

ILLINOIS POLLUTION CONTROL BOARD
May 29, 1975

AMOCO OIL COMPANY,)	
)	
Petitioner,)	
)	
vs.)	PCB 75-104
)	
ENVIRONMENTAL PROTECTION AGENCY,)	
)	
Respondent.)	
AMOCO OIL COMPANY,)	
)	
Petitioner,)	
)	
vs.)	PCB 75-105
)	(Consolidated)
ENVIRONMENTAL PROTECTION AGENCY,)	
)	
Respondent.)	

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

Amoco Oil Company operates a refinery in Wood River, Madison County, Illinois which is capable of processing up to 110,000 barrels of crude petroleum per day. Operations at this refinery include: atmospheric fractionation, vacuum fractionation, fluid catalytic cracking, catalytic reforming, butene polymerization, sulfuric acid alkylation, distillate oil and gasoline treating, gasoline blending, distillate fuel blending, residual fuel blending, asphalt manufacture and the manufacture of additives for gasoline, distillates, motor oils and diesel lubricating oils.

The Wood River refinery is Amoco's third largest refinery and one of ten in the Amoco system. Products from this refinery include: non-saleable fuel gasses for consumption by Amoco, LPG, chemical grade propylene concentrate, special naphthas, motor gasolines, jet fuels, distillate fuels, diesel fuels, residual fuels, road oils and paving asphalts, industrial asphalts, polybutenes, cable oils and various fuel and lubricant additives.

In PCB 75-104 Amoco seeks a one-year variance from Rule 204(d) of the Air Pollution Control Regulations for continued operation of fuel combustion equipment pending completion of its compliance program. Rule 204(d) limits the emission of sulfur dioxide from the burning of combined fuels. Affected equipment in this case includes 6 steam boilers, 11 process furnaces, 2 fume destructors and 3 safety flares. In PCB 75-105 Amoco seeks variance from Rule 203(d)(1) from May 30, 1975 through November 30, 1975 to allow operation of a fluid catalytic cracking unit pending installation of particulate emission control equipment. Rule 203(d)(1) provides particulate emission rates for catalyst regenerators of fluidized catalytic converters. These Petitions for Variance were consolidated by Board Order.

PCB 75-104

Sulfur dioxide emissions from Petitioner's refinery averaged 3,800 lbs./hr. in 1973 and 3,260 lbs./hr. in 1974. Petitioner does not supply information on the types and combinations of fuels burned, the actual heat input from these fuels or the applicable sulfur dioxide emission standard for the fuels involved. The Agency states that Petitioner's 1974 SO₂ emissions are equivalent to 1.99 lbs. per 10⁶ Btu in contrast to the 1 lb. per 10⁶ Btu limit imposed by Rule 204(d) based upon the type of fuels utilized at the refinery. Petitioner states that its SO₂ emission will be about 1500 lbs./hr. when compliance is achieved, depending on the level of operations and consequent heat input (Petitioner Exhibit F).

On April 16, 1975 the U. S. Supreme Court handed down its Opinion in Train, Administrator, Environmental Protection Agency, et al vs. Natural Resources Defense Council, Inc., et al (No. 73-1742). In brief, the U. S. Supreme Court ruled that the Clean Air Act authorizes states to grant variances from implementation plan requirements if such variances do not interfere with the attainment or maintenance of national ambient air quality standards.

Illinois is required to attain the ambient air standards by July 31, 1975 but the Illinois Implementation Plan provides for the grant of variances in accordance with the provisions of the Illinois Environmental Protection Act. Therefore, this Board can grant individual variances beyond July 31, 1975 if the variances do not interfere with the attainment and subsequent maintenance of national ambient air quality standards. (See: Opinion and Order of the Board in Texaco, Inc. vs. EPA, PCB 75-59, May 8, 1975).

The record in this case contains SO₂ ambient air quality data obtained from the Agency's Wood River Station 03 for the period 1969 through 1973 and Amoco's Mobile Van for 1972 through 1974. These data were tabulated by Petitioner as follows (Petitioner Exhibit F):

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
IEPA, WR Station 03						
Annual Arith. Mean, ppm	0.040	0.017	0.018	0.028	0.027	NA
Mas. 24-Hr. Avg., ppm	-	-	-	-	0.173	NA
Amoco Mobile Van						
Annual Arith. Mean, ppm	-	-	-	0.021	0.014	0.039
Max. 24-Hr. Avg., ppm	-	-	-	0.16	0.13	0.54
No. Days Above 0.14 ppm	-	-	-	1	0	13

These data indicate that the primary ambient SO₂ standards (an annual arithmetic mean not to exceed 0.03 ppm and a 24-hour average of 0.14 ppm not to be exceeded more than once a year) were met in 1972 and 1973. Data from the Mobile Van indicates that both standards were exceeded in 1974.

