ILLINOIS POLLUTION CONTROL BOARD
November 11, 1971

The Sherwin-Williams Company	)	
v.	)	PCB 71-111
Environmental Protection Agency	)	
Graham Paint & Varnish Co., Inc.	)	
v.	)	PCB 71-114
Environmental Protection Agency	)	
General Paint & Chemical Company	)	
v.	)	PCB 71-115
Environmental Protection Agency	)	
Enterprise Paint Manufacturing Company	)	
v.	)	PCB 71-116
Environmental Protection Agency	)	
Armstrong Paint Company	)	
v.	)	PCB 71-117
Environmental Protection Agency	)	
Jewel Paint & Varnish Company	)	
v.	)	PCB 71-118
Environmental Protection Agency	)	
The Valspar Corporation	)	
v.	)	PCB 71-119
Environmental Protection Agency	)	
NL Industries, Inc.	)	
v.	)	PCB 71-120
Environmental Protection Agency	)	

Hackbert, Rooks, Pitts, Fullagar & Poust, by Mr. James T. Harrington, appeared for The Sherwin-Williams Company;

O'Toole, Westrick & Harrison, by Mr. Edward F. O'Toole, appeared for the remaining Petitioners;

Mr. Rogert C. Ganobcik, Legal Services Division, appeared for the Environmental Protection Agency;

Mr. Allen S. Lavin, Attorney, by Mr. Phillip Rothenberg, Senior Assistant Attorney, appeared for The Metropolitan Sanitary District of Greater Chicago, Intervenor.

Opinion of the Board (by Mr. Dumelle)

The eight cases considered in this Opinion present common issues relating to the recently enacted Mercury Regulation (Docket No. R70-5). This opinion is in support of Board Orders adopted in each of these cases on November 8, 1971. The petitioners are paint manufacturers, seven are in the Chicago area, and The Valspar Corporation is located in Rockford, Illinois. Petitioners request to be allowed to discharge mercury (Hg) into the waters of Illinois in excess of the limitation prescribed in the regulation. In response to the Motions to Dismiss and the Recommendations filed by the Environmental Protection Agency (EPA) petitioners filed amended petitions which requested specific limitations to be applied in each case. Additionally, the amended petitions more specifically outlined the petitioners' plans and programs. The amended petitions stated in pounds per day and concentration limitations the exemption requested for each discharger.

The instant petitions were filed with the Board on May 14, 1971. The cases were consolidated for hearing and hearings were held in Chicago on August 17, 18, 19 and September 22. All petitioners made an express waiver of the ninety day requirement of the Environmental Protection Act and the Board's Rules in a stipulation joined by the EPA.

After the cases were filed the Metropolitan Sanitary District of Greater Chicago (MSD) sought to and was allowed intervention as a respondent in opposition to the grant of any variances with all the rights of an original party.

The Environmental Protection Agency filed motions to dismiss in each of these cases and a response in opposition was also filed by each petitioner. The Agency's motion pointed to certain deficiencies in the petitions which were cured with the filing of the amended petitions. Ruling on the motions was reserved for the Board. We deny the EPA's motion to dismiss in each of these instances.

On March 31, 1971 the Pollution Control Board took official cognizance of the environmental mercury problem with the adoption of a regulation sharply limiting the allowable concentration of mercury in the waters of Illinois. The regulation is both an effluent standard and water quality standard and is applicable therefore both to discharges and receiving waters. In each case the standard is set at 0.0005 mg/l as Hg (approximately 0.5 ppb). The regulation provided for a certain limited exception to adherence to the standard. The exemption was put into the regulation as the result of testimony by paint manufacturers to the effect that certain operations would have to be stopped immediately if the 0.5 ppb standard was to be complied with. Recognizing the hardship, the Board provided for an exemption for those mercury discharges which were 95% controlled eight months after the enactment of the regulation and which, in the aggregate, did not amount to more than five pounds of mercury per year. Additionally to be within the exemption the discharger's effluent was to be treated by a sewage treatment plant which discharged no more mercury than that allowed by the effluent standard.

