

ILLINOIS POLLUTION CONTROL BOARD

THE OLIN CORPORATION)
)
) *P.C.B.* No. 70-25
 v.)
)
 ENVIRONMENTAL PROTECTION AGENCY)

OPINION OF THE BOARD (BY MR. LAWTON):

December 22, 1970

The Energy Systems Division of Olin Corporation, East Alton, Illinois, filed a Petition for Extension of Variance previously granted by the Air Pollution Control Board on March 25, 1970 in No. VR 70-4, which variance expired October 1, 1970. The present petition was received by the Pollution Control Board on September 30, 1970 and seeks a one-year extension of the previous variance to dispose by open burning of six powder contaminated buildings remaining on the site, approximately 7,000,000 pounds of waste ball powder ("fines") stored under water at various locations of the former Ball Powder plant site, approximately 1.8 million pounds of rocket ammunition ("grains") stored under water in concrete pools and to burn over approximately sixty-six acres of land where loose powder has accumulated. The original variance permitted the open burning of 240 powder-contaminated buildings located on the Ball Powder plant site and the open burning of an undetermined amount of waste located in sloughs on the premises.

The one-year extension is needed primarily to dispose of the fines and grains above-described. The burning of the buildings and the decontamination of the ground can be achieved in a relatively short period of time. Written complaints against the petition were received by the Environmental Protection Agency from four persons and several verbal complaints were made to Agency personnel directed primarily to the burning of the buildings and not to the disposal of the powder. The Environmental Protection Agency recommended that the Petition be granted allowing the contaminated buildings to be disposed of over a one-month period, and that a one-year variation be granted for disposal of the powder and decontamination of the ground. The Environmental Protection Agency's recommendation suggested that the grant of variance be conditional on the posting of a bond "in sufficient amount to insure that the Petitioner de-

voted maximum efforts of developing an alternative method of disposal of explosive waste". The Sanitation and Pollution Committee of the Madison County Sanitation and Pollution Department filed a memorandum with the Board stating that while it was opposed to open burning, it does not oppose the present variance request providing certain conditions were made relative to the time and manner in which the buildings were burned.

Hearing was conducted in Alton on the foregoing Petition on December 1, 1970. The following witnesses testified on behalf of Petitioner: Edwin McWhorter, Technical Director of the Energy Systems Division of the Olin Corporation; Dr. Robert E. McComb, Senior Staff Engineering Assistant, Energy Systems Division; Lawrence M. Garvin, Smokeless Powder Operations; and Richard B. Clark, Manager of the Weather Systems Group. These witnesses testified to the character and extent of the buildings and explosives to be burned, the absence of suitable alternative means of disposal, the manner of the proposed burning, the correlation of the proposed burning to weather conditions, the anticipated emissions, and the dangers inherent in allowing the present conditions to continue. No one appeared in opposition to the petition. The Sanitation and Pollution Committee of the Madison County Sanitation and Pollution Department stated that it is not opposed to the petition, providing certain conditions as to the burning of the buildings were met.

Olin Corporation has manufactured explosives at its present site at East Alton for approximately eighty years. In 1936 a new process of ball powder manufacture was employed by which powder was manufactured under water, thereby reducing the need for handling of dry powder and the dangers attendant thereto. The process resulted in certain waste powder slurries being pumped into sloughs where they presently remain under water. In recent years, the Ball Powder operation was moved to Florida and the Ball Powder plant site has been abandoned. For Olin to utilize this property, it became necessary to remove 240 structures and dispose of the powder located in the area, both under water and on the ground. The original variation permitted the burning of 240 powder-contaminated buildings and authorized the burning of "nitrocellulose located in sloughs" but was vague as to the extent, nature and degree of the powder located on the premises. Under the prior variation, virtually all of the structures have been removed. While the present variation petition

seeks allowance for burning of the remaining six powder contaminated structures, the principal thrust of the petition is to permit disposal of the remaining explosive powder on the site, estimated to be 7,000,000 pounds of ball powder and 1.8 million pounds of rocket propellant and to be permitted to decontaminate approximately 66 acres of powder-contaminated ground.

The six buildings remaining on the site have all been used in the manufacture and storing of explosive powder. They will be manually dismantled and removed. However, in order to protect the workmen involved in the dismantling operation, it is necessary that all powder-contaminated portions be burned to avoid flash fires and possible explosion. The objective is not to cause demolition of the buildings by burning, but rather to eliminate the powder-contaminated portions to enable safe removal. This process has already been accomplished in over two hundred structures and only six remain for removal.

