

ILLINOIS POLLUTION CONTROL BOARD

April 8, 1976

UNION OIL COMPANY OF CALIFORNIA, )  
 )  
Petitioner, )  
 )  
v. ) PCB 75-342  
 )  
ENVIRONMENTAL PROTECTION AGENCY, )  
 )  
Respondent. )

Messrs. Arthur T. Lennon, E. Kent Ayers, and Paul G. Chromek, Attorneys, appeared for the Petitioner;

Mr. John T. Bernbom and Ms. Barbara Revak, Attorneys, appeared for the Respondent.

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

Petitioner Union Oil Company of California (Union) owns and operates a petroleum refinery located two miles west of Lemont, Illinois, known as its Chicago Refinery. The refinery is capable of processing approximately 150,000 barrels of crude oil per day, produces a complete line of petroleum products, and has a work force of approximately 650 employees. Certain operations within the Chicago refinery, principally the fluid catalytic cracker (FCC), generate cyanide-bearing wastewater streams. Concentrations of cyanide in the refinery's wastewater may exceed the 0.025 mg/l effluent limitation in Rule 408(a) of Ch. 3: Water Pollution, of the Board's Rules and Regulations. Union here seeks a Variance for those effluents.

Essentially identical Variance requests have been the subject of two previous Board Opinions and Orders. Union Oil Company v. EPA, PCB 74-333, 14 PCB 623 (December 5, 1974); Union Oil Company v. EPA, PCB 72-447, 10 PCB 217 (December 6, 1973). The Board's Opinions there fully describe the operations of Union's refinery, and the sources of the cyanide in its wastewaters, and need not be repeated here.

Beginning in PCB 72-447, and continuing under PCB 74-333, the Board granted Union variances for the Chicago refinery which allow effluents with considerably greater cyanide concentrations than are allowed under Rule 408(a). In both cases, Union was permitted to discharge an average of 0.20 mg/l total cyanide during the period of the Variance, with no single monthly average to exceed 0.30 mg/l. The Board based those Variance grants on findings that:

1. Union would indeed suffer a considerable hardship were the Variances not granted. 14 PCB at 626; 10 PCB at 223.

2. Union's cyanide discharges would not cause significant environmental harm. Id.

3. Union was proceeding in good faith in attempts to achieve compliance with the cyanide discharge regulation. 14 PCB at 627.

4. Significant problems and uncertainties existed in the areas of:

a. Wastewater treatment to achieve the 0.025 mg/l cyanide concentration limit under Rule 408(a).

b. Technology for the measurement of cyanide concentrations at the 0.025 mg/l level.

c. The toxicity of cyanide, in various simple and complex forms, at the 0.025 mg/l level. 10 PCB at 219-223; 14 PCB at 624, 625.

Both PCB 72-447 and PCB 74-333 were Variances of the "research" type. The Board found that, in light of the difficulties discussed in paragraph 4, above, Union could not be required to commence a definite, specific program for compliance with the 0.025 mg/l standard of Rule 408(a). See, 10 PCB at 223, and cases cited. Instead, the Board required that Union investigate a number of possible alternative methods for the treatment of cyanide. In the more recent of the two cases, PCB 74-333, the Board noted that Union had narrowed its field of research to two specific processes: water recycle/reuse, with final incineration of all cyanide-bearing wastewaters; and an ammonia polysulfide injection process. The Board also noted, again in the more recent Variance, that the entire area of cyanide discharges was under review in the regulatory proceeding R74-15, -16. 14 PCB at 627. Partially as a result of this latter regulatory review, the Board reached no decision in either of the two prior cases on any of the problems outlined in paragraph 4(a), (b), and (c) above.

Nor need we do so here. Union now seeks its Variance only until the final completion of its ultimate compliance plan for the cyanide-bearing wastewaters in question: the incineration process mentioned above and in PCB 74-333. Union now states that, upon the completion of this compliance plan, all cyanide in the relevant wastewaters will be completely incinerated. There will be no cyanide discharges.

Since the Board's decision in PCB 74-333, Union has abandoned its attempts to use the polysulfide injection system for cyanide control. Union has, however, proceeded to install a temporary incineration system. Under that system recycled, concentrated cyanide-bearing wastewater, amounting to approximately 50 gallons per minute, are piped to the nearby Collier Carbon and Chemical Company Lemont facility. The cyanide-bearing wastewaters are there used as quench water for a petroleum coke calcining process. The material being quenched is in excess of 2,000°F., and is more generally in the area of 2,500°F. (R.40). All cyanide contained in Union's cyanide-bearing wastewaters is totally oxidized and destroyed in the quenching process.

Union requests a two-year Variance, until December 6, 1977, to allow the replacement of the current, temporary facilities with a permanent incineration system. In support of that request, Union presented evidence at a hearing held on November 10, 1975, which the Board found invalid, for lack of a hearing officer, in an Interim Order dated December 4, 1975. A valid hearing was then held on January 16, 1976 in Joliet.

