



# TECHNICAL SUPPORT DOCUMENT

## TECHNICAL REVIEW AND EVALUATION OF APPLICATION FOR AIR QUALITY PERMIT NUMBER 55089

### I. INTRODUCTION

This Class I operating permit renewal is issued to SCA Tissue North America LLC, the Permittee, for the continued operation of the recycle paper mill located at 1600 East Butler Avenue, Flagstaff, Arizona. This is a renewal of Permit #38447.

#### A. Company Information

Facility Name: SCA Tissue North America LLC  
Mailing/ Facility Address: 1600 East Butler Avenue  
Flagstaff, Arizona 86001

#### B. Attainment Classification

This source is located in an attainment area for all pollutants.

### II. FACILITY DESCRIPTION

The SCA Tissue produces bulk paper rolls which are converted at other facilities into finished consumer products such as napkins and restroom tissue. At the facility pre- and post-consumer products such as recycled office waste paper, food carton box trimmings, food carton box stock, and other grades of waste paper are used as raw materials. The raw material is called furnish. This raw material would otherwise be taken to a landfill if it were not recycled. The furnish is repulped (water is added to the furnish and materials are vigorously blended and broken down); screened and cleaned (removes waxes, plastics, dirt, and sand), and deinked to remove printing inks and treated with sodium hypochlorite prior to the manufacture of finished recycled tissue of various weights. The deinked pulp is delivered to each paper machine (either #5 or #6) where it is dewatered gravitationally and mechanically. The dewatering process occurs by applying a vacuum prior to mechanically pressing water out of the paper sheet. SCA Tissue operates one Cleaver Brooks boiler and four air cap burners. These units operate on natural gas and are equipped to use propane. The purpose of the boiler is to produce steam for the Yankee dryers and to heat the facility. The purpose of the air cap burners is to dry the processed tissue paper. The following process descriptions are excerpted from SCA Tissue's permit application submitted in October, 2011.

#### Fiber Prep Operation

Furnish is received by means of railroad cars and trucks in large bails and is stored at the receiving warehouse. This consists of wastepaper receiving, pulping/color stripping (deinking), screening and cleaning, floatation, and washing. In the pulping process, the waste paper is mixed with water such that the paper fiber can be separated and dispersed from certain unwanted substances such as dyes and inks. This separation occurs during the deinking operation. The cleaned fiber is stored in a chest before being sent to the paper

machine for production of paper. Earlier Sodium hypochlorite was added to the pulpers for bleaching the wood fiber. In the present renewal application, sodium hypochlorite is added at the beginning of the process along with sodium bromide which produces hypobromous acid that acts as a biocide. Usage as a biocide requires less usage of sodium hypochlorite. The change was made for certification of the process as chlorine free bleaching. The emissions from this process are essentially the volatile organic compounds (VOC) content of the process chemical and chloroform that is generated by the use of sodium hypochlorite.

## **Paper Mill**

The paper mill operation consists of two papermaking machines supported by winding and wrapping operations. Wet strength Resin is added to the pulp to enhance the strength of the wet paper. The deinked pulp carrying a large amount of water is applied to a forming wire where the sheet is formed and bulk dewatering occurs. The wet sheet is then pressed and further dried on steel dryer cylinders referred as 'Yankee Dryers'. The resultant dried sheet of tissue is then wound onto a roll and wrapped for shipment.

Use of wastepaper as the primary raw material occasionally causes papermaking problems when some extraneous material remains with the deinked pulp. One of these undesirable materials is referred as 'stickies' (essentially adhesive-type contaminants). When stickies cannot be completely removed from the deinked pulp they attach to the paper machine parts, and in large enough quantities make it impossible to produce a quality product. In order to avoid such a situation, a spray solvent is applied sparingly in conjunction with mechanical action to remove stickies from the paper machine.

During the papermaking process various other chemicals are used throughout the process. These additional chemicals are applied to the deinked stock and to the paper machine as wet strength resins, release aids, retention aids, bactericides, and other functional aids for felt cleaning and conditioning.

