

ILLINOIS POLLUTION CONTROL BOARD  
December 14, 1978

SHELL OIL CO., )  
)  
Petitioner, )  
)  
v. ) PCB 78-190  
)  
ENVIRONMENTAL PROTECTION AGENCY, )  
)  
Respondent. )

MS. BARBARA LITTLE EVANS APPEARED ON BEHALF OF PETITIONER.  
MR. REED NEUMAN, ASSISTANT ATTORNEY GENERAL, APPEARED ON BEHALF OF  
RESPONDENT.

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

Shell Oil Co. (Shell) filed a Petition for Variance on July 24, 1978. Shell seeks a variance from Rule 204(f)(1)(A) of the Air Pollution Regulations (Chapter 2 of the Board's Rules and Regulations) for a sulfur recovery unit (SRU-2) at its petroleum refinery located in Wood River, Madison County, Illinois. The Environmental Protection Agency (Agency) filed its Recommendation on August 28, 1978. A hearing was held on October 30, 1978 in Edwardsville; no citizen witnesses testified.

The purpose of the SRU-2 unit at the Wood River Refinery is to control sulfur dioxide emissions and recover sulfur from Shell's refinery as well as from refineries owned by Clark Oil Co. and Amoco Oil Co. Until April, 1976, the sulfur recovery facilities used by Shell were owned by Anlin Co. In 1973, Shell, Clark and Amoco contracted with Anlin to build additional sulfur recovery capacity at Wood River to provide capacity for Shell to process higher sulfur crude oil and to provide sulfur recovery capacity for Clark and Amoco. Anlin, therefore, designed SRU-2, utilizing a unique process intended to meet Rule 204(f)(1)(A) whereby the final converter operates below the dew-point of sulfur to significantly improve sulfur recovery capability over the conventional process.

In April, 1976, Shell exercised an option to purchase and acquired the facilities. Construction of SRU-2 was completed in October, 1976, and the unit was started-up in November. In subsequent months, however, Shell became aware of serious deficiencies and operating problems which rendered SRU-2 unreliable. These included problems with the utilities system, inability of the unit to handle hydrocarbons, and inadequate winterizing, all of which were corrected. Shell also found that much of the equipment used in the unique process design was ineffective and inoperable and was not able to bring about compliance with Rule 204(f)(1)(A). Beginning in December, 1977, Shell reengineered the design and modified the equipment at a cost of \$500,000 in an effort to meet the 2000 ppm SO<sub>2</sub> standard. However, pretesting indicated that the plant still could not meet the standard.

Shell now intends to install a Shell Claus Off-Gas Treatment Unit (SCOT unit) at an approximate cost of \$15,000,000 to meet the standard and requests a variance for a period of eighteen months. Construction of the proposed SCOT unit is to begin by September 1, 1978, and is to be completed by October 1, 1979. Final compliance is to be achieved by November 1, 1979. Shell's construction schedule is attached to the Petition as Exhibit D. The Agency believes that the proposed equipment will bring about compliance with the standard and that the schedule for installation of the equipment is reasonable.

Rule 204(f)(1)(A) sets a 2000 parts per million SO<sub>2</sub> standard for process emission sources. Until the SCOT unit is in operation, the two trains of the SRU-2 unit will run without switching of converters, and the SO<sub>2</sub> emissions will be 13,000 parts per million. Present SO<sub>2</sub> emissions from SRU-2 are 2,937 pounds per hour, which is approximately 12,829 tons per year. The Agency calculated the allowable emissions under Rule 204(f)(1)(A) to be equivalent to 1,974 tons per year.

The sampling station nearest to SRU-2 reported the annual arithmetic mean for SO<sub>2</sub> to be .025 ppm in 1977, which, although the highest average in the State in 1977, is below the primary ambient air quality standard. Wood River recorded one excursion (no violation) of the 24-hour primary standard (Petitioner's Exhibit A, p.105). The Wood River Area is presently unclassified as an attainment or non-attainment area for SO<sub>2</sub> (Federal Register Vol. 43, p. 8987, March 3, 1978). The Board finds that operation of SRU-2 for the duration of the requested variance would not prevent attainment or maintenance of the ambient air quality standards for sulfur dioxide.

