TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 116125

I. INTRODUCTION

Significant Permit Revision (SPR) No. 116125 authorizes Top Quality Products, LLC, the Permittee, to increase the voluntary emission limitation for particulate matter (PM) on the wet scrubber (SCRUB-1) controlling emissions from the evaporative dryer (DRY-1) including updating the units from grains per dry standard cubic foot to pound per hour. In addition, the monitoring parameter is being updated from pressure drop to flowrate to ensure proper operation of the wet scrubber (SCRUB-1) including changing performance test requirements from Method 201A to Method 5 to account for water in the exhaust stack.

These trigger minor New Source Review (NSR) under A.A.C. R18-2-334.A.3 as the facility's PTE of PM_{10} and $PM_{2.5}$ will be greater than the permitting exemption thresholds (PET) established under A.A.C. R18-2-101.102. In order to satisfy the requirements of Minor NSR, the Permittee developed an ambient air impact analysis to demonstrate that the emissions resulting from this increase would not interfere with attainment of the National Ambient Air Quality Standards in accordance with A.A.C. R18-2-334.C.2.

A. Company Information

Facility Name:	Top Quality Products, LLC.
	Yuma Bioprocessing Facility
Mailing Address:	1209 Orange Street
	Wilmington, Delaware 19801
Facility Location:	2992 South Rebecca Ave.
	Yuma, Arizona 85365

B. Attainment Classification

The facility is located in Yuma County. An area that is in moderate non-attainment for PM_{10}.

II. REVISION DESCRIPTION

The facility will produce dry pulp bales from agricultural biomass. It will begin production by operating a variety of mechanical steps including pressing, centrifuging and filtering to remove water. The biomass then enters the wet pulping process, where the biomass is diluted into a slurry, washed, and screened to remove unwanted material. Next, the slurry is thickened by removing water with a disc thickener. The thickened slurry is then bleached with the addition of inorganic chemicals and steam. A wet lapping machine and evaporative dryer further reduce the pulp moisture before the dry pulp bales are ready for packaging and storage.

A. Process Equipment

The facility will generate emissions from a natural gas boiler (BOL-1), an evaporative dryer (DRY-1), an emergency generator (EG-1) and two (2) cooling towers (CT-1 and CT-2). The boiler will supply steam to support the evaporative dryer. The emergency generator will be a 268 hp compression ignition engine that will support the facility during emergency situations. The cooling towers will be used produce cooling water for process equipment and the HVAC system.

B. Control Devices

The evaporative dryer will be vented to a wet scrubber (SCRUB-1) to control particulate matter (PM) emissions.

C. Proposed Changes

The Permittee has proposed to increase the emission limit on SCRUB-1, as well as changing the units of the limit from grains per dry standard cubic feet (dscf) to lb/hr. The limit would increase from the current 0.006 grains/dscf (equivalent to 1.6 lb/hr) to 3.2 lb/hr.

The Permittee has also proposed to change the monitoring method used to determine compliance with the condition to operate the wet scrubber from pressure drop to flowrate. This is because the wet scrubber is defined as a “spray scrubber”, and control efficiency is correlated with liquid-to-air contact. The proposed operating parameters are a flowrate of 90 gallons per minute (gpm) for the inlet header and 337 gpm for the central header.

Performance test methods to determine compliance with the PM emission limit are proposed to be changed from Method 201A and 202 to Method 5 and 202. This is due to exhaust gas being saturated with water following treatment through the wet scrubber. Method 201A is not able to measure emissions where water droplets are present because the size separation in the presence of water may not be accurate. EPA recommends the use of Method 5 when conducting performance tests where water is present in the stack.

D. Process Flow Diagram(s)

Process flow diagrams are provided in Appendix A.

III. EMISSIONS

The facility’s PTE was calculated using various methods.

Emissions from the evaporative dryer (DRY-1) are calculated at the outlet of the wet scrubber (SCRUB-1) using vendor supplied equipment specifications and a safety factor of 2.

