TECHNICAL REVIEW DOCUMENT
for
OPERATING PERMIT 95OPLA070

to be issued to:

Trinidad Municipal Power and Light
Trinidad Municipal Power Plant
Las Animas County
Source ID 0710005

Michael E. Jensen
June 28, 1999

I. PURPOSE

This document establishes the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Conclusions in this document are based on information provided in the original application submittal of September 21, 1995, supplemental Title V technical information submittals of February 26 and March 25, 1996, a site visit by Peter Nelson on May 13, 1996, a revised application submittal of September 8, 1999, comments received April 28, 1999, and technical information submittals needed for the preparation of the construction permit(s), as well as telephone contacts with the applicant.

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 twelve (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 to annual emission limits unless there is a specific condition in the permit restricting the hours of operation.

Any revisions made to the underlying construction permits associated with this facility made 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

revisions, 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 for an additional or revised Construction Permit.

II. Source Description

This facility generates electricity for transmission and/or distribution and is classified under the Standard Industrial Classification of 4911. The historic facility consisted of one (1) coal-fired boiler, one (1) natural gas-fired boiler, and two (2) dual-fuel internal combustion engine/generator units. Each boiler provided steam to its own turbine/generator rated at 3750 kVA. The coal-fired boiler operated approximately 4,500 hours per year and typically shut-down in the summer months, and the natural gas boiler and the two dual fuel generators have operated primarily for emergency/standby purposes. The two boilers are currently on cold standby. The dual-fuel engine/generator units each have a name plate rating of 1875 kW. However, their output is limited to 1700 kW because of their age. At this time, three (3) 1880 kW diesel fuel internal combustion engine/generator units are being added to the facility. These three generators could be operated as strictly emergency backup units exempt from the need for a Construction Permit as long as the total annual operating time for the three (3) engines was restricted to less than 326 hours per year. The units could be classified as insignificant sources by restricting the total annual operating hours for the three (3) engines to less than 65 hours per year. However, Trinidad requested the engines be permitted to operate longer to optimize the plant load response capability options. The additional generator units provide Trinidad the capability to keep the two boilers on cold standby until needed for a sustained operation.

The facility is located at the foot of Raton Pass in the city of Trinidad, Colorado. The facility is on the edge of town near a few residential dwellings. The state of New Mexico has been designated as an affected state located within 50 miles of the facility. There are no federal Class I areas within 100 kilometers of the plant.

The area in which the plant operates, Las Animas County, is designated as attainment for all criteria pollutants. Facility-wide emissions are as follows:

	POTENTIAL TO EMIT, TONS PER YEAR							
	PM	PM_{10}	SO_2	NOx	VOC	CO	Pb	HAPs
Unit #1 Coal-Fired Boiler	36.2	36.2	245.1	73.0	1.1	58.4	Neg	
Unit #2 NG Fired Boiler	1.5	1.5	0.1	19.3	1.1	16.2	Neg	
Unit #3 Dual-Fired IC Engine - Diesel Only	20.7	19.8	19.3	289.7	19.8	63.0		
Unit #3 Dual-Fired IC Engine - NG & Diesel	2.9	2.8	2.0	291.7	8.4	39.6		
Unit #4 Dual-Fired IC Engine - Diesel Only	20.7	19.8	19.3	289.7	19.8	63.0		
Unit #4 Dual-Fired IC Engine - NG & Diesel	2.9	2.8	2.0	291.7	8.4	39.6		
Units #5, #6, & #7 Diesel IC Engines	0.4	0.4	0.5	38.5	0.7	10.2		
Coal Handling	7.45							
Ash Silo Vent	0.01							
Ash Silo Loadout	0.73							
Totals	87.7	77.7	284.3	714.2	42.5	210.8		
FACILITY 1997 ACTUAL EMISSIONS, TPY	3.72	3.52	45.6	17.7	0.32	14.04	Neg	3.16

Light shading values included in PTE Totals

Potential emissions are based upon existing Colorado Construction Permit limitations and the operation of grandfathered equipment at 8760 hours per year without any controls. Actual emissions are based upon the last Air Pollution Emission Notices (APENs) received by the Division.

