STATE OF ILLINOIS )
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COUNTY OF MADISON )

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

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| IN THE MATTER OF: | ) | |
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| Application for extension of variance of OLIN CORPORATION, East Alton, Illinois | ) | NO: PCB-70-11 |

OPINION OF THE BOARD (BY MR. LAWTON):

On June 29, 1970, OLIN CORPORATION of East Alton, Illinois filed with the Air Pollution Control Board, a Petition requesting an extension of its existing variation, originally granted on May 18, 1967, to continue disposal of its explosive trade waste by open burning. The present variation expires October 22, 1970. The maximum period of time for which a variation can be granted, both under the former Illinois Air Pollution Control Act and the present Environmental Protection Act is one year. The division subject to the variance is referred to as the Winchester-Western Division.

Pursuant to the provisions of the Environmental Protection Act, the Environmental Protection Agency is obliged to make an investigation and recommendation to the Pollution Control Board relative to all variance applications. A recommendation by the Agency to allow the variance extension was received by the Board on September 18, 1970. Because of the short time remaining until the variation would become automatically granted by operation of law, and the desire on the part of the Board to be informed on the general problem of explosive waste disposal, the Chairman wrote to L. W. Maxson, Director Engineering Services, Olin Brass, suggesting that a new Petition be filed in compliance with the present statutory provisions relative to variances, and further indicated that a Hearing thereon would be expedited. A new petition for variance extension was received by the Pollution Control Board on September 25, 1970.

Pursuant to notice, a Hearing was held on the new Petition for variance extension at the City Hall, Alton, Illinois, on October 15, 1970. J. W. Stewart testified that he was in charge of ammunition processing engineering at the East Alton works. He testified to the character of the ammunition produced at the

plant and the resulting scrap for which disposal was required. Loaded ammunition consists of a priming compound, propellant powder and a bullet or lead shot, classified into center fire and rim fire cartridges and shot gun shells.

Scrap generated in the manufacture of ammunition is contaminated with explosives requiring disposal beyond ordinary means. Up to 400 pounds per week of priming compound is scrapped. The material used in the manufacture of primers constitutes the most shock-sensitive explosives available, stable enough for safe handling, and may be burned safely only when wet and in small quantities.

Propellant powder is reconstructed nitrocellulose containing up to 40% nitroglycerine, extremely flammable and subject to explosion under conditions of confinement. It may be burned in the open in small quantities. Approximately a ton and a half per week of explosive contaminated material must be burned.

Rim fire ammunition and wet priming compound are burned in a vertical destruction chamber or open-type incinerator eight feet high and five feet in diameter. Some gray smoke is generated from this operation. Center fire ammunition is burned in a destruction chamber or, alternatively, the bullets may be extracted and the powder burned. Plastic shot shells and components are burned in the open, ignited with small quantities of fuel oil. Propellant powder which cannot be burned in a chamber is burned on the ground. Although dry propellant burns with a light gray smoke, the powder is normally mixed with oil in order to minimize the danger of explosion from spills and in movement from the point of manufacture to the point of disposal.

Burning operations are confined to the Olin property. Smoke generated normally does not extend beyond its boundaries. Photographic exhibits were introduced illustrating all of the foregoing methods of disposal. A water-glycol wetting agent is being utilized on an experimental basis in lieu of oil for the soaking of the propellant powder prior to burning, which would eliminate the dense smoke now being generated by the oil, but is subject to further experimentation.

Testimony indicated that the closest house was 900 feet south of the burning area and that the prevailing winds blow from the south and southwest. The north property line of Petitioner's property is 1,700 feet from the burning area and the area to the north thereof is uninhabited.

Various munition manufacturing plants throughout the country have been contacted, as well as the United States Government, and that in no case were the methods of disposal more advanced than those being utilized at the Olin plant.

While there were some variations in the method of disposal throughout the country at different ammunition manufacturing plants, the method was generally that of open burning. The reason ascribed in each case was the danger inherent in any type of closed burning of explosives or material contaminated with explosives.

