

ILLINOIS POLLUTION CONTROL BOARD
November 28, 1972

OLIN CORPORATION,)
)
) Petitioner,)
)
 v.) PCB 72-253
)
 ENVIRONMENTAL PROTECTION AGENCY,)
)
) Respondent.)

George E. Bullwinkel and Edward L. Overtree for Olin Corporation;
James I. Rubin and Steven Bonaguidi, Assistant Attorneys
General, for the Environmental Protection Agency.

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

By Petition filed June 21, 1972 and supplemented August 7, 1972, Olin Corporation seeks a variance from certain of the Water Pollution and Air Pollution standards presently in effect, and with effective dates in the future, as concerns its Joliet plant which produces phosphate-based and fluorine-based products. The plant employs about 500 and has an annual payroll of about \$6 million (R. 45-46, second portion, August 16, 1972).

It will be helpful at the outset to briefly review the nature of Olin's Joliet operations. Olin's phosphate-based products are made by reacting phosphate rock with sulfuric acid to form phosphoric acid (and by-product calcium sulfate hydrate, known as gypsum), and then forming various sodium phosphates by reaction of the phosphoric acid with soda ash or caustic soda. The principal phosphate-based product is sodium tripolyphosphate, most of which is used in laundry detergents. About 75% of Olin's Joliet plant phosphate production is used in detergents (Petition, page 3). A by-product called "Hy-Grade" fertilizer is made from phosphate muds filtered from the sodium phosphate solutions during processing.

The fluoride based products include hydrofluoric acid and aluminum and sodium fluorides. They are produced by reacting fluorspar with sulfuric acid to form hydrofluoric acid (and by-product anhydrous calcium sulfate), which in turn is reacted with other materials, for example with alumina to form aluminum fluoride.

The by-product calcium sulfates from both product lines have no significant market value and are disposed of by piling. A water slurry of calcium sulfate is pumped to a "gypsum pond", where the insoluble calcium sulfate settles out. After recycling to the process for re-use, the excess slurry overflows to the Des Plaines River.

By way of further background, Olin adopted a water pollution abatement program in May of 1971 in response to the Agency's request. That program was designed to bring all effluent waste streams into compliance with then current effluent standards by the end of 1973. Specific dates set forth were April 1972 for removing sodium silicate solution from the discharge to the main plant sewer, July 1972 for installing a recycle system for solids discharged from the sodium tripolyphosphate "C" production, October 1972 for removing solids discharged to the sewer from the chlorinated trisodium phosphate operation, April of 1973 for controlling solids discharged to the sewer from boiler blowdown and scrubber effluent from the vacuum ash handling system, and end of 1973 for completion of redesign or modification of the gypsum pond impoundment facilities (See Exh. A to Petition). Olin is presently following this program and has expended \$326,000 of an estimated total \$3,610,000 for pollution control projects (pp. 2, 7 of Petition, R. 227-230).

Olin's Petition says (pp. 7-8) it is presently required by a Federal Court order entered October 27, 1971 in a Refuse Act proceeding to implement a compliance program "substantially as set forth" in the May 1971 program. The record is silent as to what relationship the new compliance program which is the subject of this proceeding bears to this Court Order, or as to whether any order entered by this Board granting permission to Olin to depart from the May 1971 program would become effective in the absence of Federal Court approval.

Olin contends in the instant variance proceeding, the petition for which was filed approximately 13 months after adoption of the May 1971 water pollution abatement program, that business uncertainties concerning the future for detergent phosphates "have precipitated a reassessment of the situation" (Petition, page 2). Olin says that Procter & Gamble, Olin's largest phosphate customer, is publicly committed to removal of phosphates from its detergent products when a suitable replacement is available (Petition, page 11), and contends there is a possibility that Federal legislation may be forthcoming which will ban or limit phosphate use in detergents, "which could cause the abrupt demise of Olin's phosphate business and its Joliet Plant" (Petition, page 11). Olin states that the Federal government's "final decision on phosphates and their replacements...will not be forthcoming in less than two years", to permit time for further experimentation and study, and argues that it should not be required to spend "approximately \$4.0 million necessary to achieve compliance with the newly adopted standards before their effective dates, in light of the best information available concerning the extremely fluid market condition and legislative situation that only time will clarify" (Petition, page 12).

Instead, Olin proposes a new compliance plan (Exhibit Q to the Petition) to be substituted for the May, 1971 plan. The new plan is presented in alternative form, covering two possibilities if detergent phosphates continue and three if they do not. The two are: continuation of the present plant operations (Alternate B, cost \$3.08 million*) or relocation of the phosphoric acid manufacturing operations (to strengthen the business) and continuance of all other present operations at Joliet (Alt. A, cost \$2.25 million). The other three possibilities are: continuation of an industrial (i.e. non-detergent) phosphate business and the fluoride products (Alt. C, cost \$1.73 million), continuation of the fluoride products only (Alt. D, cost \$400,000), or a complete shutdown of the plant (Alt. E, cost \$65,000). In the case of each of the five alternatives the engineering work is not to be started until mid-1974, and the work will not be completed until late or the end of 1975 when all standards are expected to be met.

