TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 100792

I. INTRODUCTION

This Class II air quality permit is for the continued operation of Forest Energy Corporation's wood fuel pellet and animal bedding facility. Permit No. 100792 renews and supersedes Permit No. 73803.

Forest Energy Corporation has the potential to emit (PTE) uncontrolled particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}) emissions over 100 tons per year (tpy). The facility has accepted a voluntary emission limitation to stay below major source thresholds for PM_{10}. Therefore, a synthetic minor permit is required in accordance with A.A.C. R18-2-302.B.2.a.

A. Company Information

Facility Name: Forest Energy Corporation

Mailing Address: P.O. Box 2468, Show Low, AZ 85901

Facility Location: 1001 North 40th Street, Show Low, AZ 85901

B. Attainment Classification

The facility is located in an area which is in attainment or unclassified for all criteria air pollutants.

II. PROCESS DESCRIPTION

A. Process Equipment

Operations at the facility consist of the following:

a) Wood grinding;
b) Sawdust drying;
c) Pellet and animal bedding production; and
d) Pellet screening and packaging.

During the wood grinding operation, raw material comprised of mostly pine, but also some fir and hardwood that is received in the form of logs, bark, chips, sawdust, and shavings is reduced to chips on-site with moist material being fed into the wet hammermill for size reduction. During the sawdust drying operation, material from the wet hammermill is fed into the sawdust dryer to reduce the material's moisture content. The sawdust dryer burner used to heat the sawdust dryer is supplied with wood fines from another part of the process as the primary fuel and with diesel fuel, which is used for approximately 30 minutes during cold start-ups. During the pellet production operation, the dry hammermill reduces oversized material to less than ¼" in size, reduced material is conditioned with water as necessary to prepare for milling, and conditioned material is fed to the three (3) pellet mills to form the desired product. Pellets from the pellet mills are screened and sent to a pellet

cooler where ambient air is pulled through the pellets. During the pellet screening and packaging operation, pellets are either screened or sent to the pellet crumbler to generate animal bedding. Screened pellets are packaged and palletized for shipment or are loaded into bulk trucks or other containers for distribution.

B. Control Devices

The facility uses cyclones to control particulate matter (PM) emissions from the sawdust dryer, dry hammermill, pellet cooler as well as bagging fines.