The facility's PTE is provided in Table 1:

Table 1: Potential to Emit (tpy)

Pollutant	Pre-Project PTE	Change in PTE	Post-Project PTE	Permitting Exemption Threshold	Minor NSR Triggered?
NO_X	15.07	0.00	15.07	20	No
PM_{10}	3.90	+11.35	15.25	7.5	Yes
$PM_{2.5}$	2.41	+12.83	15.24	5	Yes
CO	13.18	0.00	13.18	50	No
SO_2	0.091	0.00	0.091	20	No
VOC	5.89	0.00	5.89	20	No
Pb	7.51E-05	0.00	7.51E-05	0.3	N/A
HAPs	1.00	0.00	1.00	N/A	N/A

IV. MINOR NEW SOURCE REVIEW

Existing stationary sources are required to satisfy the requirements of Minor NSR prior to beginning construction of any physical change or change in the method of operation at the source that results in an increase in PTE for any regulated minor new source review pollutant that is greater than the thresholds identified in Table 1 above. The proposed changes described in Section II.C result in an increase in PTE for PM_{10} and $PM_{2.5}$ that is greater than these thresholds, therefore this change is subject to the requirements of Minor NSR for each of those pollutants.

To satisfy minor new source review requirements, an applicant may elect to evaluate and implement Reasonably Available Control Technology (RACT) for each emissions unit with PTE of regulated pollutants greater than 20 percent of the applicable permitting exemption threshold, or alternatively conduct an ambient air impact analysis demonstrating that operation of the proposed emissions units will not interfere with attainment of the NAAQS. For this revision, the Permittee elected to conduct an ambient air impact analysis in accordance with A.A.C. R18-2-334.C.2 to demonstrate that facility emissions will not interfere with attainment of the NAAQS.

V. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS

The facility voluntarily accepted an emission limitation on the evaporative dryer. The facility must install a wet scrubber on the evaporative dryer in order for PM_{10} emissions to remain below its major source threshold. The particulate matter emissions must not exceed 3.2 pounds per hour on the wet scrubber outlet. The facility must maintain a minimum flowrate of 90 gallons per minute for the inlet header and a minimum flowrate 337 gallons per minute for the central header of the wet scrubber.

VI. APPLICABLE REGULATIONS

Table 2 identifies applicable regulations and verification as to why that standard applies. The table also contains a discussion of any regulations the emission unit is exempt from.

Table 2: Applicable Regulations

Unit	Control Device	Rule	Discussion
Evaporative Dryer & Cooling Towers	Wet Scrubber (Evaporative Dryer Only)	A.A.C. R18-2-730	These standards are applicable to all unclassified sources of emissions like the evaporative dryer and cooling towers.
Fugitive dust sources	Water Trucks, Dust Suppressants	A.A.C. R18-2 Article 6 A.A.C. R18-2-702	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	Wet blasting; Dust collecting equipment; Other approved methods	A.A.C. R-18-2-702 A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operation.
Spray Painting	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	These standards are applicable to any spray painting operation.

VII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 3 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with the emission limits in the permit. Records are required be kept for a minimum of 5 years as outlined in Section XII of Attachment "A" of the permit.

Table 3: Permit No. 116125

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Evaporative Dryer with Wet Scrubber	PM	3.2 lb/hr	Conduct a performance test within 60 days after facility is at maximum manufacturing rate, but no later than 180 days after initial startup. Conduct a performance test once per permit term after the initial performance test. Monitor flowrate at the inlet header and central header of the wet scrubber once per day.	Keep records of all performance tests and maintenance activities. Record the flowrates for the wet scrubber once per day.	Submit excess emissions and deviation reports as applicable.

VIII. AMBIENT AIR IMPACT ANALYSIS

A. General Information

This section summarizes ADEQ's findings regarding the ambient assessment submitted by Top Quality Products (the Company) for the Yuma Bioprocessing Facility (the Project) in support of its Class II Air Quality Permit. As part of the Minor NSR process under A.A.C. R18-2-334, ADEQ required the Company to conduct an ambient air quality assessment via air dispersion modeling to demonstrate that potential impacts from this Project will not interfere with attainment or maintenance of any NAAQS. Under the Minor NSR program, an ambient air quality assessment must demonstrate either of the following:

- The emissions from the source will have an ambient impact below the significant impact levels (SILs);
- The ambient concentrations resulting from the source combined with representative background concentrations of Minor NSR pollutants will not interfere with attainment or maintenance of the NAAQS.

To meet these Minor NSR requirements, the Company conducted the ambient air quality assessment in two steps: a preliminary analysis (often referred to as a significant impact analysis), and a cumulative impact analysis:

- The significant impact analysis estimates ambient concentrations resulting from the proposed project for pollutants that trigger Minor NSR review. If the ambient impacts from the project are greater than SILs, then a cumulative impact analysis is conducted.
- The cumulative impact analysis considers the emissions from the proposed project, and the emissions from nearby sources that are not adequately represented by background concentrations. The modeling results from these emission sources are added to representative regional ambient background concentrations and the total concentrations are compared to the NAAQS.

