



Nitric Acid Plant #1: 150 lb/hr.  
Nitric Acid Plant #2: 25 lb/hr.

By simple arithmetic based on 55 tons/day the two plants operate as follows (assume 24 hr. day operation):

Nitric Acid Plant #1: 65 lbs. NO<sub>2</sub>/ton acid  
Nitric Acid Plant #2: 11 lbs. NO<sub>2</sub>/ton acid

This shows Acid Plant #2 to exceed the regulation by 100 percent, while Acid Plant #1 exceeds the regulation by some 1200 percent. Nothing in the record explains the difference between the emissions of the two plants. One can only assume the difference in ages of the two plants is the determining factor. It would then seem advantageous to limit Acid Plant #1 until #3 and #2 cannot fulfill requirements (#3 is the abovementioned 480 ton/day plant). The #3 plant will be in compliance with Rule 207 (d) (2) by December 31, 1973.

The method of compliance proposed is a Union Carbide Pura-Siv "N" molecular sieve. The Agency has stated it feels this method will bring Petitioner's plant into compliance and is a superior choice to the other standard method, e.g., catalytic abater.

The two conditions which must be met as a prelude to a variance grant will be explored separately.

Unreasonable and Arbitrary Hardship: Petitioner alleges that an unreasonable and arbitrary hardship will be imposed if Acid Plants #1 and #2 are required to be in compliance by December 31, 1973. The following reasons are given to document their statements.

1. A loss of \$2,900,000 in sales to Petitioner.
2. Customer hardship in that alternate supplies must be contracted for.
3. Loss of some four to twelve jobs.

#### Effect of Granting Variance on the Environmental Quality:

Petitioner has done its homework well in this regard. Independent air monitoring conducted by duPont has shown the NO ambient air quality level to be below the 1975 standard. Measurements taken over a two-week period resulted in an average concentration of 0.038 PPM against a federal standard of 0.050 PPM. It should be noted that there have been no public objections to the grant of this variance; in addition the nearest resident to Petitioner's plant is 0.4 miles.

The abovementioned Air Quality Standard (.050 PPM) is the National Primary and Secondary Ambient Air Quality Standard. The text "Air Quality Criteria for Nitrogen Oxide" has been referred to in order to ascertain the potential health hazard. The reason for this step is that although a two-week air monitoring program was undertaken

en by duPont, no evidence has been entered as to meteorological conditions or plant emission rates at the time of the survey. As a result of this investigation, the following was found:

- 1) "The two oxides of nitrogen present in ambient air in greatest quantities, nitric oxide and nitrogen dioxide, are potential health hazards" (P. 9-19).
- 2) "A twelve minute exposure to 2500 PPM of NO was lethal to mice. Doses in excess of 20 PPM of NO produced reversible inhibition of bacterial hydrogenase activity."
- 3) A study in Chattanooga, Tennessee, resulted in the conclusion that an increase in respiratory illness was found to occur in an environment having a mean 24-hour NO<sub>2</sub> concentration, measured over a six-month period, between 0.062 and 0.109 PPM.

The above reference shows that although a significant health hazard does not exist, the variance granted should be of as short a duration as possible so as to avoid a "potential" danger.

Petitioner has filed a compliance plan to effect control of Acid Plants #1 and #2 by May 1, 1974, at the soonest and October 1, 1974, at the latest. The Agency regards the latter date as more reasonable. The Board feels all efforts should be undertaken to expedite this program, and a middle date will be chosen for the variance grant.

One other point must be made at this time. Petitioner states that the need for a variance (rather than having been in compliance) is due to their uncertainty over whether they would continue to operate Acid Plants #1 and #2. The decision to operate has been made, and thus the need for a variance.

This Opinion constitutes the findings of fact and conclusions of law of the Board.

#### ORDER

IT IS THE ORDER of the Pollution Control Board that a variance for Petitioner's Acid Plants #1 and #2 be granted from Rule 207 (d) (2) until July 15, 1974, subject to the following conditions:

1. Said variance shall terminate fifteen (15) days after installation of molecular sieves on Acid Plants #1 and #2 or July 15, 1974, whichever condition occurs first.

2. Petitioner shall submit to the Environmental Protection Agency a bi-monthly progress report detailing:

- a) Progress made on the installation of the molecular sieve on Acid Plants #1 and #2.
- b) Amount of acid produced at Acid Plants #1 and #2.
- c) Amount of acid needed to meet Petitioner's internal and external needs.

3. Nitric Acid Plant #2 shall only be operated when Nitric Acid Plant #3 cannot meet demands.

4. Nitric Acid Plant #1 shall only be operated when Nitric Acid Plants #3 and #2 cannot meet demands.

5. Respondent shall, within 35 days from the date of this Order, post a performance bond in a form satisfactory to the Agency in the amount of \$100,000, guaranteeing construction and installation of the equipment herein required.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, certify that the above Opinion and Order was adopted by the Board on the 18<sup>th</sup> day of October, 1973, by a vote of 5 to 0.