This source is considered to be a major source in an attainment area (Potential to Emit > 250 tons per year) and is considered major for purposes of Prevention of Significant Deterioration (PSD) regulations. Construction of the facility and subsequent modifications occurred prior to PSD promulgation. Modifications up to this point in time have not triggered significance levels which would bring about PSD Review. Future modifications to this facility which are in excess of significance levels as defined in Colorado Regulation No. 3, Part A, Section I.B.58 will result in the application of the PSD review requirements.

There are currently no Maximum Achievable Control Technology (MACT) standards applicable to the facility. The Title V application reported the facility is subject to the provisions of 112(r). Trinidad has reviewed their status after several changes were made and now state the facility is NOT subject to the 112(r) provisions.

In their Title V application, the source certified compliance with all current applicable requirements. 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.

III. Emission Sources

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

Unit #1 - 68.6 MMBtu/Hr Combustion Engineering Spreader Stoker Coal-Fired Boiler, Model Type VU, S/N: 15753

Historically this unit was operated as a base load unit in the winter months to protect the city against the loss of incoming transmission lines. This unit was placed in inactive status in 1998. The unit currently has no provision for auxiliary fuel to fire the boiler. Coal must be used for cold startup, but other fuel, such as diesel, is sometimes mixed with the coal to assist in starting the fire building.

1. Applicable Requirements - This unit was originally placed into service in 1951 as a coal fired boiler providing steam to drive a 3500 kilowatt turbine generator. In 1968, natural gas was available at reasonable rates and quantities and this boiler was converted to natural gas and fuel oil. Since the construction and modification occurred prior to 1972 the boiler had regulatory grandfather status. During the late 1970's, gas prices escalated and a government mandate was issued on the use of natural gas and the boiler was re-converted back to coal. Construction Permit C-10,908 was issued November 24, 1975, for the conversion back to coal. One of the stipulations of the permit was that the source be tested to ensure compliance with the Regulation No. 1 standard for particulate emissions prior to final approval. A test was performed in April of 1979, however, the facility reported problems and requested an extension for the compliance test. The Division denied the request. A second test was then performed on December 11, 1979. The test results found particulate emissions were 0.65 pounds per million Btu versus an allowable limit of 0.176 pound per million

Btu (lb/MMBtu). Compliance had not been demonstrated within the allotted time frame and permit C-10,908 was revoked. The facility was allowed to continue to burn natural gas/fuel oil from this boiler but not coal.

The facility re-applied on November 7, 1980 for a construction permit to burn coal. A new construction permit, C-13,114, was issued on February 20, 1981. Testing for particulate and sulfur dioxide emissions was performed November 7 to 11, 1981. The average of the runs was 0.17 lb/MMBtu (0.57 grains per dry standard cubic foot) for particulate matter and 1.08 lb/MMBtu for sulfur dioxide. Both values were within the Regulation No. 1 standard. Final approval was issued for C-13, 114 on April 12, 1982.

Condition 5 of C-13,114 limited the particulate matter emissions to 0.57 grains/dry standard cubic foot (gr/dscf), 8.97 lb/hr, 0.17 lb/MMBtu and 36.2 tons/year. The grain loading limit was derived from the 1981 stack test. However, there is no regulatory basis for including this limitation, and it is not practically enforceable during inspection. As noted at the beginning of this document, the lb/hr emission limits are now being removed from the Construction Permit. The remaining limitations (lb/MMBtu, ton/yr) were deemed sufficient for compliance purposes and the gr/dscf and lb/hr limits were not included in the Operating Permit.

Regulation No.1, Section VI, Part B.4.a.i. sets a sulfur dioxide emissions standard of 1.2 lbs/MMBtu. However, the construction permit limit was set at 1.08 lb/MMBtu based on the results of the emission testing.