The effluent standard applies to mercury discharges into all Illinois waters including discharges into sewers. All users of more than 15 pounds per year of mercury and those who discharge any mercury are required to submit annual reports to the EPA describing the nature of the mercury use, the amount discharged and outlining the measures being taken to reduce or eliminate the discharge of mercury-bearing wastes. The regulation also deals with the disposal of mercury bearing sludge and provides for recycling where feasible and disposal in such a manner so as to minimize both air and water hazards if the sludge containing mercury residues can not be practicably reclaimed. The regulation clearly requires that mercury users know what their solid waste scavengers do with the mercury-bearing sludges.

The rationale in setting the standard at the low level of 0.5 ppb was to "eliminate all measurable, non-natural concentrations" of mercury from whatever source. The limitation of the regulation was recognition of the principle that no discharge of an environmentally dangerous substance such as mercury should be allowed unless it is essentially unavoidable. Because mercury discharges are not degradable and therefore cumulative and because mercury is so highly toxic the effluent standard was set to preclude discharges wherever possible.

Incorporated in the Mercury Regulations are the analytical methods by which mercury concentrations are to be determined. Both flameless atomic absorption spectroscopy and neutron activation analyses are specified as acceptable methods for determining mercury levels. At the rule-making hearings the Director of the Water Purification Laboratory of the City of Chicago testified that they have

refined their analytical technique with the flameless atomic absorption method to detect 0.1 part per billion with acceptable precision. The precision is reported to be greatly increased at the level of 0.5 ppb. Other testimony by Dr. Leonard G. Goldwater indicated that the neutron activation method of analysis was more precise, could possibly be available on a contract basis, and for large scale use would probably not be economically prohibitive when compared with other analytical methods. Dr. Goldwater stated that the neutron activation analyses could detect mercury down to the presence of one atom of mercury.

The paint manufacturing industry is one of the major mercury consuming industries in the United States. Organo-mercurial compounds are widely used as bactericide-fungicide agents as additives to both oil and water-based paints. The mercurials protect the paints from bacterial fermentation before application and retard fungus growth after the paint has been used as a coating. The bactericide is used to prevent putrefaction of the paint and spoilage until the coating is used by the ultimate consumer. The fungicide is necessary to prevent mildew on the painted surface (R. 532). Phenylmercurials are the most used of the several popular mercury compounds.

We grant a variance in specific amounts in each of these cases. The size of the exemption asked for in most of these petitions is clearly too high. We cannot grant variances to protect mercury users against the result of their own carelessness or unforseen accidents. For the latter contingency it is sufficient that the statute and the Board's Rules allow for an arbitrary or unreasonable hardship as a proper defense to an enforcement action.

We will require each of the mercury users to submit monthly reports as to the progress of their mercury abatement programs. The reports are important both to the companies and the government agencies as a means of knowing whether any progress in fact is being made. We do not wish to be in a position, a year from now, of discovering for the first time that no progress has been made in further reducing mercury pollution. The first report shall cover the period from the present through December 31, 1971. Petitioners should submit such reports to the EPA and the Board a reasonable time after the end of the month but in no case shall this period extend beyond two weeks. It is only reasonable to expect that petitioners apply assiduous efforts to continue to work for elimination of mercury-containing products and where immediate cessation of use is not possible for complete recycle of wash water which contains the residue of necessary compounds. The goal should be the replacement of mercury compounds in paint.

How clearly attainable this is as an objective is demonstrated by the fact that the largest manufacturer of all the petitioners, the manufacturer with the most varied product line had eliminated the use of mercury compounds before the first hearing date of these proceedings.

We are hopeful that with the grant of the several variances here the petitioners will continue to exert their best and fullest efforts to comply with the existing standard, to come as close to the regulatory requirement as possible and to continue to improve the quality of their plant effluents.

Unquestionably crash programs for substitution of mercurials are indicated. No manufacturer should be sitting on its test fences waiting - up to a year and a half - (R.473) for the results to come in. It is obviously important to put the evaluations into a time press and make judgments on the results of accelerated aging and exposure tests.

