

Appendix O  
Air Resources Analysis



April 16, 2010

Mr. James Ulrich  
Alpine Environmental Consultants  
P.O. Box 145  
Montgomery, New York 12549

**Re: Brookfield Resource Management - Air Permit Analysis and  
Emission Modeling  
CHA Project No. 21114**

Dear Mr. Ulrich:

CHA is submitting the attached Air Permit Analysis and Emission Modeling report for the Brookfield Resource Management facility to be constructed in Wawayanda, NY. The report indicates that emissions from this proposed facility are well below National Ambient Air Quality Standards, and that no significant impact to air quality should result from the facility.

If you require additional clarification or information regarding this report, please contact Ruth Yeomans at (518) 453-4526.

Very truly yours,

A handwritten signature in black ink that reads "Laury R. Bibighaus". The signature is written in a cursive style.

Laury R. Bibighaus  
Associate

LRB/rja  
Enc.  
cc: Ruth Yeomans, CHA

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**BROOKFIELD RESOURCE MANAGEMENT, WAWAYANDA, NY**  
**AIR PERMIT ANALYSIS AND EMISSIONS MODELING**

April 2010

Prepared by:

**CHA**  
III Winners Circle  
Albany, New York  
(518) 453-4500

Project No. 21114

**BROOKFIELD RESOURCE MANAGEMENT**  
**AIR PERMIT ANALYSIS AND EMISSIONS MODELING**

**(1) Site Conditions/Background Concentrations**

The proposed Brookfield Resource Management facility will be located in the Town of Wawayanda, Orange County. Orange County is an attainment area for sulfur dioxide (SO<sub>2</sub>), and carbon monoxide (CO). Per 6 NYCRR 200.1(av), it is a nonattainment area for fine particulates (PM<sub>2.5</sub>) and a moderate nonattainment area for 1-hour ozone. In addition, all of New York State, including Orange County, is part of the Ozone Transport Region. Per 6 NYCRR 231-2.1(24) nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) are treated as nonattainment contaminants throughout the Ozone Transport Region.

Background air quality is established by NYSDEC ambient air monitoring stations. Ambient air quality is monitored by the NYSDEC via a series of monitoring stations located throughout New York State. The stations monitor and record air quality throughout the year for six principal pollutants. The results of the monitoring are published in regular reports by the NYSDEC entitled *Ambient Air Quality Report*. Background concentrations for those criteria pollutants monitored at the stations nearest the proposed Brookfield Resource Management facility in Orange County are shown in Table 1.

**Table 1**  
**Maximum Monitored Background Concentrations**

<b>Pollutant</b>	<b>Averaging Time</b>	<b>2008 Concentration</b>	<b>Monitoring Site</b>
<b>Lead</b>	Quarterly	0.086 ug/m <sup>3</sup>	Wallkill
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	Annual	0.0013 ppm	Mt. Ninham
	24-hr	0.008 ppm	Mt. Ninham
	3-hr	0.015 ppm	Mt. Ninham
<b>Particulates (PM<sub>2.5</sub>)</b>	Annual	9.6 ug/m <sup>3</sup>	Newburgh
	24-hr	26 ug/m <sup>3</sup>	Newburgh
<b>Ozone (O<sub>3</sub>)</b>	Annual	0.026 ppm	Valley Central
	8-hr	0.080 ppm	Valley Central
	1-hr	0.129 ppm	Valley Central

## (2) Air Permit Program

In New York State, the Air Permit Program is regulated under 6NYCRR Part 201. The level of permitting required is based on the potential and/or actual quantity of emissions generated at a facility. Facilities in Orange County, NY, with emissions which exceed the major source thresholds listed in Table 2 must obtain a Title V permit. Facilities with emissions below these levels, or able to cap emissions below these levels, may obtain an Air State Facility permit. Facilities with emissions that are less than one half the major source thresholds, are considered minor sources. If potential emissions are less than minor source thresholds, a facility may apply for an Air Facility Registration. If potential emissions are above major source thresholds, but actual emissions are less than minor source thresholds, a facility may apply for an Air Facility Registration as a cap-by-rule facility. As part of the permit/registration application process, compliance with applicable state and federal air regulations must be evaluated and compliance must be certified.

**Table 2**  
**New York State Permitting Emission Thresholds**

Pollutant	Major Source Threshold (tons/yr)	Minor Source Threshold (tons/yr)
Nitrogen Oxides	100	50
Sulfur Dioxide		
Carbon Monoxide		
Particulate Matter		
Particulate Matter (PM <sub>2.5</sub> )		
Volatile Organic Compounds	50	25
Combined Hazardous Air Pollutants (HAP)	25	12.5
Any single HAP	10	5

### (3) Facility Emissions

Estimated emissions from the shredding operation (shredder/Z-box/baghouse) are shown in Table 3.