Olin points out that in addition to these five alternatives it has already committed itself and is proceeding to expend an additional \$810,000 to provide certain improvements prior to the end of 1973 when the effluent standards become effective. These projects, labelled I-1 through I-4 and Alt. II on Exh. Q to the Petition, include a collection system for process wastes (\$300,000), a clarifier (\$150,000) for plant sewer effluent (which will remove about 95% of the suspended and settleable solids per Supplemental Exhibit F), gypsum pond recycling improvements (\$140,000) which will reduce occasions of storm water-induced gypsum pond overflow, and hydrofluoric acid tail gas (\$20,000) and retort emission (\$200,000) scrubbers. These projects are often referred to in the record as Olin's "Interim Control Program". As noted, this \$810,000 program is already underway, a "good deal of that money has already been spent" (R. 168), and this portion of the work will go forward whether or not the variance sought is granted or denied (R. 168; Petitioner's Supplemental Information on Effectiveness of Compliance Program, pp. 4-5).

The specific variances sought by petition, all for periods of one year but which Olin would anticipate extending further, are as follows. Insofar as air pollution is concerned, Olin requests a variance from the emission standards of Rules 203 (b), 204 (f) (1) (A) and 204 (f) (2), which will become effective December 31, 1973, and from the implementation plan provisions of Rules 103 and 104, to permit Olin's emissions

* Costs from Appendix I to Petition; note that Alt. B corrected by Supplemental Request for Relief.

of (a) SO₂, (b) sulfuric acid mist and fluorides (from the hydrofluoric acid operation), (c) phosphate particulates, and (d) fugitive particulates from barge unloading operations. See Petition for Variance Par. VIII, (1) and (2), and Supplemental Request for Relief.* As respects water pollution, Olin requests a variance from the effluent standards of Rules 401 - 403, and from Rule 408 which will become effective December 31, 1973, as well as from the implementation plan provisions of Rules 903, 914 and 1002, to permit Olin's discharge of effluents containing excessive amounts of arsenic, cadmium, copper, fluoride, iron (total and dissolved), lead, manganese, mercury, oil, pH, zinc, total suspended solids and total dissolved solids. See Petition for Variance, Par. VIII, (3) and (4), Exh. I to the Petition, and Petitioner's Answer to Recommendation of Illinois Environmental Protection Agency, pars. 14, 21.

Public hearings were held on the petitions on August 14 and 16, 1972. The record also includes a deposition taken on August 21, 1972.

Turning first to the air pollution portion of Olin's petitions, we find that the individual requests for relief are all either mooted, unproven by the record, or in one instance withdrawn after the case had been submitted to the Board for decision (but before the Board reached a tentative decision on November 21, 1972).

Olin has commendably already set about abating the objectionable emissions of SO₂, sulfuric acid mist, and fluoride emissions from the hydrofluoric acid plant. As noted, Olin has already spent or is already committed to spend \$20,000 for a tail gas scrubber, and \$200,000 (Alternate II) for retort emission scrubbers (R. 168), which will bring about compliance with the standards before the December 31, 1973 effective date. Thus these variance requests are mooted.

We note parenthetically that we are unable to evaluate Olin's Alternate I, replacement of the small HF retorts with one large retort, for want of cost information. In view of this, plus the fact that Alternate II will put Olin in compliance in time to meet the standards (by the end of 1973 vs. April of 1974 for Alt. I), we find that Olin has failed to prove that the \$200,000 expenditure (for Alt. II) will constitute a hardship. We note, too, that the HF retort emissions problem is separate and apart from those associated with the phosphate products and accordingly from Olin's market uncertainty arguments (discussed later in this opinion). In any event, Olin has itself used Alternate II rather than Alternate I in arriving at its \$810,000 figure, and thus has itself made at least a tentative election.

* Olin's request for leave to withdraw its variance requests pertaining to air pollution (see Petitioner's Withdrawal of Certain Requests for Relief and Correction of Record filed November 27, 1972) was filed after the case had been discussed and after this aspect of the case had been decided by the Board at its regular weekly meeting on November 21, 1972 attended by representatives of Olin. Olin's request is accordingly denied as tardy except as to that part relating to phosphate particulates which was previously withdrawn by Olin before Board decision.

So also is Olin's request mooted as respects its dock unloading facilities. Olin says it will replace the present system with a new one adequate to meet transient air emission standards by mid-1975 at a cost of \$110,000, but only "if... such steps are in fact necessary to meet the applicable regulation" (p. 3 of Supplemental Request for Relief). The basis for the request is obviously speculative. No evidence was placed in the record in support of this request, and we find there is no showing that a variance will be needed.