As a coal-fired utility electric boiler, this unit is subject to numerous opacity provisions. Recently, a State-only section of Colorado Regulation No. 1 (Section II.A.10) was added pertaining specifically to coal-fired electric utility boilers. The revision identified how the utility boilers equipped with electrostatic precipitators or baghouses were to demonstrate compliance with good operating practices. In such cases, the requirements of Regulation No. 1, Section II.A.10.c to calculate the per cent exceedance time is not being applied. This is based on the Division's review of the regulation and a determination that it was not the Commission's intent to subject coal-fired electric utility boilers that are not required to install and operate opacity monitors and not equipped with electrostatic precipitators or baghouses to calculate the percent exceedance values. The gap-filling requirements have been incorporated into this operating permit.

2. **Emission Factors** - Emissions from the combustion of coal are produced from the combustion of organic matter and inorganic mineral matter. This facility is using bituminous coal, by far the largest group of coals, characterized by their volatile matter, sulfur content, slagging and agglomerating qualities. Coal burning boilers have numerous methods for introducing the coal to the boiler. This boiler is a spreader-stoker. With this type of unit a mechanical or pneumatic feeder injects the coal uniformly over the surface of a grate moving in the direction opposite to that of the coal injection. This creates a suspension burn and a thinner fast-burning fuel bed. The amount of fuel fed depends upon the fuel size and composition as well as air flow velocity.

The air pollution control device for this boiler is a high efficiency centrifugal collector also known as a multi-cyclone. Cyclones are mechanical in nature and essentially force particulate laden air around a cylinder. The air revolving around the edges of the cylinder slows down and particulates drop out.

The Construction Permit identifies the boiler as a spreader stoker. However, at some unknown point in time a traveling grate was provided. The emission factors for a traveling grate unit are lower than for a spreader stoker except for carbon monoxide. The spreader stoker carbon monoxide emission factor is just slightly greater (6 versus 5 lb/ton). The combination of the limited operation of the unit and the lower emission factors do not result in concern for compliance. The Title V permit identifies the boiler as a combination overfeed stoker and traveling grate. The AP-42 (EPA Compilation of Air Pollutant Emission Factors, September 1998) emission factors for a bituminous coal traveling grate are used for emissions and compliance purposes. The particulate emission factors are to be determined in the compliance tests to be performed.

3. Monitoring - At the end of each calendar year the annual emissions are to be calculated for fee purposes based on fuel consumption and the fuel based emission factors. For particulate matter and sulfur dioxide the emissions are to be calculated on a monthly basis to determine compliance with the limits.

Additionally, the sulfur, ash, and heat content of the fuel burned will be determined in accordance with the coal sampling plan using American Society for Testing and Materials (ASTM) standards. Ash and sulfur values will then be compared to the listed limitations for compliance purposes. The heating value from the Title V application was given as 10,500 Btu/lb. The Construction Permit sulfur content limit is 0.5%.

The sulfur and heat content and an emission factor are used to estimate SO_2 emissions and determine compliance with the 1.08 lb SO_2/MMBtu limit set from the stack test results. Where possible the Division prefers to use actual stack test data for determining emissions instead of reference manual factors. The available stack test data were used to provide an emission factor for determining compliance with the permit limits. In addition to the pounds per million Btu limit there is also an hourly limit on the sulfur dioxide emissions which is defined as a three (3) hourly rolling average in the regulations. However, the determination of a three (3) hour rolling average may only be determined during an emissions test or with a continuous emission monitor. There is no regulatory requirement for a continuous emission monitor; therefore, compliance with the hourly limit will be calculated as the monthly emissions divided by the number of operating hours for the same month.