Table 4 – Minor NSR Thresholds

Pollutant		Project Change in Potential to Emit (PTE)	mNSR Threshold	Post-Project PTE
CO		0	50	13.18
Lead (Pb)		0	0.3	7.51E-05
NO_X		0	20	15.07
PM_{10}		11.35	7.5	15.25
$PM_{2.5}$	Primary	12.83	5	15.24
	Precursors (NO_X/SO_2)	0	20	15.07/0.091
SO_2		0	20	0.091
VOC		0	20	5.89
Ozone Precursors (VOC/NO_X)		0	20	5.89/15.07

For this Project, the pollutants subject to the ambient assessment are:

- PM_{10}; and
- $PM_{2.5}$

Guidance for performing air quality dispersion modeling analyses is set forth in the EPA's Guideline on Air Quality Models (40 CFR Part 51 Appendix W)[1], and in the Air Dispersion Modeling Guidelines for Arizona Air Quality Permits, November 1, 2019.[2]

B. Model Selection

The Company selected the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) for this air quality assessment. AERMOD is the EPA-preferred model for estimating impacts at receptors located in simple terrain and complex terrain (within 50 kilometers of a source) due to emissions from industrial sources. The AERMOD modeling system consists of three major components: AERMAP, used to process terrain data and develop elevations for receptors; AERMET, used to process the meteorological data; and the AERMOD dispersion model, used to estimate the ambient pollutant concentrations.

Table 5 below shows the versions used for each of the modeling components; all of which are the most current version available.

---

1 US. EPA. 2017. Guidelines on Air Quality Models. https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf

2 Arizona Department of Environmental Quality. 2019. Air Quality Modeling Guidelines for Arizona Air Quality Permits. http://static.azdeq.gov/aqd/modeling_guidance.pdf

Table 5 - Model Versions

Model Component	Current Version	Version Used
AERMOD	24142	24142
AERMAP	24142	24142
AERMET	24142	24142
AERSURFACE	24142	24142
BPIPPRM	04274	04274

1. Model Options

The AERMOD system includes a number of options that can be used to help characterize different modeling scenarios. There are a standard set of “default options” that are generally used in regulatory modeling demonstrations.

The Company used all of the default options in this modeling assessment.

2. Land Use Classification

The rural/urban classification of an area is determined by either the dominance of a specific land use or by population data in the study area. The land-use procedure specifies that the land-use within a three-kilometer radius of the source should be determined using the typing scheme developed by Auer.[3] The options are either “Urban” or “Rural”.

The Company determined the project site area as “Rural” based on the land use method.

3. NO_2 Modeling

This option is not applicable as the Project does not trigger the need for NO_2 modeling.

C. Source Inputs

This section provides a discussion on source characterization to develop appropriate source inputs, including modeling scenarios, modeled emission rates, source configuration and source types, and off-site sources.

1. Project Overview

The Company is constructing a bioprocessing facility that would treat and process an agricultural crop to produce dry pulp bales for further

3 Auer, A.H. 1978. Correlation of Land Use and Cover with Meteorological Anomalies, Journal of Applied Meteorology, 17:636-643.

processing at other facilities. Processing at the facility will include a series of mechanical pulping, total chlorine free bleaching, and drying.

2. Sources of Emissions

The modeled emission in the ambient air impact analyses are listed below.

- One (1) 250-gpm cooling tower (CT-1);
- One (1) 1,000-gpm cooling tower (CT-2);
- One (1) 268-hp emergency generator diesel engine (EG-1);
- One (1) 35 MMBtu/hr natural gas boiler (BOL-1); and
- One (1) steam evaporative dryer (DRY-1) exhausted via a 39,054 acfm wet spray scrubber (SCRUB-1).

3. Intermittent Sources

No intermittent sources were included in this modeling demonstration.

4. Modeled Emission Rates

The Company calculated the maximum potential short-term emission rates in lb/hr and pounds per day (lb/day) based on either the maximum equipment design rates or the highest short-term activity rates specified in the permit conditions. Generally, these maximum potential short-term emission rates were modeled to ensure compliance with short-term NAAQs.

Specifically, the maximum 24-hour average emission rates were modeled to demonstrate compliance with 24-hour PM_{10} and $PM_{2.5}$ standards.

The Company calculated the maximum potential long-term average emission rates using the highest annual activity rates as stipulated in the permit conditions. The annual average emission rate was modeled to demonstrate compliance with the annual $PM_{2.5}$ NAAQS. The tables below summarize the modeled emission rates.