As for phosphate particulates, Olin has, since the hearings, but before discussion and decision of the case by the Board on November 21, 1972, withdrawn its variance request on the basis that a variance will not be necessary. Nevertheless, we feel obliged to comment on this aspect of the proceedings because it points up the need for careful preparation of pleadings and marshaling of facts in cases brought by Olin and others before the Board.

Olin's original petition proposed to comply with the standards by modifying its scrubbers and expanding its collection facilities at a cost of \$375,000 (Project B-9, Exh. Q to Petition). Shortly before the public hearing, Olin filed a Supplemental Request for Relief which stated that Olin had, subsequent to the filing of the original petition, "investigated more thoroughly" its principal air emission sources and had "determined that less extensive modifications will be required than originally estimated". The estimate of capital required to modify the phosphate particulate scrubbers and collectors was accordingly revised downwardly from \$375,000 to \$125,000. Then, at the public hearing, Olin's witness explained (R. 3-4, August 16, 1972) that originally they had identified six* possible air emission sources which they "thought perhaps" were not in compliance, and that they made a "top-of-the-head guess" that it would cost \$75,000 per source to bring them into compliance (there is no explanation as to how multiplying six times \$75,000 would give the \$375,000 figure used in the original petition). The Olin witness said they originally had no basis in fact for believing any of the six sources were out of compliance (R. 3, 4, August 16, 1972). Subsequently Olin carried out tests which, according to the testimony (R. 5, 6, 11, 14, 15, August 16, 1972), show that only one of the six sources is presently out of compliance, and then only marginally so. That one is the Tripoly A South scrubber, which presently has an emission rate of 23.4 pounds per hour vs. 19.2 under the present regulation and 19.0 to be effective at the end of 1973 (R. 12, August 16, 1972). There is no testimony connecting the \$125,000 corrected figure for Project B-9 with the single Tripoly A South scrubber which will be out of compliance. The Supplemental Request for Relief ties the \$125,000 figure to "these process emission sources" (at. p. 2), which it fails to otherwise identify. We

* The six are (R. 4, August 16, 1972):

- AC scrubber in Hy-Grade fertilizer plant
- Rotolouver scrubber in Hy-Grade fertilizer plant
- Tripoly A North scrubber
- Tripoly A South scrubber
- Tripoly B North scrubber
- Tripoly B South scrubber

-5-

conclude, therefore, that based on this testimonial record the \$125,000 must cover more than the single emission source upon which the variance is sought. As noted, Olin's recent withdrawal of its request for a variance as respects phosphate particulates has rendered unnecessary our reaching a legal conclusion as to sufficiency of the proofs. Hopefully, in future variance proceedings before the Board the Petitioner will be able to base each variance request upon firm facts, showing the need for a variance and the cost of compliance.

This brings us to the water pollution aspects of the case. Two separate wastewater discharges flow from Olin's Joliet plant to the Des Plaines River. One is the main plant sewer effluent, a combination of process and sanitary wastewater. The other is the overflow from the gypsum pond, which discharges into the River approximately one mile downstream of the main plant sewer discharge (R. 233). The two discharges differ in the nature and quantity of contaminants, and Olin's abatement proposals are different for each. We thus take them up separately for discussion.

The main plant sewer discharge amounts to about 1300 GPM (Supp. Exh. A). The present discharge fails to meet the December 31, 1973 effluent standards of Rule 408 for arsenic (0.5 vs. 0.25 mg/l standard), fluoride (20. vs. 2.5 mg/l standard), and lead (0.2 vs. 0.1 mg/l standard) -- all per Supplemental Exhibit F.* As indicated earlier, Olin is presently proceeding to install a clarifier (Project I-2) which will reduce the total suspended solids from 370. to 15. ** mg/l prior to the end of 1973, and the total suspended solids are expected to remain at or within the Rule 408 standard after that date (Supp. Exh. F).

* Supplemental Exhibit F shows Olin's current total dissolved solids as 1200. mg/l and projected full compliance as 1630. mg/l, each to be compared with a standard of 1250.-3500. mg/l (standard allows 750 mg/l over background of 500 mg/l, and permits a maximum of 3500. mg/l where process stream recycle is practiced, as is said by Olin to be the case here). Thus, Olin's data indicates there will be no need for a variance for total dissolved solids, and this part of the variance request is dismissed as moot.

** Number appearing in Supplemental Exhibit F corrected from 5. to 15. by Olin's representatives present during Board discussion of case on November 21, 1972. (See also pp. 2-3 of Petitioner's Withdrawal of Certain Requests for Relief and Correction of Record, filed November 27, 1972).