In a like manner the heating value of the fuel is also used to determine compliance with the permit particulate matter (PM) emission limits. Where possible the Division prefers to use actual stack test data for determining emissions instead of reference manual factors because the stack test data reflect the performance of the control equipment at the time of the test. The stack test data for the

Construction Permit provided an emission factor of 3.57 pounds of particulate matter per ton. This emission factor would reflect the removal efficiency of the multi-cyclone air pollution control device. A comparison of the AP-42 particulate matter emission factor and the stack test factor indicates a removal efficiency of approximately 70% at the time of the test. The ratio of the AP-42 PM and PM_{10} emission factors was used to calculate a PM_{10} emission factor from the stack test PM emission factor.

A stack test is necessary to validate compliance with the permit limits. If the boiler operated full time a performance test would be required within six (6) months of the issuance of this permit and again in the eighteen (18) months prior to the expiration of the permit. To accommodate the intermittent operation of the boiler, two scenarios are identified for when the stack test must be performed. The two scenarios are (1) operation of the boiler for longer than sixty (60) continuous calendar days, OR (2) whenever the boiler operates more than 1,440 hours in any twelve (12) consecutive calendar months, whichever occurs first. The stack test is to be repeated prior to the expiration of the permit in accordance with the same two scenarios. If the boiler has not been placed in service 18 months prior to the expiration date of this permit, only one test will be necessary. Results from the stack test indicating a failure to meet either the particulate or sulfur dioxide limits will be a violation of the Operating Permit terms and may result in a re-opening of the permit to adjust the level and/or frequency of monitoring.

4. Compliance Status - As mentioned previously Construction Permit C-10, 908 was revoked for failing to meet the particulate emissions standard and/or obtaining final approval status within six (6) months of initial approval permit issuance. Additionally, while the tests performed in 1981 did demonstrate compliance for the particulate matter, the results showed a substantial variation (0.24, 0.09, 0.17 lb/MMBtu). Additionally, the use of multi-clones for a coal-fired utility boiler is less stringent than usually seen and there is concern regarding compliance with the particulate limit. Finally, there are no regulatory requirements for continuous emission monitoring to provide periodic monitoring for compliance. For these reasons, the compliance stack test was added to ensure compliance. A review of the master file did not reveal any other emission or opacity compliance issues. A current APEN reporting criteria emissions is on file with the Division for this boiler. Therefore, this unit is considered to be in compliance with all current applicable requirements.

Unit #2 - 45 MMBtu/Hr Combustion Engineering Natural Gas-Fired Boiler, Model Type VU, S/N: 15751

The combination of the electricity available on the State power grid, the availability of the coal-fired boiler and the internal combustion engine powered generators, has resulted in no need to operate this unit since the late 70s or early 80s. However, as a gas-fired unit it may be brought on line reasonably quickly if needed.

1. Applicable Requirements - This unit went into service in 1951 as a coal fired boiler providing steam to drive a 3500 kilowatts per hour turbine generator. In 1952, it was converted to natural gas as natural gas prices became attractive and has not been modified since. Because this unit was constructed prior to February 1, 1972, the facility is grandfathered from construction permitting requirements. The only emission limit is for particulate matter set by the Regulation No. 1, Section III.A.1.b equation $0.5(45)^{-0.26}$ as 0.19 pounds per million Btu.

2. Emission Factors - Emissions from this boiler are produced during the combustion process, and are dependent upon the specific properties of the natural gas being burned. The AP-42 (EPA Compilation of Air Pollutant Emission Factors, March 1998) emission factors for small boilers from Tables 1.4-1 and 2 are based on a heating value of 1020 Btu/scf. The factors were adjusted to a heating value of 1000 Btu/scf.

3. Monitoring - At the end of each calendar year the annual emissions are to be calculated for inventory purposes based on fuel consumption and the fuel based emission factors.

Colorado requires pipeline quality natural gas to provide a minimum heat content of 950 Btu per cubic foot. The following calculation demonstrates the particulate emission limit can not be exceeded while burning natural gas with a heating value of 1000 Btu/scf. Inspection of the calculation demonstrates the limit can not be exceeded for the normal heat content range of pipeline quality natural gas.

$$\frac{7.5\ lb\ PM}{MMscf} \times \frac{scf}{1000\ Btu} = 0.008\frac{lb\ PM}{MMBtu} << \frac{0.19\ lb}{MMBtu}$$

The Division expects the combustion of natural gas will not result in a violation of the 20% opacity standard. Inspectors may verify this with EPA Method 9 opacity readings if necessary.