Table 6 - Modeled Emission Rates- PM_{10} 24-hr

Source ID	Description	PM_{10} 24hr Emission Rates		
		g/s	lb/hr	ton/year
CT1	Cooling Tower 1 (Demo)	5.18E-05	4.11E-04	0.0018
CT2	Cooling Tower 2 (Demo)	2.07E-04	0.0016	0.0072

EG1	Emergency Generator (Demo)	0.0011	0.0088	0.0386
NGB backup	NG Boiler (Demo) Stack	0.0329	0.2611	1.1437
SCRUB1	Evaporative Dryer Scrubber (Demo) Stack	0.4050	3.2143	14.0788

Table 7 - Modeled Emission Rates - $PM_{2.5}$ 24-hr

Source ID	**Description**	**$PM_{2.5}$ 24hr Emission Rates**		
		g/s	**lb/hr**	**ton/year**
CT1	Cooling Tower 1 (Demo)	7.14E-07	5.66E-06	2.48E-05
CT2	Cooling Tower 2 (Demo)	2.85E-06	2.26E-05	9.91E-05
EG1	Emergency Generator (Demo)	0.0011	0.0088	0.0386
NGB backup	NG Boiler (Demo) Stack	0.0329	0.2611	1.1437
SCRUB1	Evaporative Dryer Scrubber (Demo) Stack	0.4050	3.2143	14.0788

Table 8 - Modeled Emission Rates - $PM_{2.5}$ Annual

Source ID	**Description**	**$PM_{2.5}$ Annual Emission Rates**		
		g/s	**lb/hr**	**ton/year**
CT1	Cooling Tower 1 (Demo)	7.14E-07	5.67E-6	2.48E-5
CT2	Cooling Tower 2 (Demo)	2.85E-06	2.26E-5	9.91E-5
EG1	Emergency Generator (Demo)	6.34E-05	5.032E-4	0.0022
NGB backup	NG Boiler (Demo) Stack	3.29E-02	0.2611	1.1437
SCRUB1	Evaporative Dryer Scrubber (Demo) Stack	4.05E-01	3.2143	14.0788

5. Source Characterization

a. Point Sources

The cooling towers, emergency engine and boiler were all modeled as individual point sources. Release parameters (stack height, stack diameter, gas temperature, and volumetric flow rate) for these point sources were derived from a combination of testing data, vendor specifications, or engineering estimations.

b. Volume Sources

No volume sources were used in this modeling demonstration.

c. Area Sources

No area sources were used in this modeling demonstration.

6. Building Downwash and Good Engineering Practice (GEP) Stack Height

All the facility stacks are subject to downwash. All stacks are also below the minimum 65-meter allowable GEP height, therefore all stack heights are fully creditable for air quality modeling.

The Company evaluated building downwash effects based on building and stack location and dimensions, and the EPA's Building Profile Input Program Plume Rise Model Enhancements (BPIP-PRME).

7. Off-site Nearby Sources

The EPA recommends that all nearby sources that are not adequately represented by background ambient monitoring data should be explicitly modeled as part of the NAAQS analysis.

Upon review, the Department determined that there are no near-by sources that should be explicitly modeled. The impact from distant off-site sources are represented by background ambient monitoring data as discussed in Section G below.

D. Meteorological Data

1. Meteorological Data Selection

For regulatory dispersion modeling analyses, 5 years of National Weather Station (NWS) meteorological data, or at least 1 year of site-specific meteorological data, or at least 3 years of prognostic meteorological data should be used. Per Appendix W Section 8.4.2.d, "*If 1 year or more, up to 5 years, of site specific data are available, these data are preferred for use in air quality analyses*".

The Company utilized 5 years of meteorological data (2019-2023) from the Yuma Marine Air Corps station.

2. Meteorological Data Processing

This project used the ADEQ-processed meteorological files for the Yuma Marine Corps station for the years 2019-2023. These files were processed with the following settings/options.

AERSURFACE requires the users to specify whether the project site is in an arid region or a non-arid region. Considering precipitation and land cover at the project area, the default designation “arid” was chosen.

ADEQ assessed moisture conditions (dry, wet, or normal) by comparing the annual precipitation for each modeled year to the 30-year climatological record of annual precipitation for KNYL.

ADEQ implemented the adjusted surface friction (ADJ_U*) option when processing this meteorological data.

