

ILLINOIS POLLUTION CONTROL BOARD  
December 20, 1973

IN THE MATTER OF: )  
PROPOSED MODIFICATION OF ) R-73-6  
AIR POLLUTION CONTROL )  
REGULATION 205 (b) (1) )

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

On April 13, 1972, the Pollution Control Board adopted a comprehensive scheme of emission standards for air contaminants; this was docketed R 71-23. Included in these regulations was Rule 205 (b) (1) which states as follows:

"No person shall cause or allow the discharge of more than 8 pounds per hour of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading facility having a throughput of greater than 40,000 gallons per day into any railroad tank car, tank truck, or trailer, unless each such loading pipe is equipped with air pollution control equipment capable of reducing by 85% or more the uncontrolled organic material that would be otherwise emitted to the atmosphere if splash loading were employed."

The compliance date for this regulation is December 31, 1973.

On March 26, 1973, the Illinois Petroleum Council, a trade association of integrated oil companies, filed a petition asking for modification of this regulation. The proposed regulation would recognize submerged loading pipes as an acceptable pollution abatement method when loading organic material.

On May 11, 1973, the Agency filed a letter outlining its reasons for recommending adoption of the proposal. The essence of the letter is that the best data available show that submerged pipe loading will comply with the intent of the regulation by reducing emissions by 85% over splash loading.

Two hearings were held on this matter, the first on June 6, 1973, in Chicago, and the second on July 23, 1973, in Springfield. Two main points seemed to ring clear during both hearings.

- 1) The regulation is somewhat ambiguous, partially because of the use of the term "splash loading" which has a negative definition.

- 2) The intent of the regulation may very well have been to allow submerged pipe loading as an acceptable pollution control device.

The Illinois Petroleum Council has made a strong case in its behalf, and as mentioned because the Agency is in agreement no rebuttal was offered. It would seem that the object of all parties concerned is to get a clear definition of the regulation.

The Illinois Petroleum Council contends that a total expenditure of \$18,300,000 would be needed to install vapor recovery systems on all existing terminals in Illinois. Based on a standard terminal (R. 21) the Illinois Petroleum Council anticipated a net operating loss of \$22,886.50 per standard terminal. This point requires some thought. Although we may concede that the imposition of vapor recovery systems will result in an operating loss, it is the first responsibility of the Board to maintain an environment which meets the air quality standards and which affords citizens a high degree of protection from nuisances. The fact that pollution control devices do not "pay for themselves" from a corporate viewpoint does not necessarily mean that they will not more than pay for themselves on an environmental basis.

In regards to vapor recovery systems, perhaps the main point is that very few (R. 11, 7/23/73) such units are in operation today. Perhaps even more significant is that manufacturers are not willing to guarantee that these units would meet the 85% criteria during all temperature extremes encountered in Illinois (R. 20, 7/23/73).

Evidence was presented (R. 26, 6/25/73) that by using American Petroleum Institute Bulletin 2514 (Pet. ex. 4) a loss reduction of about 88% can be accomplished by submerged pipe loading.

The Illinois Petroleum Council has by exhibits shown that much of the testimony given during the hearings on R-71-23 (Emission Standards) supported submerged pipe loading.

- 1) (Pet. ex. 7a) Statement by Mr. C.J. Pardee..."testimony was presented by Continental Oil Co. concerning its research on the effectiveness of submerged fill pipe loading in the reduction of air emissions from organic material. This research indicates that by the use of submerged fill pipes the addition of such a device not only will reduce air emissions from 85 to 95 percent of total emissions from the tank..."

- 2) (Pet. ex. 7b) Statement by Mr. H. E. Hesketh: "...the reducing of the emissions by 85 percent, in my opinion, can be achieved by bottom-type loading."
- 3) (Pet. ex. 7 [c]) Statement by Mr. R. H. Bruggink of Clark Oil Co.: "We urge the Board to consider the alternatives and the cost/benefit relationship to specify submerged pipe filling or the equivalent as alternatives to be used for Rule 205 (b) (1)."

The above statements are not grounds for an amendment but merely reflect the feeling of industry at the time.

The intent of the use of submerged pipe loading is alluded to when one looks at the opinion written by Mr. Currie, "In the Matter of Emission Standards" on April 13, 1972, page 40:

"Other significant sources of offensive organic emissions are facilities for the loading of gasoline and other products, and for the separation of hydrocarbons from water. Rules 205 (b) and (c) require such established good practices as submerged loading pipes, gas-tight connections for tank-truck loading, and enclosed separators with appropriate controls." (Emphasis added.)

The following points review how the Illinois Petroleum Council has arrived at an 88 percent reduction figure.

1. There is no accurate way of measuring actual losses due to splash loading (R. 6, 6/25/73), and therefore it is almost impossible to calculate a 100 percent starting point from which an 85 percent reduction can be calculated.
2. Splash loading losses can be considered as made up of three separate losses:
  - a) Displacement
  - b) Evaporation
  - c) Entrainment
3. Entrainment losses by definition are eliminated by bottom filling.

4. The American Petroleum Institute Bulletin 2514 (R. 26, 6/25/73) states that entrainment losses may be three times evaporation losses. Also data show that evaporative losses are significantly less for submerged loading than splash loading.
5. Using these facts the Illinois Petroleum Council has calculated (Pet. ex. 2) that the percent reduction of emissions by using submerged fill pipes over splash loading would be about 88 percent.

On the basis of the above evidence the Board must agree that submerged pipe loading will indeed meet the 85 percent reduction criteria intended by Regulation 205 (b) (1).

During the comment period the Illinois Environmental Protection Agency reported that the Federal Environmental Protection Agency has published a supplement to its AP-42 Emission Factor text. Using the new factors the Illinois Environmental Protection Agency calculates emission control of 67% rather than the aforementioned 80% to 90%. The Agency indicated that upon verification of the above calculations, the Board will be notified. Having received no such notification, the Board will rule on the best firm information it has at its disposal.

Again the Board feels that submerged pipe loading is an efficient method of dealing with the problem. It is a simple method, one which we can be relatively confident will be used by plant personnel. One of our major considerations is that pollution control equipment should be usable. Many control devices, although technically sound, are so besieged with mechanical difficulties that plant operating personnel shove them to the side, and they suffer the possibility of becoming mere window dressing. This should not be the case with submerged pipe loading.

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

ORDER

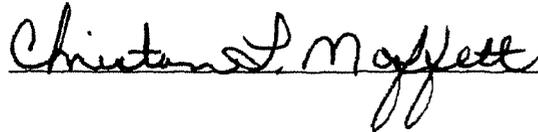
IT IS THE ORDER of the Illinois Pollution Control Board that Rule 205 (b) (1) of the Air Pollution Regulations shall be changed from its present wording to read as follows:

"No person shall cause or allow the discharge of more than 8 pounds per hour of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading facility having a throughput of greater than 40,000 gallons per day into any railroad tank car, tank truck or

trailer unless such loading facility is equipped with submerged loading pipes or a device that is equally effective in controlling emissions and is approved by the Agency according to the provisions of Part I of this Chapter."

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 20th day of December, 1973 by a vote of 5-0.

  
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