The gypsum pond overflow discharge to the River is presently about 38,900 lbs. per day (Supp. Exh. B). Olin expects this to be reduced to 11,130 lbs. per day on days of overflow (Supp. Exh. B) following completion in mid-1973 of the gypsum pond recycle improvements (Project I-3) currently underway. Olin apparently arrived at the 11,130 lbs. per day figure by estimating (no supporting data) that 10% spillage would occur from the pond during periods of heavy rainfall or rapid spring thaws (Supp. Exh. B). The contaminants and their concentrations which will still, according to the estimate, fail to meet December 31, 1973 standards are arsenic (0.5 vs. 0.25 mg/l standard), cadmium (0.35 vs. 0.15 mg/l standard), copper (1.2 vs. 1.0 mg/l standard), fluoride (1100. vs. 2.5* mg/l standard), total iron (55. vs. 2.0 mg/l standard), dissolved iron (55. vs. 0.5 mg/l standard), manganese (7.4 vs. 1.0 mg/l standard), mercury (0.0007 vs. 0.0005 mg/l standard), oil (35. vs. 15. mg/l standard), pH (2.1-2.6** vs. 5-10 standard), zinc (6.0 vs. 1.0 mg/l standard), total suspended solids (30. vs. 15. mg/l standard), and total dissolved solids (14,100 vs. 3500. mg/l standard) -- all per Supplemental Exhibit E.

Insofar as water pollution abatement is concerned, the net result, then, as of the end of 1973 of Olin's \$810,000 expenditures currently underway (\$590,000 of which is for water pollution abatement) is that the concentration of total suspended solids in the main plant sewer effluent will be substantially reduced, but the concentration of other contaminants will remain the same as now. And the total mass overflow from the gypsum pond will be reduced by a factor of about 2/3, while the contaminants and their concentrations remain the same as presently. This means that after December 31, 1973 Olin's discharges per the proposed Exhibit Q compliance plan will still exceed the Rule 408 standards for 14 parameters, the departures being especially large for fluorides, iron, manganese, zinc and total dissolved solids.

Curiously enough, it turns out that what Olin seeks here does not involve any phosphate water quality or effluent standards, for there are no such standards for the relevant section of the Des Plaines River. While Illinois has adopted phosphate limitations applied to reservoirs or lakes (cf. Sects. 203 (c) and 206 (c) of Water Pollution Regulations), the State (i.e. our Board) was not convinced of a need for such standards as applied to this section of the Des Plaines River (see p. 7 of Opinion in re Effluent Criteria, etc., January 6, 1972). There is no evidence in the record that Olin's phosphate

* Curiously enough, this 2.5 mg/l fluoride standard was "accepted" by the Board in lieu of an initially proposed 1.0 mg/l standard after Olin's Joliet people testified that they had been able to attain levels of 2 or 2.5 mg/l on their effluent (PCB Opinion, R70-8, p. 15, January 6, 1972; p. 106 of hearing transcript, October 6, 1971).

** This low pH may explain why Olin has installed a carbide gun at the gypsum pond timed to discharge every two minutes to keep birds away (R. 67-68, section portion of transcript, August 16, 1972).

discharges cause violation of any of these standards downstream at the site of any reservoir or lake which might be fed by the River. And there is no evidence showing that Olin's discharges of phosphates to the River cause or tend to cause water pollution, quite apart from any violation of standards, which would or might violate the Environmental Protection Act (Sect. 12 a.).

We note with interest that Olin's new compliance plan, Exhibit Q to the Petition, includes a Project B-7 which calls for virtually completely sealing off the gypsum pond effluent so that it cannot reach the River at all. The estimated cost is \$400,000 and the proposed compliance schedule calls for this work to be started in mid-1974 and completed some 16 months later (in late 1975). If Project B-7 were to be implemented, the River contamination from the gypsum pond overflow would be completely eliminated except during severe storm periods. Also, Project B-1 includes one small item, HF Emergency Pond Repair at a cost of \$6,000, which will advantageously prevent fluoride from entering the process sewer system during infrequent upset conditions (see Petitioner's Supplemental Information on Effectiveness of Compliance Program, pp. 5-6).

The record concerning the effect on the River of the two discharges leaves a good deal to be desired. Starting with Agency summary data for 1971 taken at the Brandon Road Bridge located upstream of Olin's plant, Olin calculates rather than measures the effect of its two discharges on the River (Exh. L to Petition*), and concludes that all water quality standards would still be met in the River. There is no evidence that actual testing of the River water was carried out at any location just beyond a mixing zone. Olin has submitted data (Exh. M to Petition) which it acquired in April 1972 from sampling downstream near the I-55 bridge (Smith's Bridge), but there is no showing that this downstream location bears any reasonable relationship to a mixing zone**, and we note from a map that Smith's Bridge is located at least five miles downstream from the two Olin discharges into the River. Olin has not sampled the bottom biota or fish life in the River (R. 39, August 16, 1972), and no bioassays have been run on the Olin discharges even though Olin admitted that it is not possible to know the total effect of its discharges on the River without such information (R. 38, August 16, 1972).

