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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD CLERK'S OFFICE

AUG 1 2003

IN THE MATTER OF: )  
)  
PETITION OF ARGONNE NATIONAL )  
LABORATORY FOR AN ADJUSTED )  
STANDARD FROM 35 ILL. ADM. )  
CODE 218.182 )

STATE OF ILLINOIS  
*Pollution Control Board*

AS 03-4  
(Air - Adjusted Standard)

NOTICE

TO: Dorothy Gunn, Clerk  
Illinois Pollution Control Board  
James R. Thompson Center  
100 W. Randolph Street, Suite 11-500  
Chicago, Illinois 60601

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9800 S. Cass Avenue  
Argonne, Illinois 60439

PLEASE TAKE NOTICE that I have today filed with the Office of the Pollution Control Board the RECOMMENDATION of the Illinois Environmental Protection Agency, a copy of which is herewith served upon you.

Date: July 31, 2003

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By: Rachel L. Doctors cps  
Rachel L. Doctors  
Assistant Counsel  
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CLERK'S OFFICE

AUG 1 2003

- BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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STATE OF ILLINOIS  
*Pollution Control Board*

**RECOMMENDATION**

NOW COMES the Illinois Environmental Protection Agency ("Illinois EPA") by one of its attorneys, Rachel L. Doctors, in response to the Petition for adjusted standard ("Petition") of the Argonne National Laboratories ("Argonne" or "Petitioner") from 35 Ill. Adm. Code 218.182 and pursuant to 35 Ill. Adm. Code 104.416. The Illinois EPA hereby recommends that the Pollution Control Board ("Board") **GRANT** Argonne's request for an adjusted standard from 35 Ill. Adm. Code 218.182 to exempt it from the applicable vapor pressure limits, as well as the associated equipment requirements and record keeping requirements, for those cold cleaning applications involving the preparation of sample material and the associated apparatus used for research and development testing and analysis activities at its facility located near Waterfall Glen Forest Preserve, in DuPage County, Illinois.

I. **INTRODUCTION**

1. On April 22, 2003, Argonne filed a petition with the Board for an adjusted standard from 35 Ill. Adm. Code 218.182 pursuant to 35 Ill. Adm. Code 104.402. On May 15, 2003, the Board dismissed the adjusted standard petition for Petitioner's failure to cause notice of the petition in a newspaper of general circulation within 14 days after the filing of the petition.

2. On May 19, 2003, Argonne refiled the petition for adjusted standard, also moving the Board to incorporate the record of the previous petition (AS 03-3) into the record of the new proceeding (AS 03-4). Petitioner published notice in the required newspaper on May 24, 2003, and filed a certificate of publication with the Board on June 10, 2003. The Board accepted this Petition on June 19, 2003.

3. The Illinois EPA is required to file its Recommendation with the Board within 45 days of the filing of a petition for adjusted standard or within 30 days before a scheduled hearing date, whichever occurs earlier. (See 35 Ill. Adm. Code 104.416). The Board granted the Illinois EPA's oral motion to extend the date for filing the Recommendation.

## II. BACKGROUND

4. Argonne is owned by the federal government and managed and operated by the University of Chicago. The facility is located on 1,500 acres in DuPage County, Illinois. It is surrounded by the 2,240 acre Waterfall Glen Forest Preserve District. It employs 3,200 people at this site and 1,300 at a site near Idaho Falls, Idaho.

5. Argonne is a research and development laboratory. It does research in basic energy and related sciences, and serves as an engineering center for the study of nuclear and nonnuclear energy sources. Other areas of research include biological, heavy-ion research into the properties of super-heavy elements, coal chemistry studies, immobilization of radioactive waste products for safe disposal, etc. Environmental research includes biological activity of mutagens and carcinogens, and new technologies for cleaning up environmental contaminants. It has also supported anti-terrorism efforts with the development of biological, chemical, and nuclear detection systems. (Pet. at 3).

6. -Argonne was issued a Clean Air Act Permit Program (CAAPP) permit on April 3, 2001. The site's major source of emissions is the Central Heating Plant that consists of five boilers. Other sources of emissions include underground gasoline storage tanks, an engine test facility, bulking operation of liquid wastes from research activities, and diesel generators.

