

ILLINOIS POLLUTION CONTROL BOARD  
December 20, 1973

AMOCO OIL COMPANY	)	
PETITIONER	)	
AMOCO CHEMICALS CORP.	)	PCB 73-397
PETITIONER	)	73-398
v.	)	73-399
	)	73-400
	)	73-401
ENVIRONMENTAL PROTECTION AGENCY	)	
RESPONDENT	)	
	)	

RICHARD J. GOETSCH, ATTORNEY, in behalf of AMOCO  
THOMAS A. CENGEL, ASSISTANT ATTORNEY GENERAL, in behalf of the ENVIRONMENTAL PROTECTION AGENCY

OPINION AND ORDER OF THE BOARD (by Mr. Harder)

This case comes to the Board on amended petitions of Amoco Oil Company for variances. The original petitions were filed as follows: PCB 73-397 and PCB 73-398 were filed September 24, 1973; PCB 73-399, 400, and 401 were filed September 25, 1973. On September 26, 1973, the Board ordered the petitions for 73-397 and 73-398 inadequate because they did not adequately relate the environmental consequences of the variances if granted. The Petition for 73-399 was inadequate in that it did not state the effects upon surrounding air quality of the emission of 2093 lbs. of sulphur dioxide during a two-hour period every four days. The petitions for 73-400 and 401 were not adequate in that no statements (except a conclusory one) were given as to the effects upon the environment and upon the public at large. Amended petitions were filed October 25, 1973.

PCB 73-397 requests a variance from Rule 205 (C) of the Air Pollution Regulations for the operation of an oil-water separator (Area C separator), Operating Permit #0 2 12 0447 I.D.# 119-115 AAE, granted on February 14, 1973, until June 30, 1974. PCB 73-398 requests a variance from Rule 205 (g) of the Air Pollution Regulations for the operation of a catalytic reforming unit (Permit #0 2 11 0585 ID# 119 115 AAA granted on April 5, 1971) until June 30, 1974. PCB 73-399 requests a variance from Rule 204 (F) of the Air Pollution Regulations for operation of a multi-purpose additives plant (Permit #0 2 11 0588 ID# 119 115 AAA granted on June 28, 1973) until June 30, 1974. PCB 73-400 requests a variance from Rule 205 (G) of the Air Pollution Regulations for a detergent additive plant (Permit #0 2 11 0482 I.D.# 119 115 AAD, granted February 7, 1973) until June 30, 1974. PCB 73-401 requests a variance from

Rule 205 (G) of the Air Pollution Regulations for its multi-purpose additive plant, mentioned in PCB 73-399, until June 30, 1974.

The Agency recommendations in these matters, filed November 14, 1973, recommended a grant of the variances. The matters were heard during consolidated hearings on November 20, 1973.

Amoco operates a refinery located in Wood River, Madison County, Illinois. This refinery is capable of processing 110,000 barrels of oil per day.

On hearing Mr. E. J. Sullivan, project engineer for air and water conservation at the Wood River Refinery, gave the major part of the testimony. Richard B. Schwendinger, staff ecologist with Amoco, testified as to the effects of continued emissions on the surrounding area should Amoco be granted these variances.

PCB 73-397 concerns an oil-water separator. This unit is a single compartment, gravity-type oil separator that services Amoco's crude running unit #5 and catalytic cracking unit #2 (R. 4). The oily waste from these two units flows through the separator where oil is recovered for recycling (R. 4). The separator is completely covered with a steel plate and vented through a 126 ft. stack to the atmosphere (R. 5). Water goes through the unit at 300-400 gallons per minute and oil goes through it at a rate of 4,000 gallons per day.

Contaminants discharged from this unit are 160 lbs/hr hydrocarbons equivalent methane. 90 percent of these emissions are non-methane hydrocarbons (Pet. P. 2).

Control of the emissions will be through compression and condensation. The separator will be sealed airtight and kept at a slightly positive pressure to prevent the ingress of air into the unit, in order to prevent explosions which are possible when air and hydrocarbons mix (R. 6). A compressor will remove vapors from the stack, compress them, sending liquids to be recycled and overhead gases to a smokeless flare, where the hydrocarbons will be burned, creating carbon dioxide and water (R. 6).

The witness testified (R. 7) and the Agency agreed in its recommendation (P. 2) that this control equipment will reduce hydrocarbon emissions 100%.

