



REGIONAL HAZE FOUR-FACTOR ANALYSIS

DCP Operating Company, LP
Artesia Gas Plant



Prepared By:

Jake Zenker – Consultant
Michael Celente – Senior Consultant

TRINITY CONSULTANTS

9400 Holly Ave.
Building 3, Suite 300
Albuquerque, NM 87122
(505) 266-6611

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1-1

2. SUMMARY & CONCLUSIONS 2-3

3. SUPPORTING DOCUMENTATION 3-4

LIST OF TABLES

Table 1. Summary of Equipment and Applicability to a Four-Factor Analysis

1-2

1. EXECUTIVE SUMMARY

In the 1977 amendments to the Clean Air Act (CAA), Congress set a nation-wide goal to restore national parks and wilderness areas to natural conditions by remedying existing, anthropogenic visibility impairment and preventing future impairments. On July 1, 1999, the U.S. Environmental Protection Agency (EPA) published the final Regional Haze Rule (RHR). The objective of the RHR is to restore visibility to natural conditions in 156 specific areas across with United States, known as Federal Class I areas. The CAA defines Class I areas as certain national parks (over 6,000 acres), wilderness areas (over 5,000 acres), national memorial parks (over 5,000 acres), and international parks that were in existence on August 7, 1977.

The RHR requires states to set goals that provide for reasonable progress towards achieving natural visibility conditions for each Class I area in their jurisdiction. In establishing a reasonable progress goal for a Class I area, each state must:

- (A) Consider the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting the goal. 40 CFR 51. 308(d)(1)(i)(A). This is known as a four-factor analysis.*
- (B) Analyze and determine the rate of progress needed to attain natural visibility conditions by the year 2064. To calculate this rate of progress, the State must compare baseline visibility conditions to natural visibility conditions in the mandatory Federal Class I area and determine the uniform rate of visibility improvement (measured in deciviews) that would need to be maintained during each implementation period in order to attain natural visibility conditions by 2064. In establishing the reasonable progress goal, the State must consider the uniform rate of improvement in visibility and the emission reduction. 40 CFR 51. 308(d)(1)(i)(B). The uniform rate of progress or improvement is sometimes referred to as the glidepath and is part of the state's Long Term Strategy (LTS).*

The second implementation planning period (2018-2028) for national regional haze efforts is currently underway. There are a few key distinctions from the processes that took place during the first planning period (2004-2018). Most notably, the second planning period analysis distinguishes between natural or biogenic and manmade or anthropogenic sources of emissions. Using a Photochemical Grid Model (PGM), the Western Region Air Partnership (WRAP), in coordination with the EPA, is tasked with comparing anthropogenic source contributions against natural background concentrations.

Pursuant to 40 CFR 51.308(d)(3)(iv), the states are responsible for identifying the sources that contribute to the most impaired days in the Class I areas. To accomplish this, the New Mexico Environment Department (NMED) reviewed 2016 emission inventory data for major sources and assessed each facility's impact on visibility in Class I areas with a "Q/d" analysis, where "Q" is the magnitude of emissions that impact ambient visibility and "d" is the distance of a facility to a Class I area. From this analysis, 24 facilities were identified by the NMED. On July 18, 2019 the NMED informed DCP Operating Company, LP (DCP), that its Artesia Gas Plant (Artesia) was identified as one of the sources possibly contributing to regional haze at nearby Class I areas.

In coordination with guidance provided by WRAP, the NMED devised criteria to determine specific equipment that is subject to the four-factor analysis. The NMED's July 18, 2019 notification letter to DCP specifies that any equipment with a potential to emit (PTE) greater than 10 pounds per hour (lb/hr) and 5 tons per year (tpy) of Nitrogen Oxides (NO_x) or Sulfur Dioxide (SO₂) shall be included in this analysis. The equipment at the facility

subject to the analysis, the PTE associated with that equipment, and the applicability of a four-factor analysis for each pollutant are reported in Table 1.

Table 1. Summary of Equipment and Applicability to a Four-Factor Analysis

Equipment	NO_x Hourly PTE (lb/hr)	NO_x Annual PTE (tpy)	NO_x Subject to Analysis? (Yes/No)	SO₂ Hourly PTE (lb/hr)	SO₂ Annual PTE (tpy)	SO₂ Subject to Analysis? (Yes/No)
Emergency Wet Gas Flare (Unit 22)	642.9	7.5	No*	4918.4	49.9	No*
Emergency Acid Gas Flare (Unit 23)	10.4	2.4	No*	2001.0	328.2	No*
Malfunction Flaring (Unit M1)	642.9	10.0	No*	4918.4	10.0	No*

* Pursuant to NMED Guidance received on 9/23/2019, the Four Factor Analysis is to be completed for steady state sources of emissions only; as such, emissions from SSM/M activities are not subject to a Four Factor Analysis.

Once the applicability of process equipment and pollutants has been determined, potential retrofit control technologies must be identified. In accordance with 40 CFR 51 Appendix Y and at the recommendation of the NMED¹, this is primarily achieved by utilizing the Reasonably Available Control Technology (RACT) / Best Available Control Technology (BACT) / Lowest Achievable Emission Reduction (LAER) Clearinghouse (RBLC).

At Artesia Gas Plant, there are potentially three (3) units which could be subject to this four-factor analysis based on SO₂ emissions (shown in Table 1). There are no units at the facility which would be subject to this analysis based on NO_x emissions. Units 22, 23 and M1 all have SO₂ emissions greater than 10 lb/hr and 5 tpy; however, these emissions are the result of either startup, shutdown, maintenance (SSM) or malfunction (M). Based on guidance received from the NMED on 9/23/2019; the four-factor analysis is to be completed for steady state sources of emissions only, which excludes emissions units associated with non-steady state/irregular emissions such as SSM/M flare sources. As such, the analysis will not be completed for any of the units at the Artesia facility.

¹ NMED 2021 Regional Haze Planning Website (“Links to other information”). <https://www.env.nm.gov/air-quality/reg-haze/>

2. SUMMARY & CONCLUSIONS

Based on a comprehensive review of the units at Artesia, DCP has determined that due to the non-steady state nature of the emissions at this facility, i.e., intermittent nature of the emissions associated with SSM/M flaring, a four-factor analysis is not required. The costs of compliance, time necessary for compliance, energy and non-air quality environmental impacts and remaining useful life elements of a Four Factor Analysis are thus inapplicable.

3. SUPPORTING DOCUMENTATION

There is no applicable supporting documentation.