E. Ambient Air Boundary and Receptor Network

The applicants are required to demonstrate modeled compliance with NAAQS at receptors spaced along and outside the ambient air boundary (AAB). According to the EPA’s revised policy on exclusion from “Ambient Air”, “*the atmosphere over land owned or controlled by the stationary source may be excluded from ambient air where the source employs measures, which may include physical barriers, that are effective in precluding access to the land by the general public*”.[4] The general public may not include mail carriers, equipment and product suppliers, maintenance and repair persons, as well as persons who are permitted to enter restricted land for the business benefit of the person who has the power to control access to the land.[5]

The AAB for this project consists of the facility’s fence line.

Following the Department’s recommendations, the Company set up a receptor network, encompassing a region extending up to 50 km from AAB. The grid spacing utilized for the receptors are as follows:

- AAB set at 25 m intervals;
- A receptor grid of 100 m extending from AAB to 1 km;
- A receptor grid of 350 m extending from 1 km to 5 km;
- A receptor grid of 750 m extending from 5 km to 20 km;
- A receptor grid of 1,750 m extending from 20 km to 50 km.

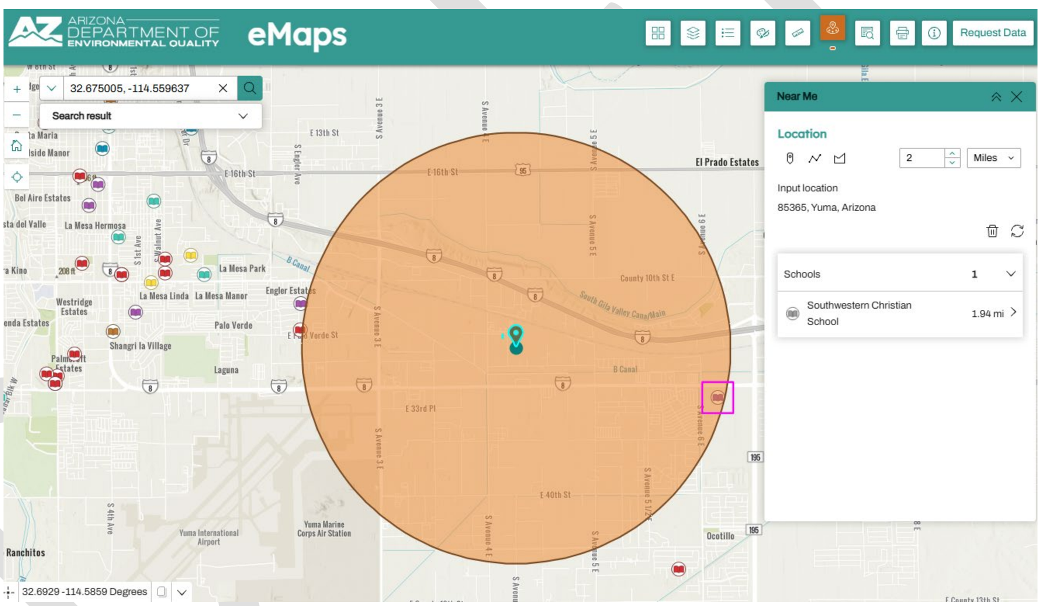
The Company used the AERMAP terrain processor to process the National Elevation Data (NED) 1/3 arc second data files to generate the receptor elevations and hill heights.

F. Learning Sites Policy

4 U.S. EPA. 2019. Revised Policy on Exclusion from “Ambient Air” https://www.epa.gov/sites/default/files/2019-12/documents/ambient_air2019.pdf
5 U.S. EPA. 2007. Interpretation of “Ambient Air” In Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD). Stephen D. Page Memorandum dated June 22, 2007. Research Triangle Park, North Carolina 27711.

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department is required to conduct an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools in the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

Since the facility will be within two (2) miles of a learning site, initial Hazardous Air Pollutants (HAPs) modeling was conducted using AERSCREEN. The results demonstrated that the modeled concentrations from the evaporative dryer, emergency generator and natural gas fired boiler would be below the Acute Ambient Air Concentrations (AAAC) and Chronic Ambient Air Concentrations (CAAC). Refined modeling using AERMOD was submitted by TQP in support of its application for a Class II significant permit revision to ensure modeled concentrations from the facility sources will remain below the AAAC and CAAC.



G. Background Concentration

Background concentrations should be representative of regional air quality in the vicinity of a facility. Typically, background concentrations should be determined based on the air quality data collected in the vicinity of the proposed project site. However, if there are no monitors located in the vicinity of the project, a "regional site" may be used to determine background concentrations. Per Appendix W Section 8.3.2 b, a regional site is "*one that is located away from the area of interest but is impacted by similar or adequately representative sources*." There is no cutoff of distance between the project site and the regional monitor. The key criterion is that the project site and the regional monitor should have a similar source impact.