The witness also alleged that there was no other method to bring the unit into compliance without closing the unit down (R. 7). Should the unit be shut down, the entire refinery would have to be closed (R. 7). This would mean that there would be a loss of production of 105,000 barrels of oil per day (R. 8). Since all of Amoco's other refineries are operating very near capacity, this loss could not be recovered (R. 8). The control equipment will not be available to Amoco in time to comply with the 12/31/73 deadline. Amoco alleges and the Agency does not rebut that there will be no adverse effect on the environment should Amoco be granted this variance. No actual tests had been run on this unit, but Amoco interpolated from tests done by Air Resources, Inc., run in December 1972 and January 1973, that the Area C separator contributes only .008

ppm hydrocarbons to the ambient air. This was determined by taking the average one-hour concentration of non-methane hydrocarbons of 2.02 ppm. The average 8-hour concentration was 2.08 ppm. National standards are based on 3-hour samples. Here Amoco has determined that their 3-hour concentration would be about 2 ppm. The national standard to be obtained by 1975 is 0.24 ppm. Amoco had no way of determining the emissions of the C area separator because of the complexity of the refinery itself and its numerous discontinuous sources of hydrocarbon emissions as well as the fact that there are two other refineries in the area. Amoco postulated that because they have 25% of the refining capacity, they contribute 25% of the hydrocarbons or .5 ppm. Since the Area C separator contributes 1.6% of the hydrocarbon emissions from the refinery, this unit would be emitting .008 ppm. This logic is by no means definitive of the actual emissions from this source. The basic assumption that because Amoco has 25% of the refining capacity, it has 25% of hydrocarbon emissions does not take into account numerous variables such as emission controls on other units. Were these variances for a longer time than six months, or had the Agency questioned these figures, which were determined by a method which cannot be assumed 100% valid, additional data would be required. Without Agency rebuttal the Board will consider Petitioner's figures as fairly representative.

The Board notes that equipment delivery delays are the reason for many variances such as the ones presented here. Amoco has shown a diligent effort to bring this unit into compliance.

In its petition Amoco also alleges that there is no photochemical smog in the area because of low measures of oxides in the atmosphere (Pet. P. 5).

It is the finding of the Board that Amoco has met its burden of proof, in proving unreasonable hardship and minimal environmental impact.

PCB 73-398 concerns a catalytic reforming unit which processes low octane, heavy naphtha material from the crude running unit and catalytically reforms it into material having high-octane qualities for blending of gasoline (R. 11).

Emissions from the units are hydrocarbons. Points to be controlled in the unit are its blow-down system and 3 other points in the reactors (R. 11).

Control will be brought about by capping all emission sources and routing the vapor to a smokeless flare to be installed in the refinery (R. 12) Evidence showed that this control method will bring about a 100% reduction in the emissions from this unit. It was also proved that certain internal changes in the system have already reduced emissions on one point source from 105 #/hr to 18 lbs/hr (R. 15). The other emission from this unit is approximately 375 to 690 lbs. of hydrocarbons once or twice a week.

The only way Amoco can bring this unit into compliance by December 31,

1973, is to shut it down (R. 15). Shutting down the unit would cause a net loss in gasoline production as the unit produces 8,000 to 9,000 barrels of reformate a day. These statements constitute the alleged hardship.

Emissions from this unit were calculated to be .0055 hydrocarbons, using the same conjectural method used in PCB 73-397. Amoco alleges and the Agency concurs that the granting of this variance will not have a hindering effect on progress toward achieving the 1975 Federal hydrocarbon standard (Agency Rec. P. 3).

There have been no complaints from the public on this process (Agency Rec. P. 7).

Again in this petition, as in the others, Amoco has shown diligent effort to meet the scheduled compliance date, but because of problems with suppliers and equipment delivery delays, they cannot meet these compliance dates.

The Board finds that Amoco has met the burden of proof for a variance under Section 35 of the Environmental Protection Act.

PCB 73-399 concerns a multi-purpose additive plant. This plant produces a number of different additives for motor oil, diesel lube oil, and specialty use additives. The plant has five different sections and produces 13 different products (R. 18).

The problem here is with sulphur dioxide emissions which are produced when the plant is turning out a sulphur scavenger. This process takes 48 hours per batch. During the process it is necessary to strip out one of the reactants and remove the hydrogen sulfide that is formed in the process. These materials are presently being disposed of by flare, but this burning causes sulphur dioxide (R. 18).

The control method planned for this unit will route materials from the plant to a chiller. The material will then pass to a separator where the liquids will drop out and flow to a receiver. The gas will then pass through a second chiller to remove all of the liquid from the gas. From there the hydrogen sulfide will be transported to an existing absorption system, where it will be disposed of (R. 19). This processing should reduce sulphur dioxide emissions 100% (R. 20).

This project has been delayed and cannot be completed by the scheduled compliance date, because of delays in receiving the refrigerator equipment (R. 20).

Testimony alleges that the only way to bring the plant into compliance is by closing it down. This would create a severe shortage in LPG gas, in which the sulphur scavenger is used, because according to testimony Amoco at Wood River is the sole supplier of this product.

Amoco alleges, and the Agency agrees, that the granting of this variance will not adversely affect the quality of the environment around the plant. The data provided is again figured by the same method as used in the hydrocarbon data. It was also shown that no adverse effects could be de-

terminated from the sulphur dioxide emissions to plant vegetation or to workers in the plant or to citizens in areas surrounding the plant (R. 38). This source contributes .0013 ppm sulphur dioxide (R. 22).

The Agency in its recommendation (P. 3) states that Amoco's control program will aid in achieving the 1975 Federal Ambient Air Quality Standard for sulphur dioxide. Ambient air monitoring indicates concentration of 0.438 ppm maximum 1 hour average and 0.032 ppm 24 hr. average, against a standard of 0.14 ppm maximum 24 hr.