The emissions from the paper mill process are the VOC content from the process chemicals (a vast majority being the solvent spray) and particulate matter from the winding and wrapping operations. These emissions are presumed to be vented from various powered and unpowered exhausts in the paper mill building.

## **Combustion Units**

Both paper machines are equipped with air cap burners that are utilized to assist in drying the wet paper as it passes through the dryer sections. Paper machines #5 and #6 each have two air cap burners. The air cap burners normally use pipeline natural gas (propane as back-up) as their fuel source. Steam to the paper machine dryers and for general facility heating is supplied by a natural gas fired boiler (propane as back-up). Water quality chemicals are added to the boiler on a regular basis for preventative maintenance.

The emissions from these units are products of combustion of natural gas or propane as the case may be. The boiler products of combustion exhaust to the boiler stack. The air cap burner emissions are vented through the dryer exhaust hoods and then the exhaust stacks for the dryer hoods.

## **Water Treatment**

Within the papermaking operation there are two internal water clarification loops. The

purpose of water clarification is to remove paper filler solids and paper fibers from the water before it is recycled back into the process. Both anionic and cationic polymers are used in these clarification processes. A secondary pre-treatment wastewater facility is also operated to remove biological oxygen demand (BOD) and suspended solids from the water before it is discharged to the municipal wastewater treatment facility. Nutrients in the form of aqueous ammonia and phosphoric acid are used in the secondary pre-treatment operation to promote biological digestion processes. The source may use urea as a replacement for all or some of the ammonia solution as an alternative.

Emissions from this process are primarily the VOC content of the polymers used in the water loop, and a small amount of ammonia from use as a nutrient in the wastewater plant. The majority of the resultant VOC emissions from the polymers are expected to be emitted at the Dissolved Air Flotation (DAF) units. Both DAF units are inside the fiber preparation building with emissions reasonably presumed to be vented from the various powered and unpowered exhausts. The wastewater treatment facility is outside so its ammonia emissions are reasonably assumed to be fugitive.

### Ancillary Processes

The only calculable emission source in this category of miscellaneous facility support items are the storage tank emission from the 600 gallon solvent storage tank, the 8500 gallon aqueous ammonia storage tank, and the 5000 gallon phosphoric acid storage tank. These emissions would occur at tank vents as a result of displacement of the headspace during loading of the tanks.

## III. 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 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. There are 32 schools within two mile radius of the SCA Tissue's facility located at 1600 # Butler Ave. Flagstaff, 86001.

Dispersion modeling for this facility was conducted in and results submitted to ADEQ in 1998. The modeling demonstrated compliance with all applicable NAAQS. There has not been any significant change in the operating methodology that would increase the emissions from the facility. Data of actual emissions from the facility for the years 2008, 2009, and 2010 is tabulated below in Table 1:

**Table 1: Emission Data for last Three Years**

Year	Particulate TSP	PM <sub>10</sub>	NO <sub>x</sub>	SO <sub>2</sub>	VOC	CO	HAPs	Other
	Tons per year							
2008	2.08	13.49	27.42	0.16	3.76	23.03	2.25	0.46
2009	1.64	10.73	21.61	0.13	33.84	18.15	1.31	0.69
2010	1.67	11.14	22.01	0.13	35.91	18.48	2.56	0.43

Based on the previously-conducted modeling and the historical level of actual emissions, it has been determined that the facility's operations will not adversely impact the learning sites.

#### IV. EMISSIONS

The facility is classified as a Major Source pursuant to A.A.C. R18-2-302.B.2.a (iii). The source will limit the usage of solvent spray to 28,800 gallons per year and 584,000 gallons per year of sodium hypochlorite. These limits contain the emission of VOCs below 250 tons per year and of chloroform below 10 tons per year. This usage limit has been calculated based on the consumption of these chemicals in the past year with twenty percent increase.

Facility-wide emissions at the source are provided in the Table 2 below.