7. Argonne has requested permanent relief in the form of an adjusted standard from 35 Ill. Adm. Code 218.182, Cold Cleaning. This regulation prohibits, after March 15, 2001, the operation of any cold cleaning degreaser with a solvent vapor pressure which exceeds 1.0 mm Hg (0.019 psi) measured at 20°C (68°F). Petitioner seeks an adjusted standard to exempt it from the applicable vapor pressure limits, as well as the associated equipment requirements and record keeping requirements, for those cold cleaning applications involving the preparation of sample material and the associated apparatus used for research and development testing and analysis activities.

8. To the best of Illinois EPA's knowledge, there are no state air or land pollution enforcement actions currently pending before the Board or any circuit court against the Petitioner.

### III. RELIEF REQUESTED

9. Argonne has requested relief from the requirements covering cold cleaning degreasing operations contained in 35 Ill. Adm. Code 218.182. Subsection (a) requires certain operating procedures. Subsection (b) requires that cold cleaning degreasers have a cover and device for draining cleaned parts. Subsection (c) requires that solvents used for cold cleaning degreasing be limited to a solvent vapor pressure of 1.0 mm Hg (0.019 psi) measured at 20°C (68°F). Subsection (d) requires the operator to keep records of purchases of solvent used for

cold cleaning degreasing activities. Petitioner seeks an adjusted standard to exempt it from the applicable vapor pressure limits, as well as the associated equipment requirements and record keeping requirements, for those cold cleaning applications involving the preparation of sample material and the associated apparatus used for research and development testing and analysis activities.

10. Petitioner limits its request to those types cold cleaning applications involving the preparation of sample material and associated apparatus used for research and development testing and analysis activities where: 1) the research and development-related cold cleaning activities include, but are not limited to, washing and rinsing slides, drying glassware, preparing sample, cleaning specimens, gel stain/de-staining, membrane rinsing, and the cleaning of small parts and equipment and the preparation of sample materials and associated apparatus for testing; and 2) solvents meeting the vapor pressure limit of the cited regulation cannot be used without compromising the quality of the equipment being used or the validity of research results.

#### IV. LEVEL OF JUSTIFICATION

11. The Illinois EPA agrees with the Petitioner that the regulation of general applicability of 35 Ill. Adm. Code 218.182 does not detail the specific level of justification or other specific requirements necessary for this type of adjusted standard. Since there is no specific level of justification for an adjusted standard provided for in the regulation at issue in this petition, the general level of justification provided in Section 28.1 of the Environmental Protection Act (Act), 415 ILCS 5/28.1, is the standard of review by which the Board is to judge the instant adjusted standard petition. Section 28.1(c) of the Act provides the general level of justification that the Board must find a petitioner to have met when granting an adjusted standard

petition. Section 28.1(c) provides:

The Board may grant adjusted standards whenever the Board determines, upon adequate proof by petitioner, that:

- 1) factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to that petitioner;
- 2) the existence of those factors justifies an adjusted standard;
- 3) the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
- 4) the adjusted standard is consistent with any applicable federal law.

See also 35 Ill. Adm. Code 104.426.

12. As explained below, the Illinois EPA has concluded that Argonne has met the required level of justification because it has demonstrated that there are factors that are substantially and significantly different than those relied upon by the Board when it adopted its regulation limiting the solvent vapor pressure used for cold cleaning degreasers, and that the factors that Argonne believes entitle it to regulatory relief, indeed, justify an adjusted standard.

13. Amendments to the Board's Cold Cleaning Degreasing rule (35 Ill. Adm. Code 218.182) were proposed by the Illinois EPA to meet the requirement to reduce the emissions of volatile organic material (VOM) by a further three percent of the 1990 baseline. (Section 182(b)(1) of the Clean Air Act (CAA)). (See R97-24 (June 5, 1997)). These 1997 amendments required the use of solvents with a lower vapor pressure of 1.0 mm Hg. While the emissions reductions resulting from the rule are required by the CAA, the method of achieving the reductions, control of emissions from degreasing activities, is not.

14. At that 1997 hearing, the Illinois EPA testified that the majority of cold cleaning degreasing operations occurred at auto repair shops, car dealerships, machine shops, and metal

fabrication and manufacturing businesses. It stated that there are between 50,000 and 60,000 cleaning units in the Chicago area. (R97-24 at 3-4). While the Illinois EPA consulted with the above types of retail businesses it did not consult with Argonne, a research and development laboratory.