C. Process Flow Diagram

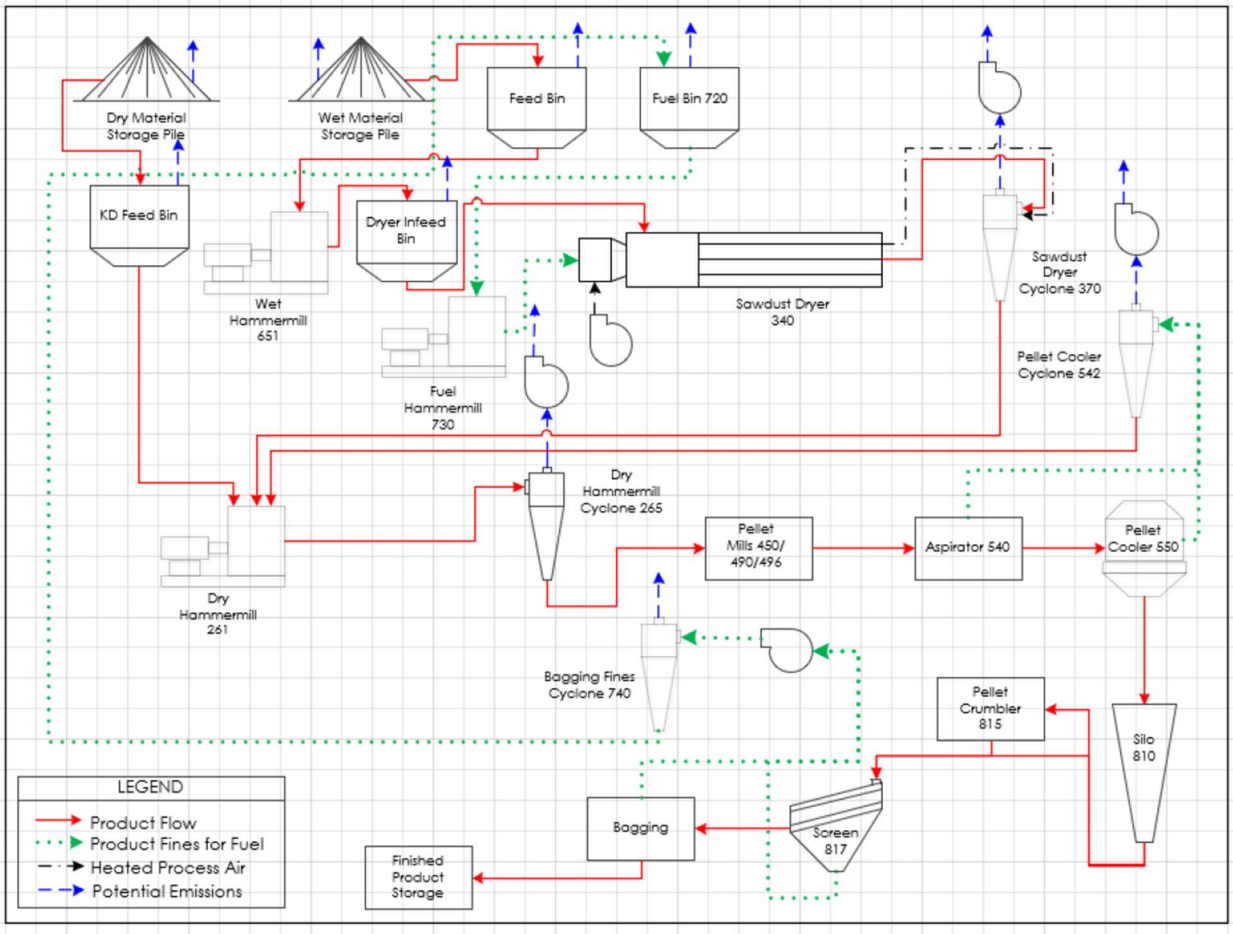

Figure 1: Overview of the Forest Energy Corporation Facility-Wide Operations

III. COMPLIANCE HISTORY

The facility received four (4) full inspections and five (5) partial inspections during the previous permit term. In addition, it submitted five (5) compliance certifications and three (3) excess emission reports. Two (2) Notices of Opportunity to Correct (NOCs) and five (5) Notices of Violations (NOVs) were given to Forest Energy Corporation for opacity exceedances from the

Sawdust Dryer Burner stack. One (1) case was generated in response to the permit deviation reports submitted by Forest Energy Corporation.

Forest Energy Corporation submitted a renewal application for Permit No. 73803 on October 23, 2023. A timely renewal for Permit No. 73803 was due on July 17, 2023. To allow for continued operation of the facility, Forest Energy Corporation entered Consent Order A-01-24 on January 17, 2024. In response to the multiple opacity exceedances from the Sawdust Dryer Burner stack, the Consent Order requires Forest Energy Corporation to comply with the following:

A. All terms and conditions of Permit No. 73803 (attached as Appendix A to Consent Order A-01-24) until the renewal permit is issued by ADEQ.

B. An optimization plan for additional process controls on the Sawdust Dryer Burner that will assure compliance with its opacity limit by January 31, 2024.

The plan shall include the following:

1. A detailed description of each process control implemented, when implementation occurred, and how it enhances previously followed procedures;

2. Any other process control options in consideration for the long term; and

3. A process monitoring plan including, at minimum, a daily EPA Reference Method 9 visible emissions observation (only required on days when the dryer is operated), continuous electronic monitoring of the dryer inlet temperature, and any other significant parameters that indicate compliance with the opacity limit.