4. Compliance - This unit has not been in operation since 1981 according to a Division inspection report from August of 1995. This source is grandfathered from Colorado Construction Permitting requirements. No records indicating non-compliance were found in a review of the facility's APCD files. Therefore, this unit is considered to be in compliance with all current applicable requirements.

Unit #3 - Enterprise 2631 HP IC Engine, Dual-fuel SN 65025
Unit #4 - Enterprise 2631 HP IC Engine, Dual-fuel SN 65024
Fuel is diesel only or diesel and natural gas

1. Applicable Requirements - The units were installed and began operation in 1965 with no further modifications. Because these units were constructed prior to February 1, 1972, they are grandfathered from construction permitting requirements. The Division does not consider internal combustion engines to be fuel burning equipment and there are no emission limits established by Regulation No. 1. The only applicable requirement is to report annual emissions for fee purposes.

2. Emission Factors - Emissions from these engines are produced during the combustion process and are dependent upon the air/fuel ratio adjustment and specific properties of the fuel being burned. The emissions are the normal criteria pollutants plus small quantities of hazardous air pollutants (HAPs). AP-42 (Oct 1996) Table 3.4-1 and 3.4-2 provides emission factors for dual-fuel engines operating on diesel fuel only and operating on a fuel mixture providing 95% heat input from natural gas and 5% from diesel fuel. Trinidad requested not to use the emission factors for the dual fuel engines because Trinidad used a different fuel mix. They requested to use the emission factors for natural gas combustion and the emission factors for diesel fuel combustion, monitor the fuel consumption, and report the total emissions from the use of the two fuels. The Division accepts this approach. Trinidad requested to use emission factors taken from EPA Document 450/4-90-003, AIRS Facility Subsystem - Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants. The diesel fuel emission factors are for SCC 2-01-001-02, diesel-fueled reciprocating internal combustion engines for electric power generation. The natural gas emission factors are for SCC 2-01-002-02, natural gas fueled reciprocating internal combustion engines for electric power generation. The reference document is out-dated. However, the Division accepts the use of the emission factors for the following reasons. A number of other dual-fueled engines have been issued Operating Permits using the same approach and these same emissions factors. The use of these factors provides for consistency in the determination of the dual-fueled engine emissions. There are significant inconsistencies between the emission factor information in the EPA AP-42 (October, 1996) published reference and the EPA FIRE Version 5.0 (August, 1995) published reference. However, the best information indicates there has not been a significant change in the applicable emission factors.

3. Monitoring - At the end of each calendar year the annual emissions are to be calculated for fee purposes based on fuel consumption and the fuel based emission factors.

4. Compliance - Each unit operated under 20 hours in 1994 and was listed in compliance by inspection. A current APEN reporting criteria emissions is on file with the Division for these engines. This source is grandfathered from Colorado Construction Permitting requirements. No records indicating non-compliance were found in a review of the facility's APCD files. Therefore, these units are considered to be in compliance with all current applicable requirements.

Coal Handling and Storage: Truck unloading into coal hopper; Transfer by bucket elevator and screw conveyor to coal bunker; loadout to boiler from bunker

