# TECHNICAL EVALUATION
# &
# DETERMINATION

## APPLICANT

Buckeye Florida, Limited Partnership
One Buckeye Drive
Perry, Florida 32348

Foley Mill
ARMS Facility ID No. 1230001

## PROJECT

Project No. 1230001-053-AC
Application for Air Permit Determination
No.1 Purification Plant No.9 Washer Replacement

## COUNTY

Taylor

## PERMITTING AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Waste and Air Resource Management
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

## COMPLIANCE AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Compliance Assurance
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256
July 11, 2014

## 1. GENERAL PROJECT INFORMATION

### Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters:

**Table 1 - Applicable Rules from the F.A.C.**

| Chapter | Description |
|---|---|
| 62-4 | Permits |
| 62-204 | Air Pollution Control – General Provisions |
| 62-210 | Stationary Sources of Air Pollution – General Requirements |
| 62-212 | Stationary Sources – Preconstruction Review |
| 62-213 | Operation Permits For Major Sources of Air Pollution |
| 62-296 | Stationary Sources – Emission Standards |
| 62-297 | Stationary Sources – Emissions Monitoring |

Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C. In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial activities. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories.

Federal regulations adopted by reference are given in Rule 62-204.800, F.A.C. State regulations approved by EPA are given in 40 CFR 52, Subpart K – Florida, also known as the State Implementation Plan (SIP) for Florida.

### Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

### Facility Process Description and Location

The applicant operates an existing Pulp Mill (SIC No. 2611) at One Buckeye Drive, Perry, Taylor County, Florida 32348. This facility is located east of US 19, south of SR 30, southeast of Perry, Taylor County; UTM Coordinates: Zone 17, 256.7 km East and 3328.7 km North; Latitude: 30º03’59” North and Longitude: 83º33’12” West. This site is an area that is in attainment (or designated as unclassifiable) for all pollutants subject to a National Ambient Air Quality Standard (NAAQS).

### Existing Process Description

Buckeye Florida, Limited Partnership Foley Mill operates an existing dissolving grade Kraft process pulp mill. In the Kraft process, the digesting liquor (white liquor) is a solution of sodium hydroxide and sodium sulfide that is mixed with wood chips and cooked under pressure. The spent liquor, known as weak black liquor, is concentrated and sodium sulfate is added to make up for chemical losses. The black liquor solids (BLS) are burned in the recovery furnaces to produce a smelt of sodium carbonate and sodium sulfide. The smelt is dissolved in water to form green liquor to which quicklime (calcium oxide) is added to convert the sodium carbonate back to sodium hydroxide, which reconstitutes the cooking liquor. The spent lime cake (calcium carbonate) is recalcined in a rotary lime kiln to produce quicklime, which is used to convert the green liquor to cooking liquor. Steam and energy needs at the plant are met by: combination boilers, which burn bark/wood, tall oil, supplemental residual oil; power boilers, which burn residual oil, tall oil, natural gas; and recovery boilers, which burn BLS, tall oil, and supplemental ultra-low sulfur diesel and residual oil.

### Facility Regulatory Categories

- The facility **is** a major source of hazardous air pollutants (HAP).
- The facility **does not** operate units subject to the acid rain provisions of the Clean Air Act.
- The facility **is** a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility **is** a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- This facility **has** one or more emissions units subject to NSPS (40CFR 60).
- This facility **has** one or more emissions units subject to NESHAP (40 CFR 61 or Part 63)

### Processing Schedule

| | |
|---|---|
| 09/22/14 | Department received the Air Permit Determination |
| 09/25/14 | Additional information was received |

### Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of the draft permit distributed with this evaluation.

## 2. PSD APPLICABILITY

### General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD

applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, Portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides ($NO_X$); sulfur dioxide ($SO_2$); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less ($PM_{10}$); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide ($H_2S$); total reduced sulfur (TRS), including $H_2S$; reduced sulfur compounds, including $H_2S$; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as $SO_2$ and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

**Project Description**

- The Foley Mill is planning to replace a number of components of the No. 9 Washer System located in the No. 1 Purification Plant (Emission Unit No. 045), including the drum, ceramic tile vat, showers, structural steel support columns, concrete foundation, hydrodoctor blade and associated pumps, valves, and piping, plus the repulper vat. The No. 9 Washer System is a caustic extraction, or "E" stage washer system that uses fresh water in the headbox and vat(s). The existing No. 9 Washer System was installed in 1954 and the components listed above need to be replaced.