C. An EPA Reference Method 9 opacity test, using an independent firm, to demonstrate compliance with the opacity limit for the Sawdust Dryer Burner. A protocol shall be submitted to ADEQ at least ten (10) days before the test date. During the test, Forest Energy Corporation shall monitor the net production rate (in bone dry tons (BDTs)), raw moisture content, and description of the species and sizing of the raw material for each dryer inlet temperature. Based upon this test, Forest Energy Corporation shall make a final determination on dryer inlet temperature and accompanying net production rate (in BDTs) associated with compliance with the opacity limit. These limitations shall be incorporated into the renewal permit. A final report of the test shall be submitted to ADEQ within thirty (30) days of the test date.

D. Any additional adjustments until June 16, 2024. Forest Energy Corporation shall notify ADEQ of any critical changes implemented. After June 16, 2024, if ADEQ documents any opacity exceedance from the Sawdust Dryer Burner for which it cannot substantiate as a natural and unavoidable catastrophe, Forest Energy Corporation agrees to automatically install additional air pollution control equipment on the Sawdust Dryer Burner in the form of a Wet Electrostatic Precipitator within the timeline approved by ADEQ. This requirement shall be in effect for a period of two (2) years within the effective date of this order or until the order is terminated.

Table 1: Performance Test Results

Emission Unit	Pollutant	Date of Test	Results of Performance Test	Emission Limit	Pass/Fail
Sawdust Dryer Burner / Sawdust Dryer Cyclone	PM_{10}	12/1/2019	3.5 lb/hr	11.1 lb/hr	Pass

IV. EMISSIONS

Uncontrolled PM, PM_{10}, and $PM_{2.5}$ emissions resulting from material transfer of wet and dry material are calculated using U.S. EPA Region 10 Memorandum, *Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country*, *Compilation of Air Pollutant Emissions Factors from Stationary Sources* (AP-42) Section 10.6.2 for *Particleboard Manufacturing*, and AP-42 Section 9.9.1 for *Grain Elevators and Processes*.

The facility has the potential to emit (PTE) more than the significant thresholds of PM_{10} and $PM_{2.5}$:

Table 2: Potential to Emit (tpy)

Pollutant	PTE
NO_X	20.32
PM_{10}	58.37
$PM_{2.5}$	58.22
CO	23.83
SO_2	0.20
VOCs	31.54
Pb	0
Total HAPs	2.45

V. MINOR NEW SOURCE REVIEW

Minor new source review (NSR) is required if the emissions of any physical change or change in the method of an operation of an emission unit or stationary source increases the PTE of any regulated minor NSR air pollutant by an amount greater than the permitting exemption threshold in Table 2 above. This renewal permit will not result in any increase in emissions as there are no changes to any equipment or operating conditions and thus, the facility does not trigger minor NSR.

VI. VOLUNTARILY ACCEPTED EMISSION LIMITATION AND STANDARD

The facility has accepted a voluntary emission limitation of 11.1 lbs/hr tpy of PM_{10} from the Sawdust Dryer Burner to stay under major source thresholds. The Sawdust Dryer Burner requires periodic performance testing to ensure the emission source is in compliance with the emission limitation.

VII. APPLICABLE REGULATIONS

Table 3 identifies applicable regulations and verifies why each standard applies. The table also contains a discussion of any regulations an emission unit is exempt from.

Table 3: Applicable Regulations

Unit	Control Device	Rule	Discussion
Animal Bedding Pellet Operations (Identified in Attachment "C")	Cyclones	A.A.C. R18-2-702 A.A.C. R18-2-730	These rules are applicable to unclassified sources not otherwise subject to standards of performance under Articles 7, 9, or 11 of A.A.C. Title 18, Chapter 2. Products of combustion from the Sawdust Dryer Burner come in direct contact with process materials. Thus, A.A.C. R18-2-724 does not apply.
Fugitive Dust	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	Dust Collectors	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.
Demolition/Renovation	N/A	A.A.C. R18-2-1101.A.12	This standard is applicable to any asbestos related demolition or renovation operation.