**Table 2: Facility wide Emissions**

<b>Pollutant</b>	<b>Emissions, TPY</b>
PM	18.10
PM <sub>10</sub>	18.10
PM <sub>2.5</sub>	18.10
SO <sub>2</sub>	0.40
NO <sub>x</sub>	67.45
CO	56.66
VOC	146.20
Single HAP	5.54
CO <sub>2</sub>	73,859
Lead	0.0003
Total HAPs	10.95

#### V. COMPLIANCE HISTORY

Compliance inspections are being conducted regularly on this source to ensure compliance with the permit conditions. There are currently no cases of violation identified for this source.

#### VI. AIR POLLUTION CONTROL DEVICES

There are no air pollution control devices at the facility.

#### VII. APPLICABLE REGULATIONS

The Permittee identified the applicable regulations that apply to each unit in the permit application. Table 3 below summarizes the findings of the Department with respect to the regulations that apply to each unit.

**Table 3: Verification of Applicable Regulations**

<i>Process Equipment</i>	<i>Control Equipment</i>	<i>Year of Manufacture</i>	<i>Applicable Regulations</i>
Fiber Prep, Water Treatment, and Storage Tanks	None		Arizona Administrative Code (AAC) R 18-2-730.A, B, D, F, and G - Standards of Performance for Unclassified Sources are applicable.
Paper Mill			NESHAP Subpart S is not applicable since SCA Tissue is a minor source for HAPs. Arizona Administrative Code (AAC) R 18-2-730.A, B, D, F, and G - Standards of Performance for Unclassified Sources are applicable to the paper mill.
Air Cap Burners for Paper Machine #5 and #6	None	1990, 2003	Arizona Administrative Code (AAC) R 18-2-730 - Standards of Performance for Unclassified Sources is applicable.
Cleaver Brooks Boiler	None	1998	40 CFR 60.40c, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
Fugitive dust sources	Water and other reasonable precautions	Article 6, A.A.C. R18-2-702	These standards are applicable to fugitive dust sources.
Mobile sources	Water Sprays/Water Truck for dust control	Article 8	This Article is applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.
Abrasive Blasting	Water and enclosure	A.A.C. R-18-2-726	This standard is applicable to any abrasive blasting operation.
Spray painting operations	Enclosed area	A.A.C. R-18-2-727	This standard is applicable to any spray painting operation.
Demolition/ renovation operations		A.A.C. R18-2-1101.A.8, Subpart M	This standard is applicable to any asbestos related demolition or renovation operations.

## **VI. PREVIOUS PERMITS AND CONDITIONS**

**A. Previous Permit**

The most recent operating permit issued to SCA Tissue America LLC is listed in the Table 4 below.

**Table 4: Previous Permits**

Permit #	Issue Date	Application Basis
38847	April 23, 2007	Title V Operating Permit

**B. Previous Permit Conditions**

**Table 5: Previous Permit Conditions**

Permit Condition #	Determination				Comments
	Delete	Keep	Revise	Streamline	
Att. A			x		General Provisions - Revised to represent most recent permitting language
Attachment "B"					
I		x			Facility wide requirements
II		x			Facility wide limitations
III		x			Requirements for process sources
IV		x			Requirements for Cleaver Brooks Boiler
V		x			Requirements for Paper Machines and Air Cap Burners
VI		x			Fugitive dust requirements
VII		x			Mobile source requirements
VIII		x			Other periodic activity requirements

**VII. PERIODIC MONITORING REQUIREMENTS**

**A. PM and Opacity**

1. By way of engineering calculations, it can be reasonably presumed that particulate emissions from process sources will be very minimal and well below the applicable emission limitation. Consequently, no specific monitoring plan is set up for the process sources in the facility. Storage and raw material handling areas and traffic within the facility are expected to be minimal sources of air emissions and are not subject to periodic monitoring requirements.
2. Fuel burning equipment in the facility will be fired with natural gas or propane. Opacity and PM emissions are not anticipated with the burning of these fuels. Consequently, no specific monitoring plan is set up for fuel burning equipment.