**Table 3**  
**Estimated Shredding Operation Emissions**

	Emission Factor <sup>(1)</sup> (lb/ton)	Average Throughput (ton/hr)	Estimated Actual Emissions <sup>(2)</sup> (tons/yr)	Estimated Actual Emissions (g/s)
Lead	8.73E-05	100	0.025	0.001
Volatile Organic Compounds	1.36E-03	100	0.397	0.017
Particulate Matter	2.57E-03	100	0.750	0.032

- (1) Emission factors from Industry Scrap Recycling Institute  
(2) Actual emissions based on operation of two shifts per day

The facility will be heated using natural gas. Heating equipment has not yet been specified for the facility, however, an emissions estimate was made assuming one or more units with a combined total heat input of 1.5 million Btu/hr. Combustion source emissions were estimated using standard EPA emission factors from Tables 1.4-1 and 1.4-2 of AP-42, and are shown in Table 4.

**Table 4**  
**Estimated Combustion Source Emissions**

Pollutant	tons/yr	g/s
Particulate Matter	0.03	0.001
Sulfur Dioxide	0.00	0.000
Nitrogen Oxides	0.36	0.016
Carbon Monoxide	0.30	0.013
Volatile Organic Compounds	0.02	0.001

Based on the combined estimated facility-wide emissions from Tables 3 and 4, the Brookfield Resource Management facility will not require a Title V or State Facility air permit. Facility-wide emission levels of all contaminants are well below the minor source

thresholds shown in Table 2. Storage tanks at the facility will either be designated as exempt sources per 6NYCRR 201-3.2(c)(25), or trivial sources per 6NYCRR 201-3.3(c)(44). Emissions from facility storage tanks will be insignificant. Combustion equipment will be exempt from permitting per 6NYCRR 201-3.2(c)(1). The facility will need to include emission points associated with the shredding operation in an Air Facility Registration application.

#### **(4) Potential Impacts**

Screening level air dispersion modeling was performed to evaluate the potential for off-site impacts from combined facility-wide emissions. EPA's *Screen3* is the recommended tool to calculate screening level impact estimates for stationary sources. The *Screen3* model is conservative and assumes worst case conditions of wind/weather. *Screen3* outputs are 1-hr average concentrations in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

All of the facility's emissions were assumed to be vented through a single stack located at the shredder, with stack parameters specified by NYS DAR-1 default values. The *Screen3* model was run with a point source emission rate of 1 g/s. The *Screen3* results based on 1 g/s were multiplied by the calculated emission rates for individual pollutants that were estimated in Tables 3 and 4. Background concentrations were estimated using the NYSDEC ambient air monitoring station results noted in Table 1. The 1-hr *Screen3* concentration results were converted to the appropriate averaging period of each contaminant.

The screening analysis indicates that the maximum point source results occur within the facility's property line and then drop off as distance from the source is increased. The point source results at the nearest property line were added to background concentrations, and the totals were compared to the NAAQS. The results are summarized in Table 5, which indicates that the concentrations at or beyond the facility property line are well below the NAAQS for all pollutants. Potential off-site impacts are, therefore, not considered significant.

**Table 5**  
**Screen3 Modeling Results At Nearest Property Line**

Contaminant	Averaging Period	Screen3 Result ( $\mu\text{g}/\text{m}^3$ )	Screen3 Result (ppm)	Background ( $\mu\text{g}/\text{m}^3$ )	Total ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
Lead	1 hour	0.33	na	na	0.328	na
Lead	quarterly	0.13	na	0.086	0.217	1.5
PM	1 hour	10.81	na	na	10.81	na
PM	24 hour	4.32	na	26.00	30.32	150
PM	annual	0.86	na	9.60	10.46	50
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Contaminant	Averaging Period	Screen3 Result ( $\mu\text{g}/\text{m}^3$ )	Screen3 Result (ppm)	Background (ppm)	Total (ppm)	NAAQS (ppm)
SO <sub>2</sub>	1 hour	0.00	0.000	na	0.0000	na
SO <sub>2</sub>	3 hour	0.00	0.000	0.015	0.015	0.5
SO <sub>2</sub>	24 hour	0.00	0.000	0.008	0.008	0.14
SO <sub>2</sub>	annual	0.00	0.000	0.0013	0.0013	0.03
NO <sub>x</sub>	1 hour	5.24	0.003	na	0.0028	0.1
NO <sub>x</sub>	annual	0.42	0.000	na	0.0002	0.053
CO	1 hour	4.26	0.004	na	0.0037	35
CO	8 hour	2.98	0.003	na	0.0026	9