

ILLINOIS POLLUTION CONTROL BOARD
December 18, 1975

OLIN CORPORATION, a)
Virginia Corporation,)
)
Petitioner,)
)
v.) PCB 75-333
)
THE STATE OF ILLINOIS,)
ENVIRONMENTAL PROTECTION AGENCY,)
)
Respondent.)

OPINION AND ORDER OF THE BOARD (by Mr. Young):

On August 22, 1975, Olin Corporation filed a petition for variance seeking therein relief from the Air Pollution Control Regulations dealing with compliance programs and project completion schedules (Rule 104), the particulate emission standards for incinerators (Rule 203(e)) and the carbon monoxide emission standards for incinerators (Rule 206(b)). On August 28, 1975, the Board found the petition to be inadequate in that it failed to include information pertaining to the criteria required by Train v. NRDC, Inc., 43 USLW 4467 (Supreme Court No. 73-1742, April 16, 1975). An amended petition for variance was subsequently filed on October 14, 1975, containing supplemental information.

Petitioner manufactures various propellant and pyrotechnic products at its facility located within Williamson County, near Marion, Illinois. The subject of the petition is the disposal of explosive and pyrotechnic wastes generated during the manufacturing process. The U. S. Department of Defense is normally the major customer for such products, and the actual items produced vary in accordance with Government contracts issued on an annual basis. While Petitioner cannot state with certainty what its product line or volume will be in 1976, it estimates that the maximum amount and type of hazardous explosive waste generated weekly will be:

Ammonium Nitrate Propellant	500 lbs.
Double Base Propellant	300 lbs.
RDX Type Explosive	200 lbs.
Single Base Propellant	20 lbs.
Ammonium Perchlorate Propellant	20 lbs.
Boron-Potassium Nitrate Propellant	200 lbs.

Black Powder	10 lbs.
Nitroglycerine in Sawdust	25 lbs.
Potassium Perchlorate Propellant	20 lbs.
Firecracker Mix	50 lbs.
Colored Smoke Mix	100 lbs.
Contaminated Packaging	200 lbs.
Pyrotechnic Flare Scrap	50 lbs.

Olin has been before the Board several times since 1971 as a result of problems concerning disposal of these explosive wastes (see PCB 71-60, 6/28/71; PCB 71-231, 2/18/72; PCB 72-357, 10/31/72; PCB 72-517, 3/22/73; PCB 73-395, 12/13/73; and PCB 74-335, 1/2/75).

Olin has filed a petition for a rule change with the Board regarding pyrotechnic incinerators (PCB R75-13). While the Agency has not yet fully evaluated Olin's proposal, after preliminary analysis the Agency feels a rule change may be in order. Olin presently operates a pyrotechnic incinerator under a variance granted by the Board which will expire December 5, 1975. This incinerator was constructed in accordance with the terms of its prior variances, and represents an advance in the state of the art of explosive waste disposal.

Petitioner alleges that incinerators designed to handle explosive wastes differ widely from those designed to burn municipal wastes. Explosive materials generate large volumes of highly heated and rapidly expanding gases which must be safely contained. To accomplish this, explosive materials must be burned in small increments and in a partial vacuum to avoid over-pressurization. The partial vacuum is created by constantly drawing air through the burning chamber and out the exhaust port. The excess air thus introduced into the burning chamber also quenches the heat of combustion and in so doing increases the generation of carbon monoxide as opposed to carbon dioxide. Explosive wastes have a low carbon content when compared to municipal wastes; thus, less material is present to create carbon oxides initially. Petitioner alleges all of these factors combine to make the present measuring technique for emissions inequitable when applied to pyrotechnic incinerators.

Rule 206(b) prohibits the emission of carbon monoxide (CO) over 500 ppm when corrected to 50% excess air. Petitioner submits that the required correction to 50% excess air may accurately measure operating efficiency for incinerators burning municipal type solid wastes, but the correction to 50% excess air imposes a severe penalty on incinerators burning explosive wastes. Because the thermal destruction process employed utilizes large volumes of air to quench the heat of combustion generated by these explosive wastes, the required correction to 50% excess air penalizes explosive burning incinerators. In addition, the quenching effect results in the production of large amount of (CO)

because the carbon is less readily oxidized to carbon dioxide (CO₂) at the lower temperature. Petitioner alleges that both of these effects combine to make the present measuring technique for emissions inequitable when applied to explosive burning incinerators. Although the Agency calculates the carbon monoxide (CO) emissions only approach .05 cubic feet/lb. of scrap burned, this emission exceeds the limit of 206(b) when required correction to 50% excess air is made.