## V. FACTS PRESENTED IN THE PETITION

15. The Illinois EPA has investigated the facts alleged in Argonne's adjusted standard petition. The Illinois EPA has spoken with the Petitioner numerous times and inspected the facility as part of its implementation of the CAAPP.

16. With respect to cold cleaning at Argonne, the Petitioner alleges that many types of activities are in compliance with the vapor pressure limit of the current regulation. Petitioner does have shops that perform conventional machining operations and they do use cleaning solvents that meet the vapor limitations of Section 218.182(b)(2), as well as the other control requirements of Section 218.182.

17. Petitioner alleges that some research activities involve equipment that requires sample surface areas completely free of any residual contaminations. For example, x-ray equipment and analytical instruments used for atomic and sub-atomic research necessitate the use of several common laboratory solvents, such as methanol, ethanol, isopropanol, etc. (Pet. at 4). Also see Petitioner's Ex. 2 that gives a summary, by building at the Chicago facility, of the examples of activities and compounds that would be included in the adjusted standard.

18. The rule contains two exemptions, one for wipe cleaning and another for cleaning electronic components. Argonne alleges that in many of the above instances wipe cleaning cannot be used because of low levels of particulate residue. It uses the examples of preparing

metal samples prior to analysis with electronic instrumentation and the use of particle accelerators. These instruments and associated vacuum pumping equipment must be cleaned so that the vacuum state is maintained, any residual contamination can cause out-gassing that can destroy vacuum conditions and affect the research results. (Pet. at 4 & 5).

19. Section 218.182(f) also exempts the cold cleaning of electronic components.

Petitioner states that while certain equipment are considered electronic components, this is not true of all of the parts and equipment associated with testing and analysis, or of the preparation of sample materials. (Pet. at 5).

#### VI. EFFORTS NECESSARY TO ACHIEVE COMPLIANCE AND ALTERNATIVES

20. In its adjusted standard petition, Argonne alleges that it has continued to search for replacement solvents and has not found a feasible alternative, regardless of cost. Petitioner found that organic solvents that met the vapor pressure limit could leave residues that could compromise the integrity of the research. In other cases, it found that acetone, a solvent that is not a VOM, was not feasible to use because of its low flashpoint. (Pet. at 6).

21. With respect to the other requirements of Section 218.182 of labeling the container used for cleaning or tracking solvent usage based on activity, e.g. cleaning, Argonne also states that there is no feasible compliance alternative. As beakers are used for short periods of time and then are used for other activities, a permanent label would not serve a purpose. With respect to the record keeping requirement in subsection (d), Argonne tracks chemical usage on a facility wide basis, but believes that tracking all the uses of a one liter bottle of isopropanol where only 600 milliliters are used annually in a given laboratory would be burdensome. (Pet. at 6).



22. Argonne has presented the information and documentation necessary for the Illinois EPA to conclude that there are no technically feasible or economically reasonable alternatives available, as required by Section 28.1 of the Act.

## VII. ENVIRONMENTAL IMPACT

23. Argonne is located on a 1,500 acre site in DuPage County, Illinois, approximately 27 miles Southwest of downtown Chicago and 24 miles due west of Lake Michigan. DuPage County is part of the six county Chicago metropolitan area. The Chicago area is currently in nonattainment of the 1-hour ozone National Ambient Air Quality Standards ("NAAQS"). It is in attainment for the other criteria pollutants. The Board's Cold Cleaning rules are part of Illinois' State Implementation Plan ("SIP") to achieve or maintain compliance with the NAAQS.

24. The closest air monitoring station to Argonne's Chicago is located in Lemont, Illinois, which is located at 729 Houston and is approximately three miles from Argonne. The last exceedance of the NAAQS of the 1-hour standard was in 1994. Argonne alleges that the emissions associated with its cold cleaning activities would be minimal, no more than one ton per year. (Pet. at 7). Based on the best available information for calendar year 2002, it estimates that no more than 200 gallons (approximately 1500 pounds) of solvent were used for cleaning. While usage will vary depending on the type of research conducts during a given year, Pet. Exhibit 3 shows that the estimated annual organic solvents used in cold cleaning operations has remained fairly constant and minimal. (Pet. at 8).

