

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF ALBANY

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THE STATE OF VERMONT,

Petitioner,

-against-

AFFIDAVIT OF
DR. WILLIAM C. BRESS

THE NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION and
INTERNATIONAL PAPER COMPANY,

Respondents,

For a Judgment Pursuant to Article 78 of the New York
Civil Practice Law and Rules.

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STATE OF VERMONT)
)SS.:
COUNTY OF CHITTENDEN)

WILLIAM C. BRESS, Ph.D., being duly sworn, deposes and says:

1. I am the State Toxicologist and Chief of the Toxicology and Risk Assessment Program at the Vermont Department of Health. I submit this Affidavit in support of the Article 78 Petition filed by the State of Vermont seeking to annul the determination by Respondent New York State Department of Environmental Conservation ("NYSDEC") that the proposal by Respondent International Paper Company ("IP") to conduct a two-week "test burn" of Tire-Derived Fuel ("TDF") at its Ticonderoga Mill is a Type II action exempt from environmental review under the State Environmental Quality Review Act.

Professional Qualifications

2. I possess a Bachelor of Arts in Biology from C.W. Post College, a Masters degree in toxicology from St. Johns University, and Ph.D. in Toxicology/Pharmacology from St. Johns

University. I have previously served as Toxicology Supervisor for the National Health Laboratory; Toxicologist with the Nassau County Medical Examiners Office; and Forensic Scientist with the Suffolk County Criminalistics Laboratory. I have been State Toxicologist for the Vermont Department of Health since 1985. From 1997 to 2001 I also served as Chief of the Office of Environmental Health, and from 2001 to the present I have served as Chief of the Toxicology and Risk Assessment Program for the Vermont Department of Health. In my current position, I am responsible for, among other things, supervising and conducting chemical risk assessments for human exposure to chemicals of concern in Vermont. A copy of my curriculum vitae is annexed hereto.

The Proposed IP Test Burn Will Likely Result in Increased Emissions of Pollutants Having Adverse Human Health Impacts

3. IP proposes to conduct a two-week test burn of TDF at its Ticonderoga Mill. According to IP's application, the test burn will involve loading up to three tons per hour of TDF in the Mill's boiler.

4. As part of its Application, IP conducted an air dispersion analysis "for those air contaminants that may increase as a result of TDF [burning]" Application, Exh. A to Petition, *Air Dispersion Analysis For Tire-Derived Fuel Trial*, dated July 2005, annexed to Application as Exhibit B, at 1-1. IP conducted air dispersion modeling for aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, zinc and zinc oxide. Thus, by IP's own admission, it anticipates that emissions of twenty-one air pollutants "may increase" as a result of the test burn.

5. Twenty of the twenty-one air contaminants which IP has conceded “may increase” as a result of TDF burning are classified by NYSDEC as “toxic air contaminants.” *See* NYSDEC Department of Air Resources Air Guide 1 (“DAR-1”) AGC/SGC Tables, dated December 22, 2003, annexed as Exhibit D to Petition.

6. Eight of the twenty-one air contaminants which IP has conceded “may increase” as a result of TDF burning (arsenic, beryllium, cadmium, chromium, lead, mercury, nickel, and vanadium) are classified by NYSDEC as “High Toxicity Air Contaminants.” *See* Exhibit D to Petition. A “High Toxicity Air Contaminant” is defined by NYSDEC as “[h]uman carcinogens, potential human carcinogens, and other substances posing a significant risk to humans.” *See* NYSDEC DAR-1 Appendix C, “Toxicity Classification and Guideline Development Methodology,” annexed as Exhibit E to Petition, at C-1.

7. Eight of the twenty-one air contaminants which IP has conceded “may increase” as a result of TDF burning (antimony, barium, cobalt, copper, manganese, selenium, thallium, and zinc oxide) are classified by NYSDEC as “Moderate Toxicity Air Contaminants.” *See* Exh. D to Petition. A “Moderate Toxicity Air Contaminant” is defined by NYSDEC as “[a]nimal oncogens, developmental and reproductive toxicants, genotoxic chemicals, and other chemicals posing a health hazard to humans.” *See* Exhibit E to Petition at C-2.

8. It is my understanding that IP has conceded that emissions of particulates, including zinc particulates, may increase during the test burn of TDF. Emissions of particulates, including zinc particulates, pose human health risks.