The petitioners here (as well as other paint makers at the rule-making hearings) have repeatedly made statements regarding the desirability of elimination of mercury compounds as paint additives. There has been a general recognition that the mercurials are environmentally hazardous. Elimination of use of the mercurials is desirable because of the uncertainties involved in total reliance on drumming waste water and disposing of it at a landfill and recycling systems; because of the liklihood of occasional spills with recycling and drumming; and because the mercury compounds put into paint products must, by the very nature of their use, be ultimately widely broadcast throughout the air and water environment. All the petitioners appear to be embarked upon a program of mercury additive elimination, some faster than others, and for such forsight and concern we commend their actions. The record demonstrates that the paint industry, as represented by the instant petitioners, has acted with dispatch to alleviate the environmental strain of mercury pollution once it became fully aware of the problem. Each of the petitioners is to be commended for its efforts and actions to date. Those manufacturers who have not yet fully eliminated the use of mercurials or are not near the tape in that race have adopted a no-discharge of wash water policy either by installing a recycling system or disposing of wash water on landfill sites. All this shows that petitioners have recognized that mercury pollution abatement of our environment can best be effected by directing attention and control efforts to the source of the environmental broadcast.

We will require as a condition of the variance grants that petitioners assure themselves and the EPA and the Board that petitioners' scavengers are disposing of the solid waste, sludges and wash waters in such a manner so as to minimize to the greatest extent feasible all hazards of environmental contamination.

Petitioners in their monthly submissions must make a full report on the disposal procedures in effect at their several operations.

Mercury contamination of raw materials and supplies may or may not be an important source of mercury in a process effluent depending, of course, on the amount of the material used, the level of mercury contamination and whether the mercury compound leaves the process as part of the product or with the process effluvia. Caustic soda use, because of the quantity involved, is obviously an important consideration to Sherwin-Williams while its use is of virtually no consequence to the other petitioners.

There was testimony by Dr. Goldwater and Mr. Joseph Thornton that there was no commercially available system to reduce mercury concentrations in a waste stream to 0.5 ppb or below (R.146-153, 388-390). Surely if this is the case it must act as a spur to the leaders of American industry to develop and perfect such waste treatment capabilities. It is apparent from the record that even with the elimination of the knowing use of mercury-bearing materials enough mercury is entering and leaving the plant, probably as a contaminant of incoming raw materials, to elevate the concentration of mercury in plant effluent above the level found as background in the plant's incoming water supply.

The Board in granting these variances has taken into account the burden upon the public. Unknowns are present, but the limited period of these grants coupled with the fact that petitioners have made great progress and promise to continue to do so lead up to the conclusion that the balance thus struck allows us to issue these licenses to pollute.

The MSD has stated that if the petitioners are granted variances then it too must have an exemption. We, of course, cannot grant any variance absent the required statutory showing, but must certainly take the licenses to pollute which we grant today into account when considering the output from the various MSD treatment plants.

The Sherwin-Williams Company, PCB 71-111

The Sherwin-Williams Company (Sherwin-Williams) owns and operates a manufacturing plant in Chicago, which manufactures paint, varnish, and lacquer products; organic pigments and organic chemicals; and plain and printed metal containers. The operation located at 11541 South Champlain Avenue is divided into 3 divisions: coatings, chemicals, and containers. The plant was established in 1888 and covers 98 acres. It employs 2,175 persons with an average

tenure of 14 years. Seven hundred fifty items are manufactured in the Chemical Division, 2,800 finished products are manufactured in the Coatings Division with 665 different intermediate formulations, and 2,684 items are manufactured in the Container Division, for a total of 6,900 different items which are manufactured at the plant.

Fifty-three million pounds of chemicals, 17 million gallons of coatings, and 138 million cans are produced annually, for a total value of $71,800,000. The Chemical Division uses approximately 165 million pounds of 300 different raw materials at a cost of $9,800,000. The Coatings Division uses 210 million pounds of 1,450 raw materials for a total cost of $21,000,000, and the Container Division uses 68 million pounds of 200 different raw materials with a cost of $7,500,000 annually.

The plant operates a system of in-plant sewers for the collection of wastes (S-W Ex. 3). Ninety percent of the waste water is collected in the Kensington Avenue sewer (R.69). The Kensington Avenue industrial sewer is served by a neutralization system for the control of pH. In the sewer sump are a flow meter and a continuous sampler (R.71-72). Caustic soda in aqueous form is used for neutralization. The company also operates a treatment pit for the removal of suspended solids in the waste water from the paint manufacturing operations (R.76).