The Board finds Amoco has met its burden of proving hardship and explaining the lack of environmental harm in the instant case, and the variance will be granted.

PCB 73-400 and PCB 73-401 concern different units, but these units have the same type of emission problems and control procedures proposed (R. 31). 73-400 involves hydrocarbon emissions from a detergent additive plant and 73-401 concerns the multi-purpose additive plant that was discussed in 73-399.

The problem emissions arise when filter aid is added to reaction kettles, pre-coat mix tanks and filter pre-coat mix tanks.

The emissions enter the atmosphere when a nitrogen purge is added to these tanks to allow the operator to add the filter aids (R. 24-25). Hydrocarbons are carried off with the nitrogen and vented to the atmosphere. Some of the tanks have uncontrolled nitrogen blankets which carry hydrocarbons off to the atmosphere (R. 25).

The proposed control method for those units will make these a closed handling system wherein the nitrogen blanket and filter aid addition will be done automatically and under pressure (R. 25-27).

The work is scheduled to be completed on these units around April 1, 1974 (R. 27). The reason for this late date is delay in receiving material and equipment delivery from suppliers (R. 28).

Testimony showed and was not rebutted that if these variances are not granted, the only way Amoco can comply with the regulations is to close down the units (R. 28, 33).

It is alleged that to close down the units would cause Amoco, and those it supplies, to go out of the motor oil business. This is because of the delay in getting new sources of additives and testing them with the produced oil. Such testing would take longer than the period of these variances (R. 29-34).

The Petitioner has brought forth figures based on the method used in PCB 73-397 to determine that the detergent additive plant emits .002 ppm hydrocarbons (R. 32) and the multi-purpose additive plant emits .0075 ppm hydrocarbons (R. 29). The Agency in its recommendation believes that Amoco is dealing with the problem in good faith and that these emissions will not hinder the attainment of the Federal Air Quality Standards

by 1975.

The Board will grant a variance for the equipment outlined in PCB 73-400 and 73-401.

It is truly unfortunate that variance cases such as these must be determined on records that are very difficult for the Board to deal with. Were it not for the fact that Amoco will be bringing the subject units into complete compliance and the fact that these variances are for a short period of time, the Petitioners would be required to provide more definitive environmental impact statements.

In granting a variance, it is the duty of the Board to weigh the hardship of Petitioner against the effect the variance will have on the community. In this record the data on environmental impact to the community is mostly conclusory. The Board would like to see supporting documents as to the way environmental impact is determined. The Board needs facts, not conclusions or assumptions, on which to base a decision. Should Amoco petition for extension of this variance or future variances for the Wood River Refinery, thorough studies of the environmental impact, or source data as to conclusions stated in this matter, shall be presented before the Board will consider giving a favorable ruling.

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:

1. A variance is granted Petitioner from Rule 205 (C) for the operation of an oil-water separator (Permit # 0 2 12 0447 ID# 119 113 AAE) until June 30, 1974, or until its control program is completed, whichever is sooner. Petitioner shall apply for all necessary operating and construction permits for this project and shall notify the Agency upon completion of the program.

2. A variance is granted Petitioner from Rule 205 (g) for the operation of a catalytic reforming unit (Permit # 0 2 11 0585 ID# 119 115 AAA) until June 30, 1974, or until its control program is completed, whichever is sooner. Petitioner shall apply for all necessary operating and construction permits for this project and shall notify the Agency upon completion of the program.

3. A variance is granted Petitioner from Rule 204 (F) for the operation of a multi-purpose additive plant (Permit # 0 2 11 0588 ID# 119 115 AAA) until June 30, 1974, or until its control program is completed, whichever is sooner. Petitioner shall apply for all necessary operating and construction permits for this project and shall notify the Agency upon completion of the program.

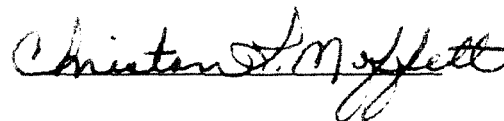
4. A variance is granted Petitioner from Rule 205 (g) for the operation of a detergent additive plant (Permit # 0 2 11 0482 ID# 119 115 AAD) until June 30, 1974, or until its control program is completed, whichever is sooner. Petitioner shall apply for all necessary operating and construction permits for this project and shall notify the Agency upon completion of the program.

5. A variance is granted Petitioner from Rule 205 (g) for the operation of a multi-purpose additive plant (Permit # 0 2 11 0588 ID# 119 115 AAA) until June 30, 1974, or until its control program is completed, whichever is sooner. Petitioner shall apply for all necessary operating and construction permits for this project and shall notify the Agency upon completion of the program.

6. Respondent shall, within thirty days from the date of this Order, post a performance bond in a form satisfactory to the Agency in the amount of \$50,000, guaranteeing installation of air pollution control equipment as ordered above.

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 20th day of December, 1973, by a vote of 5 to 0.

A handwritten signature in cursive script that reads "Christan L. Moffett". The signature is written in dark ink and is positioned to the right of the typed text.