9. Fine particulate matter, referred to as PM_{2.5}, has also been shown to have serious adverse effects on human health. The U.S. Environmental Protection Agency has determined

that particles of PM_{2.5} and smaller are more toxic to the respiratory and circulatory system than larger particles.

10. The general scientific literature supports the conclusion that emissions of zinc particulates are likely to increase with the burning of TDF. The following table, from a Radian Corporation report on emissions from the burning of TDF as a fuel, shows that zinc comprises 51% of the fly ash from burning scrap tires:

ANALYSIS OF SCRAP TIRE FLY ASH

<u>Contents</u>	<u>Weight by Percentage</u>
Zinc	51.48%
Lead	0.22%
Iron	6.33%
Chromium	0.03%
Copper	0.55%
Nickel	0.03%
Arsenic	0.02%
Aluminum	0.76%
Magnesium	0.50%
Sodium	0.01%
Potassium	0.01%
Magnesium Dioxide	0.36%
Tin	0.03%
Silicon	6.85%
Cadmium	0.05%
Carbon	<u>32.20%</u>
Total	99.43%

Note: These results are from incineration of 100% tire fuel.

Sources: Radian Corporation, Results From Sampling and

Analysis of Wastes From the Gummi Mayer Tire

Incinerator, May 1985.

11. There is evidence that the metal composition of particulates contributes to allergic pulmonary response. A study in Spokane, Washington found a correlation between atmospheric

zinc and hospital visits due to asthma. Claborn, *et. al.* "Testing the Metals Hypothesis in Spokane, Washington" *Env Health Perspectives Supplements* V. 110, No. 54 (Aug. 2003) at 547-552. A study comparing various metal salts in particles to pulmonary reactivity found that acute toxicity associated with atmospheric dust was attributable to highly soluble zinc in the particles. Adamson, *et. al.* "Zinc is the toxic factor in the lung response to an atmospheric particulate sample," *Toxicol. Appl. Pharmacol.* 166(2) (July 15, 2000) at 111-19. Another study found that in concentrated ambient particles, zinc had a positive correlation with adverse pulmonary and systemic effects. Kodavanti, *et. al.* "Consistent Pulmonary and Systemic Responses from Inhalation of Fine Concentrated Ambient Particles," *Env. Health Perspectives* V. 113, No. 11 (Nov. 2005) at 1561-1568. Both the Spokane study and a study on laboratory animals⁴ both found that, in addition to zinc's effect on pulmonary reactions, there was also a correlation between the zinc and very fine particles. Gavett, *et. al.* "Metal Composition of Ambient PM^{2.5} Influences Severity of Allergic Airways Disease in Mice," *Env. Health Perspectives* V. 11, No. 12 (Sept. 2003) at 1471-1477.

12. New York State does not have any regulatory standard for zinc particulates. Rather, New York considers zinc particulates as merely contributing to the overall particulate loading. It is my opinion that a standard based solely on the volume of particulates emitted, and not the chemical composition of those particulates will not accurately reflect toxicity to the public during burning of TDF.

13. It is also my understanding that the test burn of TDF will result in emissions of dioxins. Dioxins are highly toxic. The U.S. Environmental Protection Agency has classified TCDD, the most toxic of the dioxins, as a human carcinogen and characterizes the complex

mixtures to which humans are exposed as a "likely human carcinogen." In addition, human exposure to dioxins is associated with adverse effects on reproduction and development; suppression of the immune system; and skin lesions U.S. Environmental Protection Agency, *Dioxin: Summary of the Dioxin Reassessment Science* (2000).

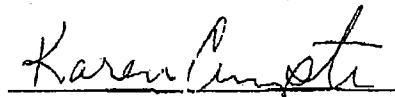
Conclusion

14. As noted above, it appears from the IP application that the test burn will result in increased emissions of twenty-two air pollutants, including twenty that are classified by NYSDEC as toxic air contaminants. It also appears that the test burn will result in emissions of dioxins. It is my opinion that, to a reasonable degree of scientific certainty, that the pollutants to be emitted during the IP test burn pose a risk to human health.



WILLIAM C. BRESS

Sworn to Before Me
This 6th Day of February, 2006


Notary Public

Chittenden County
Feb. 10th 2007