In the process of manufacture of ball powder, a small percentage is too fine for use. This becomes explosive waste and is referred to as 'fines'. During the past thirty years, these fines, produced as part of the basic under water ammunition manufacturing process have drained into sloughs in the area and remain under water at the present time. In other areas, powder has been manually dumped into low spots, some of which is under water and some exposed to the air. Petitioner estimates that there are approximately 7,000,000 pounds of accumulated ball powder or "fines" located on the premises, most of which is under water. In addition, approximately 1.8 million pounds of rocket ammunition has been stored in concrete-lined pools on the premises. This ammunition, referred to as "grains", is approximately 40% nitroglycerin and highly susceptible to detonation. Each grain weighs approximately thirty pounds. In addition to the foregoing, approximately 66 acres of the 200-acre site are contaminated with loose powder resulting from spillage, overflows and handling errors.

Olin proposes to re-claim the area involved for its expanded activities which use is precluded by the presence of the explosives and the powder-contaminated structures on the premises. Some effort has been made to sell the powder but has not been successful.

Maps introduced as Exhibits 1 and 2 show the locations of the proposed burning areas and the structures to be burned. Residential areas surrounding the Olin complex are likewise indicated.

The proposed methods for disposing by burning of the various elements involved were described by the witnesses. The buildings would be burned out before being made available to a contractor for dismantling. In order for a fire to be of sufficient heat to ignite the contaminating powder, approximately one hundred pounds of dry powder would be spread throughout the building. A fine spray of fuel oil would be sprayed on the wooden members where needed to aid in the igniting. Less than five gallons of fuel oil would be required for each building. Precautions would be taken to prevent spreading of the fire and the creation of smoke nuisance. Consideration would be given to wind speed, wind direction and atmospheric characteristics. A burning index developed by the Olin Weather Systems Group would be used as a guide for predicting favorable burning days and buildings would be burned only on days when atmospheric and dispersion conditions were suitable to prevent such spread and nuisance. (See testimony of Richard B. Clark.) Some smoke would be generated by the burning of the buildings resulting from the oil and the combustion of the wooden structural members and the roofing material. Each building would burn for approximately three or four hours. Petitioner seeks a two-month period during which to dispose of the six buildings.

The "fines" or waste ball powder would be pumped in a slurry onto the concrete pads of the buildings previously demolished. The powder would take three or four days to dry and would then be spread to a depth of approximately two inches and burned. Approximately 10,000 to 15,000 pounds of powder would be spread on each concrete pad. Two or three pads of dry powder could be burned in any one day.

The rocket grains containing nitroglycerin are highly volatile and subject to detonation. It is proposed that six or seven grains each weighing thirty pounds would be placed side by side and ignited through the use of dry powder. A string of up to ten 200-pound increments would be burned in sequence. Each 200-pound increment would burn approximately five minutes. Petitioner's witnesses testified that the powder burning processes above-described would not generate any substantial amount of visible smoke.

Three techniques would be used to decontaminate the 66 acres of ground area where loose powder has been spilled. A portable flame thrower would be used to ignite loose powder. Where necessary, small quantities of dry powder would be added. Some fuel oil would be added to wet powder to aid in ignition. It is estimated that ten acres would be burned with the flame thrower alone, twenty acres with the use of dry powder and the remaining thirty-six acres will require the use of some fuel oil. One acre would be burned at one time and no more than one acre per day. On ground requiring fuel

oil, approximately 10 to 20 gallons of oil would be sprayed over the acre before burning.

Dr. Robert E. McComb testified to the nature of the emissions that would result from the various types of burnings. Scrap powder would not produce sulphur oxides or noxious particulate emissions. Nitrogen oxide would be generated in small amounts. The rocket propellant would produce even less particulate and smoke exhaust than the loose powder. The burning of the ground would produce some smoke where fuel oil was utilized but little where the explosive wastes were burned dry. Burning of the buildings would cause some black smoke as a consequence of tar paper and wood being burned and ignition of fuel oil. The affidavit of T. F. McDonnell indicated that the burning of the propellant wastes would not produce appreciable amounts of carbon monoxide.

