal, this source was not subject to APEN reporting requirements because emissions were below de minimis levels. Emission calculations for 1997 indicated emissions for chloroform above APEN reporting de minimis levels, and the required APEN was submitted. The Division accepts this source is currently in compliance with applicable requirements.

Alternate Operating Scenarios

The Title V application did not include a request for any Alternate Operating Scenarios.

Accidental Release Program - 112(r)

The Title V application reports the facility is not currently subject to the provisions of the Accidental Release Plan provisions of 112(r)(7) of the Clean Air Act.

Short Term Limits

On April 16, 1998 the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction Permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison with annual emission limits unless there is a specific condition in the permit restricting hours of operation. (see comment)

The following table lists the short term limits that were included in the Construction Permit but not included in the Operating Permit.

Discontinued Short Term Limits Rawhide Energy Station					
Source	Short Term Limit				
B101 – Unit 1 Boiler	175 tons coal consumed/hour				
S201 & S202 – Train Unloading Facility	3.5 x 10 ³ tons coal/hour				
S204 - Coal Silo Filling & Temporary					
Storage					
S209 – Coal Pile Stockout					
S203 – Active Coal Pile Reclaim	800 tons coal/hour				
S205 – Coal Silo Discharge	2.5 x 10 ³ tons coal/hour				
S206 – Coal Crushing	500 tons coal/hour				
S207 – Coal Belt Transfer	S20603 lb PM/hour				
S208 – In-Plant Silo Filling					
S210 – Coal Crusher Stockout	1000 tons coal/hour				
S305 through S309 – Waste Landfilling	408 tons baghouse waste/day				
	68 tons bottom-ash waste/day				
S401 – Scrubber Slurry Storage Silo	40 tons lime/hour				

Miscellaneous

Emission Factors - From time to time published emission factors are changed based on new or improved data. A logical concern is what happens if the use of the new emission factor in a calculation results in a source being out of compliance with a permit limit. For this operating permit, the emission factors or emission factor equations included in the permit are considered to be fixed until changed by the permit. Factors dependent on the fuel sulfur content or heat content can not be fixed and will vary with the test results. The formula for determining the emission factors is, however, fixed. It is the responsibility of the permittee to be aware of changes in the factors, and to notify the Division in writing of impacts on the permit requirements when there is a change in factors. Upon notification, the Division will work with the permittee to address the situation.

APEN Reporting - Some sources permitted under the issued Construction Permits are insignificant sources because the uncontrolled actual emissions for recent years are below APEN de minimis levels. (Note: Those sources with emissions below de minimis levels, but which are subject to an NSPS requirement are still subject to APEN reporting requirements.) These sources are listed in the Operating Permit as permitted sources, in the event emissions should increase above the de minimis level in the future.

Final Approval for Previously Unpermitted Sources – For those existing sources that were previously unreported, the Division directly incorporated the applicable requirements into the operating permit. Since these pieces of equipment will have been in operation for more than 180 days by the due date of the first semi-annual monitoring required by the operating permit, the Division will consider the Responsible Official certification submitted with that report to serve as the self-certification for Final Approval for these sources.

PSD Applicability for Previously Unpermitted Sources – Technically, the existing, previously unpermitted sources should have undergone PSD analysis at the time the rest of the plant sources underwent analysis. The Division has reviewed the EPA's PSD analysis and determined that ambient air impacts and increment consumption due to the permitted sources were well below the standards. The Division does not believe the addition of emissions from the unpermitted sources will cause an exceedance or significant consumption of the ambient standards or increment standards. In addition, the Division believes the control equipment and measures employed at the unpermitted sources represent BACT for the sources. Finally, total PM and PM₁₀ emissions from the unpermitted sources are below the significant emission increase levels that trigger PSD modification review. The following table lists the previously unpermitted sources, the control measures used, and the emissions associated with the sources. NOTE: Unpaved roads and parking lots were not issued a Construction Permit, however, the emissions from these activities were include in the PSD analysis, therefore, this activity is not included in the table.

Previously Unpermitted Sources						
Source	Control Measure	Emissions				
		(tons/year)				
		PM	PM10			
S211 – Coal	Enclosed	12.5	6.25			
Conveying						
S302 – Solids	Primary and	.74	.37			
Vacuum Conveying	Secondary					
System	Separators					
	Two Bagfilter					
	Systems					
S304 – Fly Ash – Dry	Telescopic Chute	2.23	1.49			
Unloading						
S402 – Recycle Ash	Bagfilter	.14	.07			
Storage Silo Filling						
S502 - PRS Soda	Bagfilter	Negligible	Negligible			
Ash Storage Silo	-					
TOTAL		15.61	8.18			
PSD Significant		25	15			
Level						