* Also see Petitioner's Supplemental Information on Effectiveness of Compliance Program filed October 23, 1972.

** Olin has, in making its calculations, assumed that there is complete mixing at the points of discharge of the Olin effluents into the River (see Petitioner's Supplemental Information on Effectiveness of Compliance Program, p. 3). The only explanation offered for this assumption is that the Des Plaines River at Olin's Joliet plant and continuing downstream to the I-55 Bridge is a restricted use water. We find no exception for restricted use waters in the Water Pollution Regulations on mixing zones (see Regs., pars. 201 et seq.), and thus reject this assumption as without foundation. Olin's representative who appeared before the Board during its discussion of the case conceded that without this assumption the calculated levels of contaminants in the River would be higher than otherwise.

In support of its petitions, Olin argues that compliance with the standards would impose an arbitrary or unreasonable hardship upon it because it would have to spend money on pollution abatement in the face of uncertainty as to whether the detergent phosphate market will continue at all. Olin's record proofs in support of its argument include several Procter & Gamble newspaper advertisements and written statements, and several statements concerning the Federal government's attitude. One Procter & Gamble advertisement, dated March 25, 1970 (Exh. 0 to Petition), states in part:

"What Is Procter & Gamble's Position In Regard To Phosphates in Detergents?"

Procter & Gamble is engaged in an 'all out' effort to reduce -- and eventually to eliminate -- the phosphate content of its detergents.

We have not waited for 'proof' that the elimination of phosphates from our products will have any significant effect one way or the other on lakes and streams. Scientific opinions on this matter do differ. But it may take years to develop the necessary proof one way or the other."

(Page 2 of Exh. 0)

Another, dated July 7, 1972 (Pet. Exh. 13) says:

"The Chicago City Council has passed a law making it illegal to sell detergents containing phosphates after June 30, 1972. We would like to explain our Company's position in regard to this action...we have reluctantly concluded that the only responsible thing for us to do is to withdraw all our laundry detergents from Chicago."

In a letter dated August 10, 1972 to Mr. Rubin, the Assistant Attorney General representing the Agency in this proceeding, Mr. W. W. Ventress, Division Counsel of Procter & Gambel, stated in part:

"At this time it is impossible to supply you precise information on the projected needs of phosphates in detergents for our Company in the years ahead for two basic reasons:

1. We cannot yet say when our efforts to find a satisfactory replacement for phosphates in detergents will be completed.

2. It is entirely possible that some additional legislative bodies in this country may decide to restrict phosphates in detergents in some way."

"Procter & Gamble has placed a high priority on a search for a phosphate replacement in detergents and it is the Company's largest single research item. This is a very complex problem which involves, among other things, extensive safety tests from both human and environmental standpoints. We are confident we will find a replacement, but cannot give you a schedule. As you may know, in 1970 we thought we had a suitable substitute in NTA and were actively moving to gain experience with it. However, at the request of the U. S. Government, we are not using NTA until further tests have been completed.

We wish we could be more precise but with the many uncertainties concerning phosphate legislation, improved municipal treatment facilities for handling phosphates and changing attitudes in the scientific community as well as by those in government and the consuming public, there is no way to be more definitive at this time."

As for the Federal government's position, Olin points to statements made April 26, 1971 by Surgeon General Steinfeld and by Mr. Russell E. Train before the Federal Trade Commission (Pet. Exhs. 8, 9). The Surgeon General said in part:

"Mr. Chairman, it is a pleasure to appear before the Federal Trade Commission concerning a proposed rule that would require that all detergent packages display a list of the principal ingredients and a warning if phosphates were used."

"In respect to efforts to displace phosphates from detergents, it should be realized that tests conducted thus far indicate that some of the currently used substitutes for phosphates are clearly toxic or caustic and pose serious accident hazards, especially to children. Other substitutes not yet fully tested may also be toxic and/or caustic. Intensive research on this problem currently is underway by both Government and industry. Much is unknown, particularly of the long term biological effects of components of detergents. Of course, some of the substitutes may not be harmful, but we must be certain of this before large scale exposure of society to them is permitted."

"The U. S. Public Health Service therefore urges the Federal Trade Commission to defer making a decision regarding labelling at this time."

Reference is also made to a U. S. Department of Health, Education and Welfare news release dated May 5, 1972 (Exh. N to Petition), which reads in part:

"Use of NTA in laundry detergents was discontinued voluntarily by the soap and detergent industry late in 1970, pending study of its effects on health.

Acting on the conclusions of the Committee, which has just completed its review of the subject, Dr. DuVal announced that the Department of Health, Education, and Welfare would continue to oppose use of NTA in laundry detergents. This policy will remain in effect until studies are completed on:

- NTA's possible carcinogenic effects and
- NTA's possible mutagenic effects."