- The No. 9 Washer System is the ninth washer system out of 11 washer systems used in the No. 1 Purification Plant. This washer system uses fresh shower water, and not clean condensate or white water and the shower water does not contain any significant quantities of methanol or any other organic constituents. Also, there is no chlorine dioxide used in this stage of the purification (bleaching) process, so no chlorinated organic compounds are generated from the pulp processed in the No. 9 Washer System.

- The tile vat underneath the No. 9 Washer System drum, as well as the repulper vat, is constructed of steel with ceramic tile linings. Sulfuric acid (93% strength) is used to reduce the pH of the pulp in the repulper vat. The acid corrodes the ceramic tile in the repulper vat, and over a period of time, the vat begins to lose pulp and acid due to leakage through the tile linings and steel support. The applicant states that extensive repairs have been made to the ceramic tile lining at maintenance outages. However, to-date, no production losses have occurred as a result of the leaks. The broke processed in the repulper vat is sent through the No. 9 Washer drum and vat, which are also in deteriorating condition due to their age and the harsh acidic environment that the units are exposed to. The tile vat associated with the No. 9 Washer drum had extensive repairs made in 1996 due to deteriorated ceramic tile and was replaced in 2003. Some of the washer components, such as the washer belly pan, are also leaking, and some of the major concrete and steel structural support structures below the washer are deteriorating and could fail if not repaired or replaced.

- The applicant states that this project will not change the actual or design production capacity of the No. 9 Washer System or the No. 1 Purification Plant, rather, it will make the washer system more reliable by using stainless steel vats with metallurgical characteristics that can withstand the acidic environment. The change in metallurgy and elimination of the ceramic tiles is expected to eliminate leaks and reduce maintenance costs for the No. 9 Washer System in the future. These improvements will also prevent any catastrophic failures of the major components of the No. 9 Washer System and thereby prevent an interruption in pulp production in the No. 1 Purification Plant.

## PSD Applicability for Project

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C., and has the potential to emit more than 100 tons per year of a PSD pollutant. The facility is an existing PSD major source.

The proposed project is considered to be a "physical change" to an existing piece of process equipment. The facility conducted a *"Baseline Actual-to-Projected-Actual" Applicability Test* as allowed under Rule 62-212.400(2)(a)1, F.A.C, using the difference between the baseline actual and projected actual pulp production rates for the No.1 Purification Plant.

The facility determined the baseline using the look-back period of October 2004 through August 2014. The highest 24-consecutive monthly quantity of pulp fed into the No.1 Purification Plant was equal to 463,420 ADTUBP, which is equivalent to a baseline actual pulp production rate of 231,710 ADTUBP/yr (or one-half of the 24-month production rate). To determine the projected actual annual VOC emission rate from the No.9 Washer System, the facility evaluated all relevant and available information, including historical operating data and the Company's highest projections of expected business activity for the five-year period following implementation of the project. The facility used 252,657 ADTUBP/yr3 (Air-Dried ton of UnBleached Pulp) as the projected actual production rate for the No. 1 Purification Plant.

As indicated in the table below, the facility shows that there will not be any emission increases that exceed the PSD SERs therefore, PSD review does not apply to the proposed project. Specifically, the project will not exceed the SER stated in Rule 62-210.200(258)(a)1.g; 40 tpy of volatile organic compounds.

Summary of Emissions increase from the proposed project

| Pollutant | Baseline Actual Emissions (TPY) | Projected Actual Emissions (TPY) | Project Emissions Increases (TPY) | PSD SER (TPY) | PSD Review Triggered |
|---|---|---|---|---|---|
| VOC | 25.33 | 27.62 | 2.29 | 40 | No |

| | | |
|---|---|---|
| Max. 24-mo | 463,420 | |
| Baseline actual | 231,710 | ADTUBP |
| Projected actual[1] | 252,657 | ADTUBP |

[1] from No. 1 BSW Application dated September 2014

[2] E-mail dated 3-10-2014 from Dave Weeden:
*For No. 1 PM – since I (Dave Weeden) have confirmed with the mill technical folks that there are no projects planned for the next 5 years to increase production capacity on No. 1 PM, let's use 215,000 ADSTFP/yr (or the equivalent ADMT) as our projected actual (204,748 + approx 5%).*