25. The Illinois EPA agrees with the Petitioner that the estimated additional one ton per year of VOM emissions is minimal; and, hence, that the environmental impact from this adjusted standard will be minimal. In the 1999 Chicago nonattainment area inventory of ozone

precursor emissions, the Illinois EPA estimated that approximately 660 tons of VOM are emitted in the Chicago area on a typical summer day. An additional one ton per year (emphasis added) is not expected to negatively affect the region's air quality.

#### VIII. PETITIONER'S JUSTIFICATION OF PROPOSED ADJUSTED STANDARD

26. As discussed above, the Board must review the justification contained in the petition for a proposed adjusted standard pursuant to 35 Ill. Adm. Code 104.426. This section restates the four factors specified in Section 28.1 of the Act, 415 ILCS 5/28.1, to be proven by the Petitioner: the Petitioner's relevant factors are substantially or significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the Petitioner; these factors justify an adjusted standard; the requested adjusted standard will not result in environmental or health effects substantially or significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and, the requested adjusted standard is consistent with any applicable federal law.

27. As discussed above, cold cleaning in laboratory beakers as part of bench scale activities was not considered as part of the rule making. Further, the adjusted standard will not result in environmental or health effects substantially or significantly more adverse than the effects envisioned by the Board in adopting the rule.

28. The Illinois EPA believes that the Petitioner has made the required showing that there are no reasonable alternatives to using solvent with a higher vapor pressure for the cold cleaning and preparation of sample materials.

#### IX. CONSISTENCY WITH FEDERAL LAW

29. The cold cleaning rules are part of the Illinois Rate-of-Progress (ROP) SIP for achieving the NAAQS for ozone. Note: Section 182 of the CAA requires States with severe nonattainment areas to submit plans demonstrating ROP. The granting of this Petition would be consistent with the ROP SIP, as the expected emissions that would result are de minimus. If the Board grants the adjusted standard, the Illinois EPA would be required to request a revision of the SIP.

30. Granting this petition for adjusted standard is also consistent with federal law. While the cold cleaning rule is part of the SIP for the Chicago area, the content of the rule was not prescribed by federal law. In addition, while U.S. EPA has regulated halogenated solvent cleaning in 40 CFR part 63, Subpart T, those regulations only apply to batch and in-line cleaning, which are not at issue in this Petition.

#### X. HEARING

31. The Illinois EPA requests that a hearing be held on this matter, because if the adjusted standard is granted, it will need to be submitted to the U.S. EPA as a revision to Illinois' SIP for the Chicago NAA. 40 CFR Section 51.102 requires that a state have a public hearing prior to adopting a revision to a SIP. Argonne has agreed to a hearing.

#### XI. RECOMMENDATION AND CONCLUSION

32. The Illinois EPA recommends, for the reasons stated above, that Argonne, for its Chicago facility, be granted the requested adjusted standard from the requirements of 35 Ill. Adm. Code 218.182 pursuant to 415 ILCS 5/28.1. The Illinois EPA concurs with Argonne on the proposed language as set forth in paragraph (f) of the Petition.

WHEREFORE, for the reasons stated herein, the Illinois EPA recommends that the Pollution Control Board **GRANT** the Adjusted Standard Petition of Argonne National Laboratory.

Respectfully Submitted,

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

BY: 

Rachel L. Doctors  
Assistant Counsel  
Division of Legal Counsel

Dated: July 31, 2003  
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STATE OF ILLINOIS )  
 ) SS.  
COUNTY OF SANGAMON )

PROOF OF SERVICE

I, the undersigned, on oath state that I have served the attached Recommendation upon the person to whom it is directed, by placing it in an envelope addressed to:

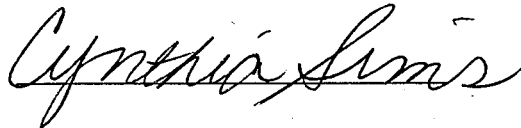
TO: Dorothy Gunn, Clerk  
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James R. Thompson Center  
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and mailing it by Overnight Mail from Springfield, Illinois on July 31, 2003, with sufficient postage affixed.



SUBSCRIBED AND SWORN TO BEFORE ME

this 31<sup>th</sup> day of July, 2003

Stephen C. Ewert

Notary Public