We find that the incineration plan which Union has chosen will constitute an acceptable plan for compliance with the existing 0.025 mg/l cyanide standard in Rule 408(a). The fact that incineration will eliminate the cyanide in Union's wastewater was shown by witnesses at the January 16, 1976 hearing (e.g., R.37), and was agreed to by the Agency in its Recommendation submitted October 9, 1975.

In addition, the Board's finding in the two earlier Variance cases that environmental damage under the Variance would not be great is again supported, and even strengthened. Figures presented in the Agency's Recommendation and in Petitioner's Exhibit 1 show that Union has been quite successful in its attempts to control the cyanide concentrations in its wastewater effluent, to the extent that the levels achieved during the last Variance period (PCB 74-333) were far below the limitations set as conditions.

Several matters do, however, remain for consideration. In the Board's Interim Order of December 4, 1975, we found the record in this case inadequate in three specific respects. In addition, the Agency's Recommendation and testimony at the January 16, 1976 hearing raised two further issues: (1) the appropriate interim standards for cyanide to be applied during the Variance period, should one be granted; and (2) the necessity of permits under Union's compliance plan of total incineration.

First, in answer to the Board's Interim Opinion, Union states that cyanide discharges under the Variance, during the replacement of the current temporary incineration system, would not be different from those experienced over the last year of operation, (R.23). Since those levels were within the standards set by condition in PCB 74-333, we find that those levels would be acceptable.

Second, the Board's December 4, 1975 Interim Order also noted that Petitioner had failed to show that the final incineration plan would achieve compliance with the applicable regulation. Testimony at hearing indicated that the qualifications in Union's Petition, regarding periods of non-compliance, referred only to situations beyond Union's control. These included such factors as acts of God, labor strikes, and the like, (R.11-12). We find Union's explanation satisfactory in this regard.

Third, testimony at the January 16, 1976 hearing indicated that Union has complete control over the adjacent Collier facility. As a result, the excess heat at Collier's facility, which is necessary for complete oxidation of Union's cyanide wastes, is permanently available for that purpose.

Fourth, regarding the interim standards to be set during the period of this Variance, we find that the limitations suggested by the Agency in its Recommendation are more appropriate than those requested by Union. The Agency's Recommendation notes that during the entire period of the Variance under PCB 74-333, Union's discharges were lower than the interim standards set there. Further, Union testified that it expected to continue to achieve the cyanide concentration levels which it experienced during that prior Variance period, (R.22). On those facts, Union has failed to show any necessity for a standard looser than that suggested in the Agency's Recommendation. See, Ex. 1. We therefore will modify the Variance granted in PCB 74-333, and shall require that Union meet an average of 0.10 mg/l during the entire period of the Variance, and that no single monthly average of its cyanide effluent exceed 0.20 mg/l.

Fifth, the Agency's Recommendation raises the issue of the applicability of the Board's permit requirements to Union's incineration facilities; the Agency specifically recommends that a Variance be granted, but only on the condition that Union apply for certain permits from the Agency. Agency cross-examination at the January 16 hearing also addressed this matter. We find that this issue is not properly before us. Neither the facts presented at hearing nor the pleadings present either a basis for a decision on this issue or a need for such a decision. However, we grant no Variance from the permit requirements; no request for such a Variance is before the Board.

As a final matter, we note that Union requested a Variance until December 6, 1977. At hearing, however, a witness for Union stated that even with a considerable period for debugging and shakedown, full compliance will be reached by December 6, 1976, (R.32). That being the case, Union has shown no need for a Variance beyond that date.

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:

1. Petitioner Union Oil Company be granted a Variance from the cyanide effluent standard of Rule 408(a) of Chapter 3: Water Pollution, of the Board's Rules and Regulations, for its Chicago Refinery, from December 6, 1975 until December 6, 1976, subject to the following conditions:

a. Petitioner's cyanide effluent concentration shall not exceed an average of 0.10 mg/l during the period of the Variance.

b. At no time shall Petitioner's single monthly average cyanide exceed 0.20 mg/l.

c. Petitioner shall at all times limit its cyanide effluent to the lowest levels reasonably achievable.

d. Petitioner shall submit to the Environmental Protection Agency bi-monthly reports, detailing as a minimum all progress on the final installation of its cyanide incineration system, any and all records of cyanide concentrations in Petitioner's effluent, (showing at least four determinations per week), and explanations of any cyanide concentrations exceeding the foregoing limitations.

2. Petitioner shall, within thirty (30) days of the date of this Order, submit to the Environmental Protection Agency, in a form acceptable to that Agency, a performance bond in the amount of Ten Thousand Dollars (\$10,000) to assure completion of the recycling and incineration system detailed in the foregoing Opinion.

3. Within thirty (30) days of the date of this Order Petitioner shall execute and forward a Certificate of Acceptance to the address shown below in the following form:

TO: Environmental Protection Agency  
Manager, Variance Section  
Division of Water Pollution Control  
2200 Churchill Road  
Springfield, Illinois 62706

I, (We), \_\_\_\_\_ having read the Order of the Illinois Pollution Control Board in case No. PCB 75-342, understand and accept said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

\_\_\_\_\_  
SIGNED

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
DATE

Mr. James Young abstained.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 8<sup>th</sup> day of April, 1976, by a vote of 4-0.

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