"HEW attaches a high priority to completion of its examination of the questions remaining on the possible health effects of NTA. Assistant Secretary DuVal has asked the Woods Committee to design experiments needed to answer these questions. The experiment designs should be available in the next few weeks and will become a basis for prompt initiation of the needed studies."

In the most recent newspaper pronouncement, submitted by Olin* as an additional exhibit after the hearing, the Akron, Ohio Beacon - Journal quoted Dr. Steinfeld as saying on September 12, 1972:

"It will be 18 months to two years before results are known...there is no question NTA affected development of the fetus in pregnant animals."

Petitioner Olin's Brief asserts the significance of the above to be as follows (pp. 7-8, 12-13):

"On the one hand, Russell E. Train, Chairman of the Council on Environmental Quality and Jesse L. Steinfeld, the United States Surgeon General, urge caution in condemning phosphates out of hand because of the possible adverse health effects of presently

* See letter to Board Clerk from Olin's counsel dated October 2, 1972.

known substitutes (Petitioner's Exhibits 8 and 9). On the other, the largest single producer in the soap industry has publicly committed itself to removing phosphates from its products (Petitioner's Exhibits 12, 13, 15 and 16). This company, Procter & Gamble, is also Olin's largest single customer, accounting for between 30% and 40% of its 1971 Joliet plant output. The Joliet plant is Olin's only facility capable of making laundry phosphates.

A continued market for laundry phosphates is crucial to the economic viability of the Joliet plant."

"To commit the necessary funds to bring the Joliet plant into compliance on the dates required would not be a rational business decision. Olin's Vice President William Oppold stated as much.

The only reasonable business decision which Olin can make in the present climate is to withhold the necessary investment. In the absence of a variance, this means that the plant must close at the end of 1973."

Olin does not explain why the market uncertainty is any more critical now than it was back at the time of Procter & Gamble's March, 1970 announcement, or later in May of 1971 when Olin adopted its water pollution abatement program (which it is now bound to follow pursuant to Federal Court order). The May 1971 program, which makes express reference to the uncertain market for detergent phosphates, included commitments by Olin to spend what had to be substantial sums on pollution abatement (see Exh. A to Petition), and we are provided with no evidence as to why the apparently continuing market uncertainty now suddenly renders the abatement expenditures unreasonable.

There are also other aspects of Olin's proofs that make us wonder if the sky is really falling. Olin's brief argues that in the absence of a variance "the plant must close at the end of 1973" (see above). Yet no witness so testified. On the contrary, the Olin witnesses have projected production and sales into the future at the same levels as currently (R. 153-155, 198, 213).

We also question whether Olin has timely kept the Board informed as to its intentions and its own changes in the posture of its case. The original petition for variance asserted that even the \$810,000 initial expenditures, labelled as Interim Control Program, would not be made unless the variance were granted (p. 1 of Exh. Q to Petition). No expression to the contrary came from Olin prior to the public hearing or during

presentation of evidence at the hearing until the Assistant Attorney General received an affirmative answer when he asked Olin's Vice-President on cross-examination whether Olin intended to make the \$800,000 plus expenditures whether or not the variance was granted (R. 168). After the hearing Olin acknowledged that the \$810,000 initial expenditures are to be excluded from the variance sought*. This reduces the "approximately \$4.0 million" cost figure of the original Petition (p. 12) by almost a full million dollars. Unfortunately, the record does not reflect the extent to which this changes the results of Olin's cash flow analyses (eg. see R. 175), and we find it difficult to evaluate the record on cash flow in the absence of this information.

Still another aspect of Olin's case is bothersome. Olin's cost figures appear for the most part to be internally generated. As approximations they appear to be rounded off to the nearest five or ten thousand dollars (see Exh. Q to Petition). There is no record evidence that Olin obtained firm quotations from equipment suppliers and contractors, and we question the soundness of our basing grant of a variance upon such ball park estimates. In the one case shown in the record in which Olin received some type of cost estimates from a contractor, the numbers were characterized by the Olin witness as a "top-of-the-head guess" (R. 4, August 16, 1972) and later were revised downwardly substantially (see page 5 herein).

Olin's market uncertainty argument is interesting, and appears to be one of first impression for our Board. One problem we have with it is with the quality and extent of the proofs submitted. We start with the fact that to date Olin's Joliet Plant phosphate sales have not decreased (R. 102, 115-116), even though various municipalities have passed ordinances limiting phosphates (eg. see Exh. P to Petition). And, if Olin's sales continue at present levels there is no problem because Olin can recoup the pollution abatement expenditures in terms of cash flow within about five years, which Olin considers a reasonable period (R. 175). If, on the other hand, Olin's Joliet plant sales drop off incrementally in the next few years by 1% per year, the cash recovery period extends to eight years. For an incremental sales decrease of 3% per year there would be no recovery at all** (R. 158).