1. Applicable Requirements - Coal is brought to a coal storage area in 25 ton truck loads. The coal may be dumped directly on the elevator hopper grizzly or into a temporary storage pile. A front-end loader moves the coal from the storage area onto the grizzly as needed. An elevator takes the coal from a hopper below the grizzly to a screw conveyor which transfers the coal into the boiler storage bunker. The coal is fed from the bunker to the spreader which broadcasts the coal into the boiler. The boiler is capable of burning 6,352 pounds of coal per hour or about 3 truck loads per day. Normal usage has been about 2 truck loads per day. Fugitive particulate emissions are generated from this activity. Initial approval Construction Permit (C-11,387-1) was issued on March 16, 1978. The final approval permit was issued on May 17, 1985 as 11LA387-1. There is no regulatory basis for the fugitive particulate emissions established by Construction Permit 11LA387-1 Condition 2. These limits were not carried forward into the Operating Permit. There is an applicable requirement to estimate and report these fugitive emissions in accordance with APEN reporting requirements. The no off-property transport, and 20% opacity limit identified in Colorado Regulation No. 1, Section III.D.1.c are guidelines, not enforceable standards. Therefore, these guidelines are not included in the Operating Permit.

The Particulate Emissions Control Plan contains control measures that are to be used for compliance purposes on the particulate emission producing sources, as required by Colorado Regulation No. 1 (Colorado Construction Permit 11LA387-1). The Particulate Emissions Control Plan requires covering all coal truck loads to minimize fugitive particulate emissions.

2. Emission Factors - Specific emission factors for these activities are not available from published sources. The emission factor used in the preliminary analysis to determine the PM emission limits in Colorado Construction Permit 11LA387-1 is provided for estimating the annual emissions. Permit 11LA387-1 estimated the fugitive particulate emissions as 7.45 tons per year.

3. Monitoring - Coal throughput will be measured on a daily and annual basis. The fugitive particulate emission sources are subject to the requirements of Colorado Regulation No. 1, Section III.D, which requires existing sources to employ control measures and operating procedures to minimize fugitive particulate emissions using all available practical methods that are technologically feasible and economically reasonable. The particulate emission producing sources are subject to the control measures of the Particulate Emissions Control Plan.

4. Compliance - No records indicating non-compliance were found in a review of the facility's Division files and the source certified in their application that they are currently in compliance with all current applicable requirements. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

Ash silo vent

The burning of coal produces two types of ash which must be removed. Bottom ash results from the burned coal dropping through the grate. Fly ash is small particulate matter which is entrained in the heated air used to produce steam. The bottom ash is removed using a sifting hopper. The flue gas entrained fly ash moves into a cyclone dust collector. The dust drops out and the remaining flue gas (with some still entrained fly ash) is vented to atmosphere. Both the fly and bottom ash are transported by a vacuum system to the Nuveyor vent system where steam is added to condense the ash. The Nuveyor also contains three (3) bag type filters. Flue gas, steam, and some remaining entrained ash are vented from the Nuveyor. Condensed and collected ash drops into an ash storage silo.

1. Applicable Requirements - Initial approval Construction Permit C-10, 387-2 was issued on March 16, 1978. The final approval permit was issued on May 17, 1985, as 11LA387-2. The emissions vented from the bag filters are considered a point source and should not have been included in 11LA387-2 as fugitive emissions. As part of the preparation of this Operating Permit the silo vent has been established as a separate source and the appropriate requirements from

11LA387-2 identified established directly in this Operating Permit as detailed in Section I, Condition 1.4 of the Operating Permit.

The Construction Permit limited the operation to 8760 hours per year. However, since a source can not actually operate more than 8760 hours per year, the operational limit is meaningless and was not included in the Operating Permit.

2. Emission Factors - Specific emission factors for these activities are not available from published sources. The emission factors used in the preliminary analysis to determine the PM emission limits in Colorado Construction Permit 11LA387-2 are incorporated in the Operating Permit for estimating the emissions. The estimated control efficiency of the Nuveyor system (99.7%) is reflected in the emission factor.

3. Monitoring - Ash throughput will be calculated based on the coal use and the coal ash content on a monthly basis to provide the twelve (12) month rolling total. Nuveyor system inspection and maintenance procedures must be used to ensure continuing optimal function of the control equipment. This emission unit shall comply with the opacity standard of 20%. Inspectors may verify this with EPA Method 9 opacity readings, if necessary. A control efficiency of at least 99.7% may be assumed provided that manufacturer's instructions, operating and maintenance procedures are followed.