Illinois Institute of Technology Research Institute is in the process of making a proposal to Olin to sample and determine what emissions are coming from the burning of explosive wastes. Alternative provisions set forth in the Department of Defense Safety Manual relating to disposal of solid wastes were not feasible to the Olin operation. Specifically, biodegradation was not feasible because organic binders and oil in which scrap explosive is immersed is not biodegradable. Chemical degradation was unsuitable because of the formation of sludge and by-products. Burial would create the likelihood of explosion in the process or possible fires from decomposition. Burial at sea was deemed impracticable because of distance involved.

Dr. T. F. McDonnell testified that he was Manager of Chemical Engineering in the Engineering and Development Group of Olin. Inability to find an existing closed type waste destructor for explosive wastes lead to Olin's Energy Systems Division, establishing a program to develop a continuous feed incinerator which could safely process the explosive materials generated at Olin's Marion, Illinois plant. The development of the prototype destructor is in the preliminary experimental testing stage. Development of an explosive waste destructor is being undertaken at Radford Army Ammunition Plant, Radford, Virginia.

In the destruction chamber operation, potential contaminants are nitrogen oxide and heavy metal oxide from the primer mix and ammunition cases. Nitrogen dioxide analysis is indicated at less than one ppm. Undiluted flue gas of 200 to 300 ppm of carbon dioxide is estimated. Fallout of particulates is indicated to be small although some heavy metals including lead may be emitted. It is estimated that five pounds of lead per week are emitted from the chamber. No mercury emission is indicated. Sulphur emissions are deemed to be at a minimum because of the absence of sulphur compound in the scrap.

Open burning of propellant scrap and contaminated waste amount to approximately 400 pounds a day or 2,000 pounds per week. Oil is added to wet down the propellant accounting for sooty smoke.

The operation is essentially free of particulate emission except for the soot from the oil. Tests are underway on storage of scrap propellant under water glycol sollution to determine whether smoke can be eliminated. Nitrocelloluse propellant emits some nitrogen oxides, but well below the hazard level before reaching any employees or inhabited areas adjacent to the Olin property.

Scrap shotgun shells are burned in the open in a barricaded area. Some smoke is generated from the combustion of plastic cases. A small amount of nitrogen oxide is generated from the nitrocelloluse nitroglycerin propellant. Emission of heavy metals is insignificant.

Any accumulation of explosive waste is extremely unsafe. It is necessary in the operating areas of plants using explosives to keep all scrap explosives in oil or some other desensitizing agents to protect the safety of the employees and the plant. This witness likewise testified that in reviewing processes authorized by private companies and the Federal government, no other methods are being used in the disposal of explosive waste that were substantially different from those being engaged in by Olin.

L. W. Maxon, Director of Engineering Services, testified that substantially smaller quantities of explosives were being burned than in former years, as indicated in his Affidavit.

J. A. Riggs, Controller, Ammunition Operations, Winchester-Western Division of Olin Corporation, East Alton, testified that the Division employed 2,700 employees of a total of 5,400 employed at the Alton site, and that the annual payroll of the 2,700 employees of the Winchester-Western Division was approximately $20,000,000.00 plus an additional $5,000,000.00 fringe benefits. The Olin Corporation paid the Tax Collector of Wood River, Madison County, $700,000.00 in the year 1970.

C. E. Becker, Manager of Contract Administration, Winchester-Western Division, testified to the number of contracts with the Federal Government for the supply of military ammunition and that Federal law requires pre-award safety inspections and compliance with safety regulations set forth in various government manuals.

Based upon the foregoing evidence adduced at the Hearing and the matters set forth in the Petition and Affidavit, Petitioner has satisfied the statutory requisites for the granting of a variance for the period hereby allowed. Explosive waste is generated by Olin's operation which cannot be stored without substantial danger to the personnel and property of Petitioner.