The evidence indicates that an extremely dangerous situation exists at the subject site in its present condition. Demolition of structures without previously igniting the powder-contaminated portions would create a substantial danger to the workmen engaged in the dismantling operation, with possible flash fires resulting from the wrecking process. The powder and rocket grains accumulated on the ground and under water present a hazardous condition which should not remain. This condition was subject to some controls while the Ball Powder plant was in operation, but the danger increases with the abandonment of the facility. Likewise, the potential of serious water pollution exists from powder remaining in sloughs and streams. Lastly, the exposed powder on the ground presents the potential of serious danger to personnel and property in its present condition. The alternatives confronting Petition are to either allow the present condition to continue with the attributes of danger described above, dispose of its powder in enclosed facilities which will create explosion and danger of major proportions, or to endeavor to dispose of the structures and powder under a controlled program employing the maximum degree of safety and utilizing meteorological information to minimize the danger and burden on the surrounding area. While the impact of the burning will be primarily on Olin's facilities, there are residential areas that would be affected if the burning is not properly controlled.

Evidence of witnesses indicates that the state of the arts has not reached a point where there is any suitable alternative to open burning of explosive wastes and certainly not in the qualities involved in the present case. (See testimony of Dr. Robert E. McComb, Affidavit of T. F. McDonnell attached to the Petition for Extension of Variance.) The state of the arts relative to disposal of explosive wastes was considered and discussed in substantial detail in Case No. PCB-70-11, Application for Extension of Variance of Olin Corporation, which variation related to the Winchester-Weston Division.

Based upon the evidence adduced at the Hearing and the matters set forth in the Petition and Affidavit, it is the opinion of the Board that the Petitioner has satisfied the statutory requisites for a granting of a variance. Explosive waste previously generated by Olin's operation and the powder-contaminated structures cannot be disposed of at the present time other than by open burning. No suitable incineration method or other means of disposal appear available. Prohibition of disposal by open burning of the structures and the explosive wastes would constitute an arbitrary and unreasonable hardship. To prevent the disposal would result in a continuing condition of danger to person and property and to increase the likelihood of water pollution. Insistence on enclosed burning of explosive waste at the present time is unrealistic and would impose a hardship on Petitioner disproportionate with any public benefit achieved.

It is the Order of the Pollution Control Board that the existing variance previously granted in No. VR 70-4 be extended to December 1, 1971, subject to the following terms and conditions:

1. That the six remaining structures be burned by March 1, 1971; that no more than one structure be burned on any one day; that the Environmental Protection Agency be advised when such burning is to take place and that such burning take place only when wind direction, wind speed and meteorological conditions are of a nature to minimize impact on adjacent and surrounding residential properties; that such fuel oil as is used shall be of a character to minimize smoke emissions; and that a full report be given to the Environmental Protection Agency when the burning of these structures is completed.
2. All explosive wastes on the premises presently under water shall be disposed of by December 1, 1971; ball powder fines shall be disposed of in increments of approximately 15,000 pounds and not more than three such increments shall be disposed of on any one day. The use of fuel oil shall be minimized to prevent the emission of smoke. Rocket grains shall be disposed of in increments of approximately two hundred pounds providing that two strings of ten such increments may be burned on any one day. Where loose powder is burned on the ground and oil is utilized to ignite the fire, extreme caution shall be taken to preclude the escape of smoke beyond the boundaries of the Petitioner's property, and that such fuel oil as is used shall be of a character to minimize smoke emissions.

3. Olin Corporation shall submit a monthly report, the first being no later than February 1, 1971, 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 this variation.
4. If the Environmental Protection Agency advises the Board that the open burning of explosive waste by Olin Corporation pursuant to this variance 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 at the hearing date and shall be allowed to participate in said hearing. As a result of such hearing, the Board may terminate the variance granted herein prior to December 1, 1971.
5. The variation extension hereby granted shall terminate upon the establishment of suitable 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 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 December 1, 1971.

Because the variance involved in the present case is principally a disposal of previously accumulated explosive wastes and contaminated structures not requiring the installation of any new equipment and is a consequence of the abandonment of an existing facility, the Board does not believe a bond in this matter should be required.

I concur:

David M. Gurnea

Richard G. Gault

Jacob D. Trumelle

Samuel R. Aldrich

I dissent:

I, Regina E. Ryan, certify that the Board adopted the above Opinion this 12 day of December, 1970.

Regina E. Ryan
 Regina E. Ryan
 Clerk of the Board