PSD Emissions Increase Estimate
NCASI TB 973, Table 4.7

| HAP | lb/ADTUBP-median values |
|---|---|
| acetaldehyde | 5.13E-03 |
| acrolein | 9.85E-05 |
| formaldehyde | 1.55E-04 |
| methanol | 2.13E-01 |
| proprionaldehyde | 2.45E-04 |
| total w/ MeOH | 0.219 |
| total w/o MeOH | 0.006 |

Increase Including Methanol

| Baseline Actual Emissions | | Projected Actual Emissions | |
|---|---|---|---|
| 0.219 | lbs VOCs/ADTBUP | 0.219 | lbs VOCs/ADTBUP |
| 231,710 | ADTUBP/yr | 252,657 | ADTUBP/yr |
| 25.33 | tons VOCs/yr | 27.62 | tons VOCs/yr |

Increase = 2.29 tons VOCs/yr

Increase Not Including Methanol

| Baseline Actual Emissions | | Projected Actual Emissions | |
|---|---|---|---|
| 0.006 | lbs VOCs/ADTBUP | 0.006 | lbs VOCs/ADTBUP |
| 231,710 | ADTUBP/yr | 252,657 | ADTUBP/yr |
| 0.65 | tons VOCs/yr | 0.71 | tons VOCs/yr |

Increase = 0.06 tons VOCs/yr

## 3. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) REVIEW

### Rule Applicability

Chapter 62-4.040(1)(a-b) of the FDEP air regulations exempts emission sources from the need to obtain a construction permit if

(a)"*Structural changes which will not change the quality, nature or quantity of air and water contaminant emissions or discharges or which will not cause pollution" and*

(b)*"Any existing or proposed installation which the Department shall determine does not or will not cause the issuance of air or water contaminants in sufficient quantity, with respect to its character, quality or content, and the circumstances surrounding its location, use and operation, as to contribute significantly to the pollution problems within the State, so that the regulation thereof is not reasonably justified. Such a determination is agency action and is subject to Chapter 120, F.S. Such determination shall be made in writing and filed by the Department as a public record. Such determination may be revoked if the installation is substantially modified or the basis for the exemption is determined to be materially incorrect"*

### NSPS Applicability

The No. 9 Washer System does not appear to be subject to a source category addressed by a NSPS standard.

### Hazardous Air Pollutants

The existing facility, prior to the proposed project, is classified as a major source of HAP emissions. The facility remains classified as major source pursuant to 40 CFR 63.2. Potential HAP emissions are greater than major source thresholds of 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.

### NESHAP Applicability

The existing facility is subject to the requirements of 40 CFR 63 Subpart S- National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry.

Pursuant to 40 CFR 63.2 Reconstruction is defined as~~,~~ *the replacement of components of an affected or a previously nonaffected source to such an extent that:*

*(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and*

*(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.*

The Foley Mill provided the following cost information for the replacement components of the No.9 washer:

- The cost to replace the No. 9 washer system components is approximately $2.8 million which is 9% of the replacement cost for replacing the components of all 11 washers in the purification plant estimated at approximately $30.8 million

The estimated cost to replace the No. 9 washer system components is less than 50% of the fixed capital costs for replacing the components of all 11 washers in the purification plant, therefore the project will not be considered reconstruction.

No additional NESHAP regulations are applicable to this emission unit due to this project.

**Applicability of Previous Permits**

The conditions of this determination will supplement all other previously issued air construction permits for this emissions unit. The Permittee shall continue to comply with the conditions of those permits, which include restrictions and standards regarding capacities, production, operation, fuels, emissions, monitoring, recordkeeping, reporting, operation of air pollution control devices, and the like.

## 4. DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations. This determination is based on a technical review of the complete submittal, reasonable assurances provided by the facility, and the conditions specified in the request for permit determination. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. John Phillips is the project specialist responsible for reviewing the submittal and drafting the determination. This activity will be considered and evaluated with any future permitting. Additional details of this analysis may be obtained by contacting the project engineer at the Florida Department of Environmental Protection, Northeast District Office, 8800 Baymeadows Way, Suite 100, Jacksonville, FL 32256, Phone: 904/256-1700.