It does appear that sales information will soon become available for the year 1973. The record shows that Olin's phosphate sales contracts with its customer Procter & Gamble are entered into on a calendar year basis, and that these contracts

* Petitioner's Supplemental Information on Effectiveness of Compliance Program dated October 23, 1972, pp. 4-5.

** As indicated, however, these cash flows were not calculated for the downwardly revised and corrected abatement expenditures, and thus have limited value here.

typically are negotiated and signed in November or December of each year (R. 130). This means that the contract for 1973 should be negotiated in the next few weeks. Once Procter & Gamble makes known its purchase requirements by way of this current contract negotiation it may be possible for Olin to make a more secure prediction of its future sales. And with this information in hand we will have a more current and therefore better yardstick to use in assessing Olin's hardship.

Returning to the nature of Olin's proofs as far as the market is concerned, we note that Olin does not contend that it will be affected any differently by Illinois' pollution control laws than will its competitor Stauffer Chemical Company, which also has a detergent phosphate plant in Illinois, and which shares last place with Olin insofar as market portions are concerned (R. 114, 146). One of the most difficult questions of proof to resolve is that presented by Olin's heavy reliance on newspaper ads and press releases as proof of market uncertainty. The only information in the record on Procter & Gamble's intentions is that found in the detergent company's public statements (R. 129). Olin did not present a single witness from Procter & Gamble to testify about that company's purchase intentions, and did not present anyone from the Federal government to testify about the ongoing research on phosphates or their replacements.

We have very little competent evidence as to the two year minimum time period that Olin says may be necessary before a market decision can be made. And even if we accept the newspaper reports as proof, the time period is open ended. It could stretch on interminably. What happens if at the end of 1973 Olin's market uncertainty argument is repeated in support of renewed variance petitions. This Board's orders could end up functioning as licenses to pollute.

From the above we draw the following conclusions insofar as the water pollution aspects of the petitions are concerned. As for the gypsum pond effluent, we do not believe Olin has proven the requisite hardship to justify grant of a variance. By spending \$400,000 (Project B-7) in addition to the \$810,000 presently committed, this effluent could be eliminated virtually entirely. The gypsum pond effluent contains a large number of contaminants in concentrations exceeding the Rule 408 standards, some far in excess of standards, including fluorides, acidity and dissolved solids, and Olin has failed to show persuasively that continued discharges will have no adverse effects on the Des Plaines River. By doing away with the gypsum pond overflow, copper, iron (total and dissolved), manganese, mercury, zinc, cadmium and acidity would all be eliminated as problems, since these contaminants originate solely with the gypsum pond effluent.

If it was reasonable for Olin, with full knowledge* of the so-called uncertain market conditions for detergent phosphates,

Since at least as early as March 25, 1970 (Exh. O to Petition).

to commit \$310,000 for pollution abatement to achieve some improvements, then it is reasonable for Olin to spend an additional \$400,000 to achieve even greater improvements resulting from near complete blockage of the gypsum pond. The same can be said for the \$6,000 expenditure to prevent fluoride upsets within the plant (part of Project B-1). Despite whatever case Olin can be said to have made on the market uncertainty issue, Olin has not established that it should save these \$400,000 and \$6,000 expenditures.

The main plant sewer presents a different situation because the contamination levels are less than in the case of the gypsum pond, and the costs of removing the contaminants to meet standards would be relatively high, eg. Project B-6, an effluent treatment plant, would have to be completed at an additional cost of \$850,000*. This cost could be prohibitively high in relation to the benefits obtained -- if the detergent phosphate market is going to disappear soon.

Thus, the record shows that after installation of the clarifier, which will reduce total suspended solids by over 95%, the main plant sewer effluent departures from the December 31, 1973 effluent standards will be relatively small. The 0.5 mg/l arsenic level exceeds the 0.25 mg/l standard by a factor of two, but is still within the 0.05 to 0.5 mg/l range achieved by standard processes according to Weston (See Opinion of the Board in re Effluent Criteria, R70-8, p. 12, January 6, 1972). The lead level (0.2 mg/l) also will be twice the standard, but still very low; it should be kept in mind that the standard was set mainly on the basis of the technical feasibility of reaching it rather than harm to the environment. Fluoride remains a problem at 20 mg/l vs. a 2.5 mg/l standard, but even this does not look as bad when compared with Patterson's recommended (albeit not adopted) 10.0 mg/l standard (See Opinion, supra, p. 15). Then, too, there is the dilution effect in the Des Plaines River, if adequate proofs of lack of harm to the River can be made.