The particulate emission standards and limitations for incinerators under Rule 203(e) are based upon a measuring technique which corrects particulate concentrations in effluent gases to 12% (CO₂) and excludes any carbon dioxide attributable to the auxiliary fuel source. Petitioner likewise submits that the required correction to 12% (CO₂) may accurately measure operating efficiency for incinerators burning municipal type solid wastes, but the correction to 12% (CO₂) imposes a severe penalty on incinerators burning explosive wastes. Municipal wastes contain significant amounts of carbon containing material from which (CO₂) is produced. In contrast, explosive wastes are generally low carbon wastes from which little (CO₂) is produced. In addition, any carbon dioxide which is generated becomes greatly diluted by the excess air used to quench the heat of combustion. Petitioner alleges that these effects combine to make the present measuring technique of Rule 203(e) for emissions inequitable when applied to explosive burning incinerators.

The Agency calculates particulate emissions from this incinerator at .0404 grains/standard cubic foot (SCF) with .04% (CO₂). The required correction to 12% (CO₂) gives rise to emissions of 1.21 grains/SCF. This exceeds the limit of Rule 203(e)(4) of 0.1 grains/SCF of effluent gas when corrected to 12% (CO₂). The Agency notes that 99.4% of these particulate emissions are removed, however.

Petitioner believes that compliance with existing emission standards for incinerators would impose an arbitrary and unreasonable hardship. Petitioner does not believe the grant of the variance would prevent compliance with national air quality standards. Particulate concentrations in the area of the incinerator were found to be 32 micrograms per cubic meter (annual geometric mean) and 64 micrograms per cubic meter (maximum 24 hour average). This is well below the primary standard for particulate matter of 75 micrograms per cubic meter (AGM) and 260 micrograms per cubic meter (maximum 24 hour concentration). Carbon monoxide emissions from burning certain wastes can reach a maximum level of 19.1 lbs. per hour. Dispersion estimates have been made by Petitioner in accordance with Public Health Service Publication No. 999-AP-26. The maximum carbon monoxide concentration resulting from the operation of the incinerator under the worst climatic conditions with a 5 m.p.h. wind will occur approximately 0.3 miles from the incinerator. The (CO) concentration

at this distance would be 0.57 ppm. The maximum one hour concentration of (CO) permitted is 35 ppm. The Board finds background carbon monoxide to be slight in Williamson County and that operation of the incinerator should not prevent the attainment or maintenance of the national ambient air quality standards for (CO).

We are disposed to grant relief. Petitioner's incinerator represents an advance in the state of the art which greatly reduces the particulate emissions from the disposal process and is mostly preferable to open burning. The incinerator is operated in an isolated strip mine area minimizing possible injury to public and the environment. Variance will be granted from the provisions of Rule 203(e) and 206(b) in order to allow continued operation of the incinerator. Variance will be granted from Rule 203 because Petitioner's incinerator represents the state of the art and to deny a variance at this time when there is a lack of technical feasibility for a better control scheme would place an unreasonable hardship on Petitioner. The grant of this variance is conditional upon the requirement that Petitioner continues to emit particulates and (CO) at or below current levels, and a standard certificate of acceptance is included. In addition, in the event a rule change is adopted by the Board pursuant to PCB R75-13, the variance shall terminate thirty days after that adoption date.

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

ORDER

IT IS THE ORDER OF THE POLLUTION CONTROL BOARD that Petitioner, Olin Corporation, be granted for its Williamson County explosive waste incinerator a variance from Rule 203(e), 206(b) and 104 of the Pollution Control Board Rules and Regulations for the period from December 6, 1975 to December 5, 1976, subject to the following conditions:

1. Olin Corporation shall make application for an operating permit from the Agency for its pyrotechnic incinerator within 30 days of the Board Order, and secure said operating permit within 120 days of Board Order;

2. Olin Corporation shall not operate its pyrotechnic incinerator at a rate exceeding 400 pounds of scrap per hour in any one hour;

3. Olin Corporation shall continue to operate the pyrotechnic incinerator so that particulate and carbon monoxide emissions do not exceed levels currently produced;

4. Olin Corporation shall continue its present program of pyrotechnic incinerator development;

5. In the event a rule change is adopted by the Board pursuant to PCB R75-13, the variance shall terminate thirty days after that adoption date;

6. Within 30 days of the date of the adoption of this Order Petitioner, Olin Corporation, shall complete and submit to the Environmental Protection Agency, at the following address, the following certification:

Environmental Protection Agency
Division of Air Pollution Control
Control Program Coordinator
2200 Churchill Road
Springfield, Illinois 62706

I, (We), _____ having read the Order of the Illinois Pollution Control Board in PCB 75-333, understand and accept said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

SIGNED

TITLE

DATE

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 18th day of December, 1975 by a vote of 4-0.

Christan L. Moffett (gr)
Christan L. Moffett, Clerk
Illinois Pollution Control Board