The Project utilized the Yuma Supersite monitor (AQS Id: 04-027-8011) for background concentrations of PM_{10} and $PM_{2.5}$. ADEQ concurs that this monitor appropriately represents background concentrations at the project location.

H. Incorporating Particle Deposition in AERMOD

This Project did not utilize the dry or wet particle deposition options in AERMOD.

I. Methodology for Ozone and Secondary $PM_{2.5}$ Impacts Analysis

No ozone or secondary $PM_{2.5}$ impact analysis was required for this modeling demonstration.

J. Modeling Results

1. Significant Impact Analysis Model Results

As shown in Table 9, the modeled concentrations for PM_{10} are below Class II SILs, exempting them from a cumulative impact analysis. However, a cumulative impact analysis was required for $PM_{2.5}$, as their modeled concentrations were above the SIL threshold.

Table 9 - SIL Modeling Results

Pollutant	Averaging Period	Design Value	Concentration (μg/m³)		Exceeds SIL?
			Modeled	Class II SIL	
PM_{10}	24-hour	H1H[a]	3.2	5.0	No
$PM_{2.5}$	24-hour	H1H[a]	2.8	1.2	Yes
	Annual	H1H[a]	0.3	0.2	Yes

[a] *The highest modeled concentrations across all receptors.*

2. Cumulative Impact Analysis Model Results

Table 10 summarizes the NAAQS model results. Representative background concentrations were added to modeled concentrations, and the resulting total concentrations were then compared to the NAAQS. As shown in the table, emissions from the Project will not cause or contribute to a violation of the NAAQS, provided the facility operates within the limitations and conditions specified in the permit.

Table 10 - NAAQS Modeling Results

Pollutant	Averaging Period	Design Value	Modeled Concentration (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	NAAQS (μg/m³)	Exceeds NAAQS?
$PM_{2.5}$	24-hour	H8H[c]	1.9	19.0	20.9	35	No
	Annual	H1H[b]	0.3	7.89	8.2	9	No

[b] *The highest modeled concentration across all receptors.*

[c] *The highest of the 8th -highest (98th percentile) modeled concentrations across all receptors.*

3. HAP Model Results

Table 11 summarizes the modeled impacts of HAPs at nearby learning sites. The modeled maximum hourly concentrations are compared to the AAACs, while the modeled annual concentrations are compared to the CAACs, respectively. As shown in Table 11, the modeled impacts of HAPs at learning sites are well below the AAAC and CAAC thresholds.

Table 11 - HAP Model Results

HAP	Modeled Impacts		AAAC Threshold Concentration (mg/m3)	CAAC Threshold Concentration (mg/m3)	Exceeds AAAC?	Exceeds CAAC?
	1-hour Concentration (mg/m3)	Annual Concentration (mg/m3)				
Benzene	6.59E-06	6.94E-08	1276	2.43E-04	No	No
Toluene	9.28E-05	1.66E-06	1,923	5.21E+00	No	No
Xylenes	2.00E-06	2.09E-08	1,736	1.04E-01	No	No
1,3-Butadiene	2.74E-07	2.87E-09	7,514	6.32E-05	No	No
Formaldehyde	4.02E-05	6.63E-07	17	1.46E-04	No	No
Acetaldehyde	5.38E-06	5.61E-08	306	8.62E-04	No	No
Acrolein	6.50E-07	6.79E-09	0.23	2.09E-05	No	No
Total POM	1.18E-06	1.23E-08	5	2.02E-06	No	No
Hexane	4.75E-05	8.01E-07	11,649	2.21E+00	No	No
Naphthalene	1.61E-08	2.72E-10	75	5.58E-05	No	No
Arsenic compounds	5.28E-09	8.91E-11	2.5	4.41E-07	No	No
Beryllium compounds	3.17E-10	5.35E-12	0.013	7.90E-07	No	No
Cadmium compounds	2.90E-08	4.90E-10	0.25	1.05E-06	No	No
Chromium compounds	3.69E-08	6.23E-10	0.1	1.58E-07	No	No
Cobalt compounds	2.22E-09	3.74E-11	10	6.86E-07	No	No
Manganese compounds	1.00E-08	1.69E-10	2.5	5.21E-05	No	No

Mercury compounds	6.86E-09	1.15E-10	1	3.13E-04	No	No
Nickel compounds	5.55E-08	9.35E-10	5	7.90E-06	No	No
Selenium compounds	6.34E-10	1.07E-11	0.5	1.83E-02	No	No
Methanol	7.49E-05	1.36E-06	943	4.17E+00	No	No

