

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

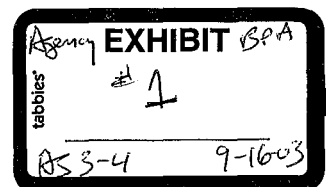
IN THE MATTER OF:

PETITION OF ARGONNE NATIONAL  
LABORATORIES FOR AN ADJUSTED  
STANDARD FROM  
35 ILL. ADM. CODE 218.182

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) AS 03-4  
) (Air - Adjusted Standard)  
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Testimony of Michael D. Rogers  
Illinois Environmental Protection Agency

September 2003



Good morning. My name is Mike Rogers and I am in the Illinois Environmental Protection Agency's Bureau of Air. I was involved in the development of the regulation establishing the maximum vapor pressure limits for solvents used in cold cleaning and in conversations with Argonne concerning this adjusted standard petition .

Cold cleaning is defined in Title 35, Subtitle B, Section 211.1310 as "the process of cleaning and removing soils from surfaces by spraying, brushing, flushing, or immersion while maintaining the organic solvent below its boiling point. Wipe cleaning is not included in this definition." Section 218.182 contains requirements for operating procedures, equipment requirements, material requirements, and recordkeeping requirements.

Cold cleaning is primarily conducted to clean metal parts. Such cleaning likely takes place at all manufacturing operations, as well as at auto repair facilities, machine shops and metal fabrication and finishing operations. Cold cleaning degreasers range in size but typically consist of a small sink or vat where components are sprayed and brushed clean, connecting hoses, and a holding tank containing from five to 30 gallons of solvent. The solvent is usually used at ambient temperatures, but if it is heated, the temperature is kept below the solvent's boiling point. Solvent degreasing equipment and degreasing solvents are typically supplied by the same companies.

The operating procedures and equipment requirements of Section 218.182 (a) and (b) are geared to this type of cleaning equipment. These include requirements regarding the degreaser cover, spray apparatus, and drainage device. The material requirements contained in Section 218.182(c), effective in March 2001, limit the sale or use of solvents in cold cleaning to those with a maximum vapor pressure of 1.0 millimeter of mercury

(mm Hg), measured at 20° C (68°F). Section 218.182(d)(2) requires that records of solvent purchases be maintained in order to verify the purchase of compliant solvents.

All of these requirements are intended to reduce the evaporation of the solvent being used. The evaporation of hydrocarbon-based solvents releases volatile organic material (VOM) into the atmosphere. The higher the vapor pressure of a substance the more readily it evaporates. These emissions react with other pollutants on warm sunny days to produce ozone. Elevated ozone concentrations in the lower atmosphere can impair breathing function especially in the young, the elderly, and those with existing respiratory diseases such as asthma or bronchitis. The Illinois EPA estimates that VOM emissions in the Chicago area are being reduced by approximately 22 tons per day from 1998 levels due to the implementation of the regulation.

Although technically cold cleaning, the research and development testing and analysis activities performed by Argonne are not the typical activities intended to be affected by the cold cleaning regulations. Argonne has requested relief for its operations that involve preparation of sample material and the associated apparatus used for research and development testing and analysis stating that such testing “requires sample surface areas completely free of residual contamination.” The Agency has been made aware that solvents complying with the vapor pressure limits may not adequately perform under certain “high tech” cleaning requirements. The cleaning of electronic components is one example that was brought to light during the rulemaking development and accordingly addressed in the regulation. The Agency acknowledges that Argonne’s specified activities and cleanliness requirements are unique from typical cold cleaning operations. In addition, Argonne’s activity does not utilize the typical cold cleaning apparatus

described above, using milliliters of solvent rather than gallons, and laboratory beakers rather than a sink.

Argonne states that it has researched the use of alternative solvents either complying with the specified vapor pressure limits or consisting of non-volatile organic material, such as acetone, but that no suitable complying solvent could be found. The Agency is aware that cleaning solvents have their limitations especially in circumstances that require such a high degree of cleanliness. The Agency is also aware of the flammable nature of solvents such as acetone, which may be classified as a non-VOM but have other deleterious characteristics.

Argonne estimates that its method of cleaning and the use of solvents exceeding the vapor pressure limits would result in a maximum increase in VOM emissions of one (1) ton per year. In the 1999 inventory of Chicago nonattainment area ozone precursor emissions the Illinois EPA estimates that approximately 660 tons of man-made VOM emissions are generated each summer day in the six-county region. Therefore, the Illinois EPA believes that the additional emissions resulting from Argonne's research and development testing and analysis activities and requested use of solvents exceeding the vapor pressure limits is negligible and will not negatively affect Chicago area air quality.

Based on the above, I support the Agency's recommendation to the Board that Argonne's Petition for adjusted standard be granted, subject to the conditions included in the Recommendation.