Shell claims and the Agency agrees that denial of the requested variance would result in an arbitrary and unreasonable hardship. Shell has diligently attempted to achieve compliance. Shell spent \$500,000 redesigning SRU-2 to meet the standard and now proposes to spend an additional \$15,000,000 to build the SCOT unit, which should result in compliance. In fact, Shell indicated at the hearing

that the SCOT unit can meet Federal New Source Performance Standards for a sulfur plant (R. 22). Furthermore, the SRU-2 unit is the primary air pollution control for not only Shell's refinery but also the nearby refineries owned by Clark and Amoco. The Board finds that the harm to the environment caused by granting of this variance is so outweighed by the hardship to Shell which denial would impose as to render that hardship arbitrary and unreasonable. We will, therefore, grant the requested variance.

Shell has requested and the Agency has recommended that the variance be granted until November 1, 1979. Section 35 of the Environmental Protection Act was recently amended to require that variances granted by the Board be consistent with the Clean Air Act of 1977 (42 U.S.C. 7401 et seq.). Section 113(d) of the Clean Air Act allows the Board to grant sources a delay in compliance from any requirement in the State Implementation Plan (SIP) only until July 1, 1979. Both Shell and the Agency argue, however, that if a variance meets the procedural requirements of notice and hearing, which in this case have been met (R. 18-19), it may be submitted to the U.S. Environmental Protection Agency as a revision to the State Implementation Plan pursuant to Section 110 of the Clean Air Act. The Board agrees with this interpretation. We will, therefore, grant the variance until November 1, 1979, subject to the condition that it be submitted to and approved by the U.S. Environmental Protection Agency as a revision to the Illinois State Implementation Plan. If the variance is not approved as a State Implementation Plan revision, it will terminate on July 1, 1979, and Shell will be subject to non-compliance penalties if compliance has not been achieved.

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 Shell Oil Co. is hereby granted variance from Rule 204(f)(1)(A) of Chapter 2 for its Wood River Refinery until November 1, 1979, subject to the following conditions:

1. This variance shall terminate on July 1, 1979 if it is not submitted to and approved by the U.S. Environmental Protection Agency as a revision to the Illinois State Implementation Plan;

2. Shell Oil Co. shall within 45 days of the date of this Order furnish to the Illinois Environmental Protection Agency a performance surety bond in the amount of \$50,000 to be released upon timely completion of the project on November 1, 1979;

3. Shell Oil Co. shall, by November 1, 1979, apply for an operating permit for SRU-2 and submit to the Agency stack test results which show compliance with the standard;

4. Shell Oil Co. shall at least five days prior to the stack tests notify the Manager, Illinois Environmental Protection Agency, Region III, 115A West Main Street, Collinsville, Illinois (phone number 618/345-0700) of the dates and times of the stack tests and permit Agency personnel to be present during the stack tests;

5. Shell Oil Co. shall submit progress reports on October 1, 1978; January 1, 1979; April 1, 1979; July 1, 1979; and October 1, 1979 to the Agency's Region III at Collinsville at the address mentioned in paragraph 4 above;

6. Shell Oil Co. is hereby notified that, if compliance is not achieved by July 1, 1979, it may be subject to non-compliance penalties pursuant to Section 120 of the Clean Air Act of 1977;

7. Within forty-five of after the date of this Board Order Shell Oil Co. shall execute and send to: Mr. John D. Williams, Technical Advisor, 2200 Churchill Road, Springfield, Illinois 62706, a certification of acceptance of this variance by which it agrees to be bound by its terms and conditions.

This forty-five day period shall be held in abeyance for any period which this matter is appealed. The form of said certification shall be as follows:

CERTIFICATION

I (We) \_\_\_\_\_ having read and fully understanding the Order of the Illinois Pollution Control Board PCB 78-190 hereby accepts the said Order and agrees to be bound by all terms and conditions thereof.

SIGNED \_\_\_\_\_

TITLE \_\_\_\_\_

DATE \_\_\_\_\_

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 14<sup>th</sup> day of December, 1978 by a vote of 3-0.

Christan L. Moffett  
Christan L. Moffett, Clerk  
Illinois Pollution Control Board