At the present time, no suitable incineration methods or other means of disposal are available. Immediate prohibition of Olin's open burning of explosive waste would constitute an arbitrary or unreasonable hardship. Insistence on closed burning of explosive waste would confront the Petitioner with the unrealistic alternatives of blowing up its plant or closing down its entire operation. Neither appear to be a satisfactory solution. It is also evident that the operation, as conducted by Olin, has not produced any discernible impact on the adjacent properties or its residents. The situation is one calling for the unusual remedy of a variance. While the Petitioner has made a thorough and comprehensive disclosure of its present operation and indicated its efforts to find alternative methods of disposal, the evidence as to such alternative methods, both in existence and in development, is sketchy and inadequate. The petition describes the Bartlett-Snow Tumble Burner and the John Zink molten lead pot process, both considered by Olin, without detailing the specifics of the operations or the reasons why the processes would not be suitable for some or all of Olin's explosive waste disposal. Reference is made to various conferences with industry and government representatives, without adequate description as to what was considered and what the prospects for controlled disposal complying with emission standards would be. More and greater detailed information as to all methods in existence and in development for the disposal of explosive waste is necessary before the Board will grant a further variance beyond the time herein provided.

It is the Order of the Pollution Control Board that the existing variance heretofore granted to Olin Corporation permitting open burning of explosive trade waste be extended to February 22, 1971, subject to the following provisions and conditions:

1. Olin Corporation shall submit a monthly report, the first being no later than November 19, 1970, to the Pollution Control Board and the Environmental Protection Agency, specifying the nature, degree, extent and details of its open burning activities on the premises subject to the variation.

2. Olin Corporation shall submit a monthly report to the Pollution Control Board and the Environmental Protection Agency indicating what progress has been made relative to improved technology and new facilities enabling disposal of explosive wastes in compliance with statutory provisions and the relevant regulations. Such report shall further indicate what facilities Olin Corporation is employing or testing as well as all state of the arts advancements in the industry generally and under Federal government direction.

3. If the Environmental Protection Agency advises the Board that the open burning operation of explosive waste by Olin Corporation is producing an undue burden on adjacent neighboring areas, the Board shall make a determination as to whether the variance shall be terminated. Said determination shall be made only after a hearing on the matter is scheduled by the Board and held before a qualified hearing officer. Olin Corporation will be notified of the hearing date and shall be allowed to participate in said hearing. As a result of that hearing, the Board may terminate the variance granted herein before February 22, 1971.

4. The variation extension hereby granted shall terminate upon the establishment of alternative means of disposal of explosive waste, relative to all or any part of the Olin Corporation operation resulting from the availability of new technology and processes which would enable compliance with the relevant statutory provisions and regulations. Said determination shall be made only after a hearing on the matter is scheduled by the Board and held before a qualified hearing officer. Olin Corporation will be notified of the hearing date and shall be allowed to participate in said hearing. As a result of that hearing, the Board may terminate the variance granted herein before February 22, 1971.

5. A further hearing will be scheduled prior to the termination of the four-month extension period hereby granted for consideration of any further variance extensions, at which time it will be incumbent upon Olin Corporation to make a comprehensive and extensive showing of all methods being presently employed by Olin Corporation, by the explosives industry generally and by the Federal Government, including those in the experimental stage, to abate or minimize air pollution as a consequence of the disposal of explosive trade waste.

The Environmental Protection Agency is requested to report to the Pollution Control Board at the earliest possible time what impact the open burning of explosive wastes by Olin Corporation has upon the surrounding and adjacent areas, with particular regard to what attitudes have been expressed by residential occupants in the immediate vicinity of the Olin Corporation operation.

IT IS ORDERED THAT:

Variance heretofore granted Olin Corporation, East Alton, Illinois (VR67-9), be extended to February 22, 1971, subject to all provisions and conditions above set forth.

I concur:

I dissent:

I, Regina E. Ryan, certify that the Board has adopted the above Opinion this 28 day of October, 1970.

Regina E. Ryan
Clerk of the Board