Noting that the 24-hour standard was exceeded on 13 occasions in 1974, Petitioner states that the wind never blew from Amoco sources to the monitor on six of the dates. On two other dates, no significant concentrations of SO₂ were recorded during periods when the wind carried emissions from Amoco sources toward the monitor, according to Petitioner.

On the remaining five dates, Petitioner states that the wind passed through the refinery to the monitor, although not necessarily directly from an Amoco source to the monitor. While admitting that Amoco sources made some contribution to the ambient concentrations, Amoco believes that it "can be reasoned" that these "excursions" were not caused by fuel combustion in the refinery. Petitioner further reasons that, since 1972 and 1974 operations constituted about 91% of the peak 1973 operations, the refinery's SO₂ emission "could not have been the cause of poorer ambient air quality in 1974".

Petitioner states that the national ambient air standard for SO₂ "has been achieved in the Wood River area with uncontrolled emissions of sulfur dioxide from fuel combustion in Amoco's Wood River refinery". On this basis, Amoco submits that fuel combustion operations at its Wood River refinery, prior to compliance with Rule 204(d), "will not have an adverse effect on the health and well-being of the community".

The Board is unable to reach the same conclusions as Petitioner especially in view of Petitioner's own monitoring results. Amoco data showing an annual average of 0.039 ppm and a maximum 24-hour average of 0.54 ppm and 13 days above 0.14 ppm do not constitute proof that the primary standard has been met in Wood River. On the contrary the data clearly show that the standards are not being met. Agency monitoring data for the Wood River area of 1974 is not a part of this record.

The Agency Recommendation does not discuss the ambient air quality data except to state, without detail, that complaints had been received concerning emissions from the refinery. The Agency does note however, that the U. S. EPA issued a Notice of Violation pursuant to Section 113(a)(1) of the Clean Air Act to Amoco on January 29, 1975 concerning the SO₂ emissions from Amoco's boilers. Amoco has submitted its schedule for achieving compliance to the U. S. EPA. No order has been issued by the U. S. EPA in this matter.

The record is simply not sufficient, under the guidelines of the recent U. S. Supreme Court decision, for the allowance of this variance concerning SO₂ emissions. Data from Petitioner's own monitors indicate that the Wood River area has not yet attained either of the primary SO₂ standards. We are unable to conclude that Amoco's emissions will not interfere with attainment or maintenance of national ambient air quality standards.

Economic data submitted by Petitioner indicates that Amoco's Wood River refinery constitutes about 10% of the total Illinois refinery capacity. Petitioner states that the shutting down of its refinery would increase refinery product importation into the midwest by about 10%, cause Petitioner to lose the only Amoco location where additives from motor oils and diesel lubes are produced, and cause a loss of jobs and income for 225 refinery employees. Petitioner is advised, however, that the denial of variance is not an order to shut down operations, but is simply our determination that the record does not justify a shield from prosecution.

Amoco plans to meet the SO₂ standard of Rule 204(d) by constructing fuel oil desulfurization equipment and by using the expanded desulfurizing facilities of the Anlin Company for treating refinery fuel gas. The liquid fuel desulfurization unit is scheduled to be completed in September 1975. Anlin projects that it will start up its expanded desulfurization facilities during September 1976. The Agency believes that Petitioner's program will reduce SO₂ to the level allowed by Rule 204(d) and that the time schedule for achieving compliance submitted by Amoco is reasonable.

The record in PCB 75-104 is not adequate for the allowance of a variance from Rule 204(d) and the Petition will be denied without prejudice. If Amoco decides to submit a new petition for variances from Rule 204(d) such petition must more adequately address the air quality issue.

PCB 75-105

In this case Amoco seeks a variance from Rule 203(d)(1) of the Air Pollution Control Regulations from May 30, 1975 to November 30, 1975 pending installation of an electrostatic precipitator to control particulate emissions from a catalytic cracking unit.