Visual observations of the bag filter exhaust will have to account for a steam plume. Steam is exhausted from the Nuveyor system adjacent to the bag filters and some steam is also exhausted from the bag filters. The steam plume will be a normal part of the daily emissions when operating.

4. Compliance - No records indicating non-compliance were found in a review of the facility's Division files and the source certified in their application that they are currently in compliance with all current applicable requirements. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

Ash silo loadout

1. Applicable Requirements - Ash from the ash storage silo is loaded onto trucks using a "dustless" rotary ash unloader. The ash is dropped into a rotating drum where water is added to sufficiently minimize fugitive emissions. An 8 cubic yard truck is filled in approximately 8.5

minutes. Fugitive particulate emissions are generated from this activity. Colorado Construction Permit 11LA387-3 for the silo unloading was issued May 17, 1985.

The Construction Permit limited the operation to 8760 hours per year. However, since a source can not actually operate more than 8760 hours per year, the operational limit is meaningless and was not included in the Operating Permit. Further, the emission limit of Condition 2 of 11LA387-3, and Colorado Regulation No. 1, Section III.D.1.c (no off-property transport and 20% opacity) are guidelines, not enforceable standards. Therefore, these guidelines are not included in the Operating Permit.

The Particulate Emissions Control Plan contains control measures that shall be used for enforcement purposes on the particulate emission producing sources, as required by Colorado Regulation No. 1 (Colorado Construction Permit 11LA387-3). The Particulate Emissions Control Plan requires ash trucks be fully covered to prevent spillage en route and minimize fugitive particulate emissions, ash to be continuously mixed with a sufficient amount of water to control fugitive particulate emissions while being loaded into trucks, and the "dustless" rotary ash unloader to be properly maintained in accordance with manufacturer's instructions to achieve efficiency of at least 80% on a continuous basis.

2. Emission Factors - Specific emission factors for these activities are not available from published sources. The emission factors used in the preliminary analysis to determine the PM emission limits in Colorado Construction Permit 11LA387-3 were incorporated into the Operating Permit for estimating the annual emissions to be reported. The estimated control efficiency of the dustless loadout system (80%) has been recognized in the emission factor.

3. Monitoring - The annual wet ash throughput will be calculated based on coal use and ash content. The fugitive particulate emission sources are subject to the requirements of Colorado Regulation No. 1, Section III.D, which requires existing sources to employ control measures and operating procedures to minimize fugitive particulate emissions using all available practical methods that are technologically feasible and economically reasonable. The particulate emission producing sources are subject to the control measures of the Particulate Emissions Control Plan.

4. Compliance - No records indicating non-compliance were found in a review of the facility's Division files and the source certified in their application that they are currently in compliance with all current applicable requirements. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

Unit #5 - Caterpillar Diesel IC Engine Model 3516 DITA "B" Series SN7RN-00-640
Unit #6 - Caterpillar Diesel IC Engine Model 3516 DITA "B" Series SN7RN-00-639
Unit #7 - Caterpillar Diesel IC Engine Model 3516 DITA "B" Series SN7RN-00-638
All Rated at 2610 HP

1. **Applicable Requirements** - As discussed at the beginning of this document, the entire facility is currently operated in a standby mode. Trinidad installed these additional engines to provide the Company with the flexibility to optimize its response to short term and long term demands for electricity while limiting the emissions from the various sources.

These units were installed in December 1998. The three units could be classified as insignificant sources if they were restricted to operating less than a total of 65 hours per year for all three engines. However, Trinidad desired the flexibility to be able to operate the engines more hours per year if needed. Trinidad was also mindful that operating more than a certain number of hours could increase the emissions sufficient to trigger the requirement for a Prevention of Significant Deterioration (PSD) review. To accomplish their goals, Trinidad elected to limit the annual fuel consumption of these engines to a level at which the associated emission increases did not trigger the PSD review. Trinidad requested the permit limits be established using the combined Construction Permit/Operating Permit procedure to accelerate the permitting process.

