



**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NO. 64104**

Arizona Natural Resources Products, LLC

I. INTRODUCTION

This Class II permit is issued to Arizona Natural Resources Products, LLC, the Permittee, for the Southwest Renewable Brown Street Mill, located in Snowflake, Navajo County, Arizona.

A. Company Information

1. Facility Name: Southwest Renewable Brown Street Mill
2. Facility Location: 34° 30' 39.33" N, 110° 5' 35.38" W, 5,595 feet
3. Mailing Address: 935 Brown Street
Snowflake, AZ 85937

B. Attainment Classification

Navajo County is in attainment or unclassifiable for all pollutants.

II. PROCESS DESCRIPTION

A. The Brown Street Mill manufactures wood shavings for animal bedding. The process starts with pine logs, which have been de-barked and de-limbed, being delivered to the facility. The logs are then loaded into a shaver, which produces thin shavings from the log, and then conveyed to a rotary dryer. The dryer is fueled with undersized wood shavings, and dries the shavings from about 45 to 12% moisture content. The dried shavings are then sized and bagged for sale.

B. Control Devices:

The Brown Street Mill operates two control devices for the control of particulate emissions, a multi-cyclone and a cyclone. The multi-cyclone controls particulate emissions from the rotary dryer, and the cyclone controls particulate emissions from the loading of the fuel trailer.

III. LEARNING SITES EVALUATION

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 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.

Upon review of ADEQ's database, it was determined that there are 6 learning sites within two miles of the facility, to the south and east. These sites are: George Washington Academy, Highland



Primary School, Northland Pioneer College – Silver Creek, Snowflake High School, Snowflake Intermediate School, and Snowflake Junior High School.

Impacts from emissions were only evaluated at Snowflake High School, because it is the closest to the facility and all schools are in the same general direction from the facility. The 1-hour and annual impacts, and chronic and acute ambient air concentrations (from AAC Title 2, Article 17) are shown below. No exceedance of any ambient air concentrations was indicated by the model.

Table 1: HAP Impacts at Snowflake High School

Pollutant	Emission Rate (#/hr)	Modeled Hourly Concentration (mg/m ³)	Acute AAC (mg/m ³)	Modeled Annual Concentration (mg/m ³)	Chronic AAC (mg/m ³)	Exceedance?
1,1,1-Trichloroethane	4.80E-05	6.24E-08	2075	6.42E-10	2.3	No
Acetaldehyde	5.20E-02	6.76E-05	306	6.96E-07	8.62E-04	No
Acetophenone	2.56E-04	3.33E-07	25	3.43E-09	0.365	No
Acrolein	1.80E-02	2.34E-05	0.23	2.41E-07	2.09E-05	No
Benzene	3.96E-03	5.15E-06	1276	5.30E-08	2.43E-04	No
Biphenyl	1.56E-04	2.03E-07	38	2.09E-09	1.83E-01	No
Bis-(2-ethylhexyl phthalate)	1.28E-03	1.66E-06	13	1.71E-08	4.80E-04	No
Bromomethane	1.12E-04	1.46E-07	261	1.50E-09	5.21E-03	No
Carbon Disulfide	7.20E-05	9.36E-08	311	9.63E-10	7.30E-01	No
Carbon Tetrachloride	4.80E-05	6.24E-08	201	6.42E-10	1.26E-04	No
Chloromethane	4.40E-04	5.72E-07	1180	5.89E-09	9.39E-02	No
Cumene	2.76E-04	3.59E-07	935	3.69E-09	4.17E-01	No
Di-N-Butyl Phthalate	9.20E-05	1.20E-07	N/A	1.23E-09	N/A	No
Ethyl Benzene	1.52E-05	1.98E-08	250	2.03E-10	1.04E+00	No
Formaldehyde	1.00E-01	1.30E-04	17	1.34E-06	1.46E-04	No
Hydroquinone	2.40E-04	3.12E-07	N/A	3.21E-09	N/A	No
Xylene (mixed isomers)	2.26E-03	2.93E-06	1736	3.02E-08	1.04E-01	No
Methanol	5.60E-02	7.28E-05	943	7.49E-07	4.17	No
Methyl Isobutyl Ketone	9.60E-03	1.25E-05	500	1.28E-07	3.13	No
Methylene Chloride	2.52E-03	3.28E-06	347	3.37E-08	4.03E-03	No
n-Hexane	1.04E-04	1.35E-07	11649	1.39E-09	2.21	No

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Phenol	2.64E-02	3.43E-05	58	3.53E-07	0.209	No
Propionaldehyde	1.28E-02	1.66E-05	403	1.71E-07	8.62E-04	No
Styrene	4.80E-04	6.24E-07	554	6.42E-09	1.04	No
Toluene	8.40E-03	1.09E-05	1923	1.12E-07	5.21	No