The Agency argues that Olin's petitions should be denied because (a) "uncertain market conditions are not grounds for the grant of a variance" (Respondent's Brief, p. 4), and (b) for the reason that Olin would obtain an unfair competitive advantage over its Illinois competitor, Stauffer Chemical, should Olin not have to spend the money necessary to comply with the regulations while Stauffer presumably is required to and does meet its obligation of compliance. We have little doubt that the real likelihood of a substantial market completely disappearing in a very short period of time, if proven persuasively, and with like proof that there would be no alternative use for the related production facilities, is one of the factors to be considered by this Board along with others in evaluating whether "an arbitrary or unreasonable hardship" has been shown to exist pursuant to Section 35 of the Act. As indicated above, however, we are

* \$1,000,000 less the \$150,000 cost of the clarifier.

concerned here with the quality of the proofs submitted by Olin as to the market as well as the possible adverse effects of the main plant sewer effluent upon the River. The Agency's point about Olin's gaining an advantage over its competitor Stauffer, though also not completely proven in this record, gives us some pause -- and in effect urges us to require Olin to meet strict standards of proof of hardship.

Our conclusion insofar as the main plant sewer is concerned, then, is that Olin may be able to prove its case if given more time in which to gather meaningful factual information as to the detergent phosphate market, costs of compliance, and the lack of adverse effects on the River. Accordingly, we believe Olin should be given an extension of time within which to file its permit application and project completion schedules. This will have the advantage that Olin will during the next few weeks learn what its sales will be for 1973, and will also hopefully during the next several months be able to develop more competent evidence as to the future for detergent phosphates, as to its compliance costs, and the effects of the main plant sewer effluent upon the River.

Olin is currently under an obligation, pursuant to Sections 903 and 914 of the Water Pollution Regulations, to file an application for an operating permit for its wastewater treatment works no later than early October of 1972 (i.e. at least 90 days before December 31, 1972). And Olin was obliged by Section 1002 (b) (i) of the Regulations to file a Project Completion Schedule with the Environmental Protection Agency no later than July 1, 1972*. We believe, and the Order below so provides, that Olin should be given until June 1, 1973 to file its application for an operating permit under Sections 903 and 914, and to file its project completion schedules pursuant to Section 1002. Olin may on or before March 1, 1973, petition the Board for a further extension of time if Olin believes it can meet requirements of proof consistent with this opinion.

There is one last residual matter involving our interim order entered September 6, 1972 in which we designated certain Olin exhibits as not subject to disclosure to the public. At the time of that order, we indicated that prior to deciding this case on the merits we would advise Petitioner if the non-disclosure status must be lifted in order to allow our rendition of a final order. As it turns out, we have not, in rendering this decision on the merits, had to rely upon the exhibits covered by the prior non-disclosure order, and upon Petitioner's request an order will be entered returning these exhibits to Petitioner's custody.

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

* There is no indication in the record that Olin has complied with either of these requirements during pendency of these proceedings.

ORDER

1. Olin's Petition for Variance as respects its main plant sewer effluent is granted to the extent that Olin is hereby given until June 1, 1973 to file its application for an operating permit under Sections 903 and 914, and to file its project completion schedules pursuant to Section 1002 of the Water Pollution Regulations, but is granted only to the extent that the relevant requirements of Sections 903, 914 and 1002 apply to the Rule 408 standards for arsenic, fluoride and lead.

2. The grant of paragraph 1 herein is subject to the following conditions:

- (a) That Olin's main plant sewer effluent discharged to the Des Plaines River after December 31, 1973 not exceed 0.5 mg/l arsenic, 20. mg/l fluoride, and 0.2 mg/l lead.
- (b) That Olin continues with and completes in timely fashion and in any event before December 31, 1973, its \$810,000 "Interim Control Program" presently underway, and
- (c) That Olin proceeds immediately to carry out and completes within 16 months from the date of this Order, Project B-7 calling for expenditures of \$400,000 to seal off the gypsum pond effluent, and completes that portion of Project B-1 calling for an expenditure of \$6,000 to repair the HF emergency pond prior to December 31, 1973.

3. The Environmental Protection Agency is hereby given permission to act upon Olin's permit application and project completion schedules authorized herein to be filed on or before June 1, 1973, and subsequently to issue a permit or approve such schedules if the usual requirements are met.

4. Olin's petitions for variance as concerns air pollution are mooted insofar as SO₂, sulfuric acid mist, and fluoride emissions from the hydrofluoric acid plant are concerned. Olin's petitions for variance as respects phosphate particulates have been withdrawn. And Olin's variance requests concerning fugitive particulates from barge unloading operations are mooted for want of a showing that a variance will be required. Olin's requests for a variance as concerns its gypsum pond effluent are denied.

5. Olin may on or before March 1, 1973, petition the Board for a further extension of time as concerns the variance granted herein with respect to Olin's main plant sewer effluent upon a showing that it can meet requirements of proof consistent with the opinion herein, and including a showing of Olin's progress in meeting the conditions of paragraph 2.

I, Christan L. Moffett, Clerk of the Pollution Control Board, certify that the above Opinion and Order was adopted by the Board on the 28th day of November, 1972, by a vote of 5 to 0.

Christan L. Moffett