2. **Emission Factors** - Emissions from these engines are produced during the combustion process and are dependent upon the air/fuel ratio adjustment and specific properties of the fuel being burned. The emissions are the normal criteria pollutants plus small quantities of hazardous air pollutants (HAPs). Unlike coal or heavier distillate fuels, diesel fuel is low in sulfur and consequently the emission factor is not multiplied by a sulfur weight percentage. The emission factors were provided by the engine manufacturer and differ from the factors provided in the 1996 update of AP-42. The Division accepts the use of the emission factors subject to verification by the stack test noted in the next section. Trinidad will submit to the Division the stack test results along with a written request for any modification of the emission factors. The Division will use the information to evaluate what permit modifications may be needed and how to accomplish the modifications.

3. **Monitoring** - Compliance with the emission limits is to be demonstrated monthly based on the fuel consumption and the fuel based emission factors. As noted above, the Division accepts the use of the engine manufacturer's emission factors until the compliance tests have been completed. Trinidad may then select the emission factors of choice and submit them for Division approval and incorporation into this Operating Permit.

The Title V application used the engine manufacturer's not-to-exceed emission factors which are lower than the AP-42 factors. The Division will accept these factors if they are validated by stack testing. Stack testing of each engine is also necessary because the operating time of the engines is to be limited to avoid an emission increase that would trigger the need for a Prevention of Significant Deterioration review.

4. Compliance - A current APEN reporting criteria emissions is on file with the Division for these engines. The Division accepts these engines are in compliance as long as they operate less than 250 hours per year until the stack test has been completed and the results evaluated.

IV. Accidental Release - 112(r)

This facility is not subject to these provisions.

V. Insignificant Activities

The permittee needs to periodically review the insignificant activities to determine if they are still insignificant and in compliance with all applicable requirements. A record of review, the compliance determination, and any additions, deletions or changes to the insignificant source inventory should be maintained. The record will support the annual compliance certification for the insignificant sources. The inventory of insignificant sources provided in the permit application is included in Appendix A of the operating permit as a starting reference.

VI. Hazardous Air Pollutants

The applicable requirement is for the reporting of estimated emissions above the appropriate bin thresholds established in Appendix D of Regulation No. 3. Hazardous air pollutant emissions for each source are estimated from manufacturer's information, AP-42 and other published technical information that may be available. A Revised APEN must be submitted when there is an increase in hazardous air pollutants of 50 percent (%) or five (5) tons per year, whichever is less, above the level of the last APEN submitted. The Division accepts this source was in compliance at the time the Title V application was submitted.

VII. Permit Shield

The intent of the permit shield is to provide limited protection to the plant in the event of an error in the evaluation of whether a regulation, or portion of a regulation applies. The plant identifies the issue and presents its position. The Division reviews the position. If the Division and the plant mutually agree on the position, the issue is recorded in the permit. If, at a later date, it is determined that an error was made in the mutual decision, the plant is protected from enforcement action until the permit can be reopened and the correct requirements and a compliance schedule inserted.

In this application, an extensive list of non-applicable sections of the Federal and State regulations are identified for the sources, and the request for the shield justified.

VII. Short Term Limits

As noted at the start of this review document, new procedures resulted in the removal of short term emission and production/throughput limits from Construction Permits. The table below documents existing short term Construction Permit limits that were not incorporated in the Operating Permit.

Construction Permit	Emission Point	SO_2	PM, lb/hr	Fuel Use or Process rate
C-13,114	Unit #1	60.8 lb/hr	0.57 grains/dscf and 8.97 lb/hr	6352 lb/hr
11LA387-1	Coal Handling		250.2 lb/hr	
11LA387-2	Ash Handling		0.72 lb/hr	
11LA387-3	Unload Ash Silo		15.24 lb/hr	37 ton/hr

VIII. Miscellaneous

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. Obviously, 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.