IX. LIST OF ABBREVIATIONS

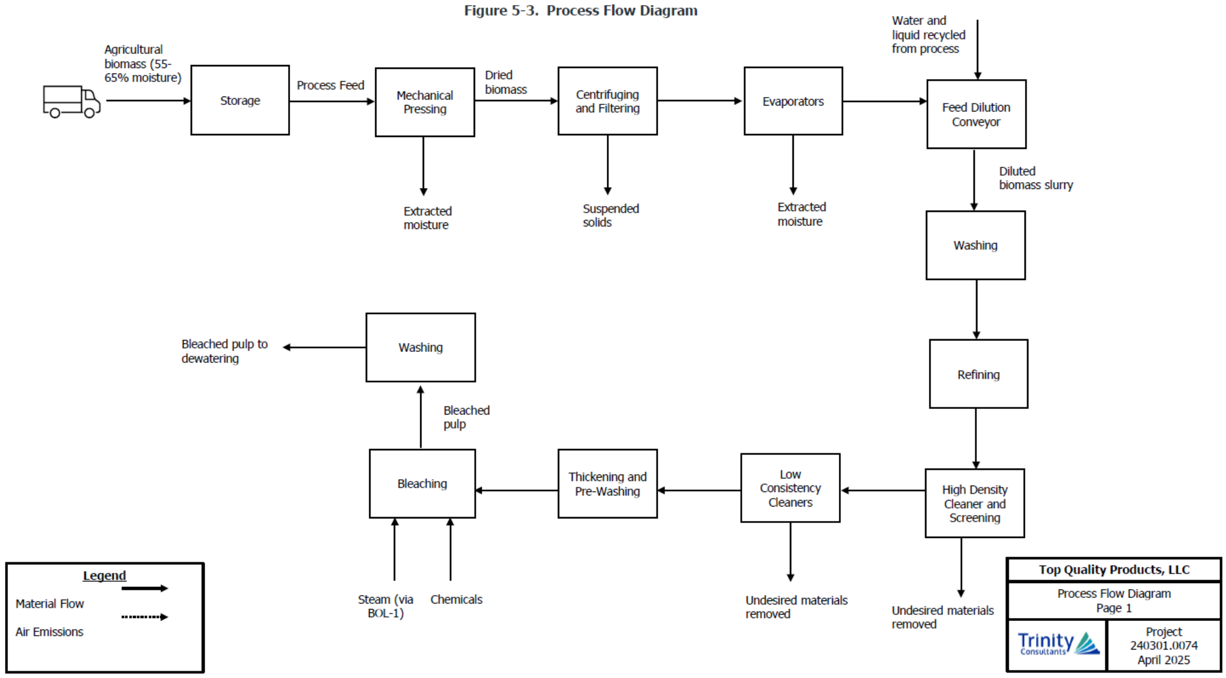
A.A.C. .... Arizona Administrative Code
ADEQ .... Arizona Department of Environmental Quality
AERMOD .... AMS/EPA Regulatory Model
AERMET .... AERMOD Meteorological Preprocessor
AMS .... American Meteorological Society
AQD .... Air Quality Division
AQRV .... Air Quality Related Values
ARM .... Ambient Ratio Method
A.R.S. .... Arizona Revised Statutes
BACT .... Best Available Control Technology
Btu/ft^3 .... British Thermal Units per Cubic Foot
CAM .... Compliance Assurance Monitoring
CEMS .... Continuous Emissions Monitoring System
CFR .... Code of Federal Regulations
CH_4 .... Methane
CO .... Carbon Monoxide
CO_2 .... Carbon Dioxide
CO_2e .... CO_2 equivalent basis
EPA .... Environmental Protection Agency
FERC .... Federal Energy Regulatory Commission
FLM .... Federal Land Manager
°F .... degrees Fahrenheit
ft .... Feet
g .... Gram
GHG .... Greenhouse Gases
HAP .... Hazardous Air Pollutant
HHV .... Higher Heating Value
hp .... Horsepower
hr .... Hour
IC .... Internal Combustion
kW .... Kilowatt
MW .... Megawatts
NAAQS .... National Ambient Air Quality Standard
NO_X .... Nitrogen Oxides
NO_2 .... Nitrogen Dioxide
N_2O .... Nitrous Oxide
NSPS .... New Source Performance Standards
O_3 .... Ozone