VIII. PREVIOUS PERMIT REVISIONS AND CONDITIONS

Table 4 addresses the changes made to the sections and conditions from Permit No. 73803.

Table 4: Previous Permit Conditions

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "A"		X		General Provisions: Revised to represent the most recent template language.
Att. "B" Section I		X		Facility Wide Requirements: Revised to represent the most recent template language.
Att. "B" II.D.3.b	X			Pellet and Log Manufacturing Operations: Revised VEO requirements from monthly to daily for the Sawdust Dryer Burner stack.
Att. "B" Section III		X		Fugitive Dust Requirements: Revised to represent the most recent template language.
Att. "B" Section IV				Other Periodic Activities: Revised to represent the most recent template language.
Att. "C"		X		Equipment List: Revised to reflect the most recent equipment operating at the facility and to include equipment information provided.

IX. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 5 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 facility 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 5: Permit No. 100792

Emission Unit	Pollutant/Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Each stack, cyclone, or other emission point associated with the equipment identified in Attachment "C" except from Sawdust Dryer Burner stack.	Opacity	20%	Conduct a monthly survey of visible emissions.	Record opacity monitoring.	Report excess emissions and deviations if applicable.
Sawdust Dryer Burner Stack	Opacity	20%	Conduct a daily survey of visible emissions.	Record opacity monitoring.	Report excess emissions and deviations if applicable.
	PM_{10}	11.1 lb/hr	Conduct periodic performance tests on the Sawdust Dryer Burner.	Performance testing is required on a periodic basis.	Keep data and test reports.
Sawdust Dryer	Temperature	768°F	Monitor the dryer inlet temperature continuously at 1-minute intervals.	N/A	Report deviations if applicable.

Emission Unit	Pollutant/Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Fugitive Dust	PM	40% Opacity	Conduct a monthly survey of visible emissions.	Record of the dates and types of dust control measures employed, and if applicable, the results of any Method 9 observations, and any corrective action taken to lower the opacity of any excess emissions.	Report excess emissions and deviations if applicable.
Abrasive Blasting	PM	20% Opacity	Conduct opacity observations each time an abrasive blasting project is conducted.	Record the date, duration and pollution control measures of any abrasive blasting project.	Report excess emissions and deviations if applicable.
Spray Painting	VOCs	20% Opacity Control 96% of the overspray	Conduct opacity observations each time a spray painting project is conducted.	Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.	Report excess emissions and deviations if applicable.
Demolition/ Renovation	Asbestos	N/A	N/A	Maintain records of all asbestos related demolition or renovation projects including the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.	N/A

X. LEARNING SITES POLICY

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department conducted 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.

This renewal permit will not result in any increase in emissions as there are no changes to any equipment or operating conditions and thus, the facility is exempt from the learning sites policy.

XI. ENVIRONMENTAL JUSTICE ANALYSIS

The Environmental Protection Agency (EPA) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices. The goal of completing an EJ assessment in permitting is to provide an opportunity for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards.

The renewal permit does not allow or permit any increases in emissions and thus, it will not result in any additional impacts.

XII. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
A.R.S. ..... Arizona Revised Statutes
CFR ..... Code of Federal Regulations
BDT ..... Bone Dry Ton
CO_2 ..... Carbon Dioxide
EPA ..... Environmental Protection Agency
HAPs ..... Hazardous Air Pollutant
HHV ..... Higher Heating Value
NO_X ..... Nitrogen Oxides
NO_2 ..... Nitrogen Dioxide
NOC ..... Notice of Opportunity to Correct
NOV ..... Notice of Violation
Pb ..... Lead
PM ..... Particulate Matter
PM_{10} ..... Particulate Matter less than 10 µm nominal aerodynamic diameter
$PM_{2.5}$ ..... Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PTE ..... Potential to Emit
SO_2 ..... Sulfur Dioxide Significant Impact Levels
TPY ..... Tons per Year
VOCs ..... Volatile Organic Compound

yr ..... Year