No HAPs are stored or transported to or from the facility, the HAP emissions are generated solely from the combustion and drying of wood shavings. Therefore, no further analysis is required under the learning sites policy

IV. EMISSIONS

Table 2: Facility-wide Potential Emissions

Pollutant	Emissions (tons per year)	Minor NSR Threshold (tpy)	Minor NSR
PM	11.74	N/A	N/A
PM ₁₀	4.03	7.5	No
PM _{2.5}	4.03	5	No
NO _x	10.16	20	No
CO	11.91	20	No
SO ₂	0.05	20	No
VOC	15.77	20	No
HAPs (Total)	1.29	N/A	N/A
Formaldehyde (Highest Individual HAP)	0.44	N/A	N/A

V. APPLICABLE REGULATIONS

Table 3 displays the applicable requirements for each permitted piece of equipment along with an explanation of why the requirement is applicable.

Table 3: Verification of Applicable Regulations

Unit	Control Device	Rule	Discussion
Material Transfer Points, Hoppers, Conveyors, Shakers, Hammermill, Augers, etc.	Cyclone, None	A.A.C. R18-2-702 A.A.C. R18-2-730	These are material handling/transfer processes not subject to any other regulation.



Unit	Control Device	Rule	Discussion
Wood Burner	Multi-cyclone	A.A.C. R18-2-702 A.A.C. R18-2-730	This is fuel burning equipment not subject to an NSPS. It burns undersized wood shavings.
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	This standard is applicable to any spray painting operation.
Demolition/renovation operations	N/A	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.
Mobile sources	None	A.A.C. R18-2-801	These are applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.

VI. MONITORING REQUIREMENTS

A. Permit Section II: Wood Burner and Rotary Dryer

The Permittee must conduct monthly visual survey for opacity.

B. Permit Section III: Wood Handling

The Permittee must conduct monthly visual survey for opacity.

C. Fugitive Dust

1. The Permittee is required to keep record of the dates and types of dust control measures employed.
2. The Permittee is required to show compliance with the opacity standards by having a Method 9 certified observer perform a monthly survey of visible emission from fugitive dust sources. The observer is required to conduct a 6-minute Method 9 observation if the results of the initial survey appear on an instantaneous basis to exceed the applicable standard.



3. The Permittee is required to keep records of the name of the observer, the time, date, and location of the observation and the results of all surveys and observations.
4. The Permittee is required to keep records of any corrective action taken to lower the opacity of any emission point and any excess emission reports.

D. Periodic Activities

1. The Permittee is required to record the date, duration and pollution control measures of any abrasive blasting project.
2. The Permittee is required to record the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.
3. The Permittee is required to maintain records of all asbestos related demolition or renovation projects. The required records include the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents.

E. Mobile Sources

The Permittee is required to keep records of all emission related maintenance performed on the mobile sources.

VII. TESTING REQUIREMENTS

The Permittee must conduct testing within 180 days of the date the permit is issued to show compliance with NO_x (Method 7E) and PM₁₀ (Method 201A/202) factors, which were used as the basis for modeling.

VIII. COMPLIANCE HISTORY

The facility was found to be under construction on February 3, 2016 without having applied for a permit. A consent order (Docket A-12-16) between ADEQ and ANRP was signed on April 26, 2016, allowing the facility to operate for up to 8 hours per day until the permit is issued.

IX. AMBIENT AIR IMPACT ANALYSIS

- A.** An Ambient Air Impact Analysis was conducted. The results of the analysis are shown in Table 4. No violation of the NAAQS was indicated by the model.

Table 4: Ambient Impact Analysis Results

Pollutant	Averaging Time	Source Impact (µg/m ³)	Background (µg/m ³)	Total Conc. (µg/m ³)	NAAQS (µg/m ³)
PM ₁₀	24-hour	80.5	43.0	123.5	150
PM _{2.5}	24-hour	12.1	13.0	25.1	35
	Annual	2.5	5.0	7.5	12
NO _x	1-hour	92.6	57.0	149.6	188
	Annual	58.2	1.7	59.9	100



X. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AQD	Air Quality Division
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
ft	Feet
g	Grams
HAP	Hazardous Air Pollutant
hp	Horsepower
hr	Hour
lb	Pound
m	Meter
µg/m ³	Microgram per Cubic Meter
NAAQS	National Ambient Air Quality Standard
NO _x	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PTE	Potential-to-Emit
s	Seconds
SO ₂	Sulfur Dioxide
TPY	Tons per Year
VOC	Volatile Organic Compound
yr	Year