**B. Sulfur Dioxide**

A.A.C. R18-2-730.A.2 sets a SO<sub>2</sub> emission limitation of 600 ppm for all unclassified sources. The paper machine air cap burners in the facility are subject to this requirement. By computing the air flow and making mass rate determinations, the 600 ppm limit translates into a 100 lb/hr limit for the paper machine air cap burners and boiler. The SO<sub>2</sub> emissions PTE from the paper machine air cap burners is very minimal (approximately 0.048 lb/hr). Consequently, no specific monitoring plan is specified.

**C. Nitrogen Oxides**

A.A.C. R18-2-730.A.3 sets a NO<sub>x</sub> emission limitation of 500 ppm for all unclassified sources. The paper machine air cap burners in the facility are subject to this requirement. By computing the air flow and making mass rate determinations, the 500 ppm limit translates into a 85 lb/hr limit for the emission of NO<sub>x</sub>. The NO<sub>x</sub> emissions PTE from the paper machine air cap burners is very minimal (approximately 8 lb/hr). Consequently, no specific monitoring plan is specified.

**D. Solvent Usage**

The facility wide PTE total for VOC is 146 tpy. This VOC emission estimate is based on conservative material balance calculations where all of the VOC components in the solvents are expected to be released into the atmosphere. The facility is voluntarily accepting a rolling twelve month total limit on the usage of solvent spray in the paper machine maintenance area at 28,800 gallons. This solvent spray usage limit for the paper machine maintenance area has an effect of limiting VOC emissions from paper machine maintenance activities at 94 tpy. This limitation coupled with the fact that emissions from all other sources in the facility are computed at maximum loading rates will ensure that facility wide VOC emissions will be well below 250 tpy.

The Permittee is required to monitor solvent usage on weekly basis. At the end of every month, the Permittee is required to update monthly and rolling twelve month totals of solvent usage and associated VOC emissions. At the time that the semi-annual compliance certifications are due, the Permittee is required to submit reports of the twelve month totals of solvent usage and VOC emission estimates

corresponding to that solvent usage.

**E. Hypochlorite Usage**

The facility wide PTE total for chloroform is 4.66 tons per year. Chloroform emission occurs from the three pulpers and washer in the fiber prep section. The Permittee has accepted limit on the usage of sodium hypochlorite to stay below the major source level of chloroform below 10 tons per year.

The Permittee is required to monitor sodium hypochlorite usage on weekly basis. At the end of every month, the Permittee is required to update monthly and rolling twelve month totals of sodium hypochlorite usage and associated chloroform emissions. At the time that the semi-annual compliance certifications are due, the Permittee is required to submit reports of the twelve month totals of sodium hypochlorite usage and chloroform emission estimates.

**F. Fugitive Dust**

The Permittee is required to conduct quarterly certified Method 9 survey of visible emissions from the fugitive dust sources.

**IX. TESTING REQUIREMENTS**

The uncontrolled particulate matter, sulfur dioxide, and nitrogen oxide emissions from the process sources in the facility are expected to be a fraction of the allowable. So, performance testing is not required for any of the process equipment.

**X. LIST OF ABBREVIATIONS**

A.A.C.....	Arizona Administrative Code
ADEQ.....	Arizona Department of Environmental Quality
CFR.....	Code of Federal Regulations
CO.....	Carbon Monoxide
EPA.....	Environmental Protection Agency
HAP.....	Hazardous Air Pollutants
Hr.....	Hour
NESHAP.....	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub> .....	Nitrogen Oxide
NSPS.....	New Source Performance Standards
PM <sub>2.5</sub> .....	Particulate Matter Nominally less than 2.5 Micrometers
PM <sub>10</sub> .....	Particulate Matter Nominally less than 10 Micrometers
PM.....	Particulate Matter
PTE.....	Potential-to-Emit
SO <sub>2</sub> .....	Sulfur Dioxide
TPY.....	Tons per Year
VOC.....	Volatile Organic Compound
Yr.....	Year