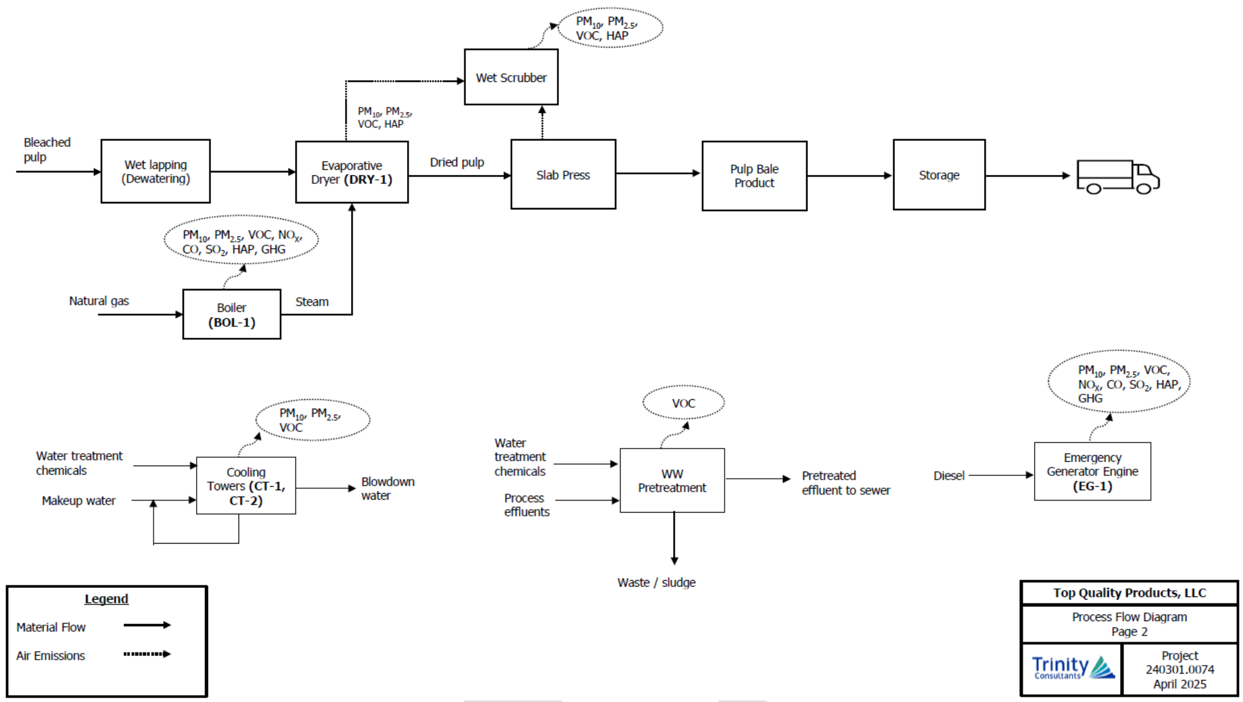
Pb .... Lead
PM .... Particulate Matter
PM10 .... Particulate Matter less than 10 µm nominal aerodynamic diameter
PM2.5 .... Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PSD .... Prevention of Significant Deterioration
psia .... Pounds per square Inch (absolute)
PTE .... Potential to Emit
sec .... Seconds
SF_6 .... Sulfur Hexafluoride
SIA .... Significant Impact Area
SIL .... Significant Impact Level
SO_2 .... Sulfur Dioxide Significant Impact Levels
TPY .... Tons per Year
VOC .... Volatile Organic Compound
yr .... Year

APPENDIX A

PROCESS FLOW DIAGRAMS

Figure 5-3. Process Flow Diagram




Bleached pulp
Wet lapping (Dewatering)
Evaporative Dryer (DRY-1)
PM10, PM2.5, VOC, HAP
Wet Scrubber
PM10, PM2.5, VOC, HAP
Dried pulp
Slab Press
Pulp Bale Product
Storage
PM10, PM2.5, VOC, NOX, CO, SO2, HAP, GHG
Natural gas
Boiler (BOL-1)
Steam
PM10, PM2.5, VOC
Water treatment chemicals
Makeup water
Cooling Towers (CT-1, CT-2)
Blowdown water
VOC
Water treatment chemicals
Process effluents
WW Pretreatment
Pretreated effluent to sewer
Waste / sludge
PM10, PM2.5, VOC, NOX, CO, SO2, HAP, GHG
Diesel
Emergency Generator Engine (EG-1)
Legend
Material Flow
Air Emissions
Top Quality Products, LLC
Process Flow Diagram
Page 2
Trinity Consultants
Project 240301.0074
April 2025