Amoco originally scheduled completion of the electrostatic precipitator project by May 1, 1975 so that the cracking unit would be in compliance by May 20, 1975. Mechanical construction of the precipitator is reported to be essentially complete and electrical construction is in progress. Late delivery of the waste heat recovery unit and necessary duct work has caused Amoco to revise its Project Completion Schedule. The Schedule now shows completion of the precipitator by August 1, 1975, start-up by August 15, 1975 and compliance achieved by August 31, 1975. Amoco submits that its failure to achieve compliance rests solely with the equipment delivery delays over which it had no control.

Fine catalyst particles fluidized in the catalyst regenerator tend to exit the regenerator with the effluent flue gas. Dual internal cyclones with a calculated over-all efficiency of 99.99+% recover catalyst from the flue gas. Using a material balance method, it is calculated that particulate emissions average 92 lbs. per hour. Based on a catalytic circulation rate of 1200 to 1500 tons per hour, Rule 203(d)(1) limits Amoco to emissions from the catalytic regenerator of 80 to 83 lbs./hr. When completed, the 94% efficient precipitator should reduce these particulate emissions to less than 10 lbs. per hour.

Petitioner has submitted suspended particulate data taken from the Agency's 1973 Illinois Air Sampling Network Report as follows:

Alton-Wood River Trends

Year	Annual Geometric Mean - ug/M ³						
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
<u>Sampling Station</u>							
Alton 01	100	93	106	86	80	88	69
Wood River 01	111	83	134	116	102	-	-
" " 03	-	-	158	115	101	94	79
" " , Sewer Plant	-	106	-	-	-	-	-

1973 Suspended Particulate

<u>Sampling Station</u>	<u>Number of Samples</u>	<u>ug/M³</u>	
		<u>Maximum 24 Hour Average</u>	<u>Annual Geometric Mean</u>
Alton 01	46	146	69
Wood River 03	57	153	79
National Primary Standard	-	(260)	(75)

The above data indicate that suspended particulates in the Wood River area have been on the decline since 1967. The 1973 data show that the Wood River area was only slightly above the annual primary standard of 75 ug/M³. The maximum 24-hour standard of 260 ug/M³ was not exceeded in the Wood River area during 1973. The continuation of the downward trend would have brought the area within the annual primary standard by this date.

As Petitioner notes, the declining ambient concentrations of particulate matter have occurred despite the fact that emissions from the cracking unit have remained relatively unchanged during the same period of time. Emissions now are only slightly above both the allowable rate under Rule 203(d)(b) and the primary standard.

On the record presented, the Board finds that Petitioner has met the burden of proof required to obtain a variance from Rule 203(d)(1). Petitioner's good faith efforts to achieve compliance has been delayed through no fault of its own.

Data indicate that Petitioner's particulate emissions do not pose a threat to the attainment and maintenance of the primary standard for particulate matter.

Although Amoco believes that compliance with the emission standard can be achieved by August 31, 1975, variance is sought until November 30, 1975 to "cover possible further delivery delays that cannot be foreseen". The Agency recommends the grant of variance until November 30, 1975 or such earlier date as the electric precipitator project is completed. The Board certainly recognizes Petitioner's delivery problems, but a cushion of 3 months in meeting the schedule is excessive. We will allow one extra month for delivery delays. Variance from Rule 203(d)(1) will be allowed until September 30, 1975 or such earlier date as compliance is achieved.

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

ORDER

It is the Order of the Pollution Control Board that:

1. The variance petition of Amoco Oil Company from Rule 204(d) of the Air Pollution Control Regulations is denied without prejudice.

2. Amoco Oil Company is granted variance from Rule 203(d)(1) of the Air Pollution Control Regulations until September 30, 1975 for the purpose of completing installation of an electrostatic precipitator on a catalytic cracking unit at Amoco's Wood River refinery. This variance is subject to the following conditions:

- A. Petitioner shall apply for and obtain all necessary permits for installation of the electrostatic precipitator.
- B. Petitioner shall submit progress reports to the Environmental Protection Agency on June 30, 1975, July 31, 1975 and August 31, 1975. Said progress reports shall provide details of Amoco's progress towards completion of the electrostatic precipitator project.

Mr. Dumelle concurs in PCB 75-104 and dissents in PCB 75-105.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 29th day of May, 1975 by a vote of 5-0 in PCB75-104 and 4-1 in PCB75-105.


Christan L. Moffett, Clerk
Illinois Pollution Control Board