The daily flow of 2,000,000 to 3,000,000 gallons of waste water is discharged to the Chicago sewers and from there to the sewage treatment plant operated by the MSD (R.47,64-65, S-W Ex. 13). Samples of the plant effluent have shown concentrations in excess of the 0.5 ppb limitation of the regulation (Joint Ex. 1).

Mr. Kenneth R. Brown, the General Manager of the plant, testified that non-mercurials were substituted for mercury compounds as early as 1962. At that time mercury compounds were removed from exterior latex paints where they were being used as a fungicide because of faulty film characteristics of the coating (R.50, 59, 118). After the Illinois rule-making proceeding was under way, but before enactment of the regulation, the company started to remove all mercury compounds from its formulations (R.50). At a later date the plant manager issued a directive that the manufacture of mercury-bearing products cease immediately and that no further mercury-bearing raw materials be purchased or received (S-W Ex.2, R.50-52). The plant manager further testified that the company intended not to use such products in the future (R.54). Mr. Joseph Thornton, the Technical Administrative Assistant, was charged with the responsibility of enforcing the order and testified that no mercury-bearing raw materials were received by the plant after January 4, 1971, (R.118). The last regular batch of material containing mercury was made on March 4, 1971, and one further batch was made on April 6, 1971 due to an error (R.119-120). As a result of the error, mercury-bearing raw materials were segregated so that they could not be used by mistake (R. 121).

As a second step in its mercury abatement program Sherwin-Williams testified that they will continue to survey suppliers and to test raw materials and supplies. Mr. Thornton, charged with carrying out this program, reported on the results to date (R.128, et seq.) Several raw materials which were used in significant amounts were tested by Sherwin-Williams and found to contain sizable concentrations of mercury. The two most significant mercury-contaminated raw materials were pigments and caustic soda. As to pigments, it was testified that using average figures for the concentration of mercury in the pigments and the amount of pigments contained in the rinse water from one batch of paint, 1/10,000 lb. mercury might be contained in each washing (R.141) and that no substitutes were available for the natural pigments used in paint (R.143).

Caustic soda presented another problem. It is used in neutralization of the effluent from the main industrial sewer, in the Chemical Division, and in miscellaneous uses throughout the plant (R. 145). Approximately 35 million pounds a year are consumed at the plant (R. 137-139).

The total amount of mercury in the caustic used in the treatment sump to neutralize the plant effluent was calculated on average concentrations as approximately .086 lbs. per year (R. 75). Both ammonia and spent lime were considered as substitutes and rejected because of problems with the sewers or treatment plant (R.74). Sodium bicarbonate was also considered and rejected on technical and economic grounds (R.76).

The other significant use of caustic within the plant was in the para cresol, azo pigments, phthalocyanine color, and alkali blue processes. Mr. Deich, staff coordinator of the Chemical Division, testified as to the problems presented by these processes. The para cresol process consumes 25 million pounds per year of caustic as a 100 percent solution (R.176). He stated that caustic soda was the only substance which made the process feasible and that no technically and economically feasible substitutes were available (R.179). The para cresol that comes from this process constitutes two thirds of the national supply and a large percentage of the world supply (R.177-178). The material is used as an anti-oxidant in various applications as well as for other purposes. The total contribution of mercury from the caustic soda in that process calculates to be .64 pounds per year based on average concentrations in the caustic used (R. 180). Phthalocyanine color is blue pigment used in dyes and inks and no substitute for the use of caustic in that process was known (R. 182-183). Azo pigment is a red dye, and alkali blue is also a dye. Here too there were no known substitutes for the use of caustic in the manufacturing processes.

It thus appears that the company has undertaken a major effort to determine the sources of mercury in its raw materials and to find substitutes. The effort must continue.

Sherwin-Williams has completely eliminated the use of mercury compounds in the manufacture of paint (R.52, 122). Yet the company still finds itself in violation of the regulation (Joint Ex. 1).

It must be noted that in arriving at the requested figure of 10 pounds/year the status quo is assumed (R.168). Further progress must be made. Serious consideration should be given to cleaning residues from the drainage and sewer system; the traps, manholes and other low spots where mercury is likely to have settled or plated-out over the years. Installation of mercury traps in all laboratory sinks and a periodic schedule for cleaning of the traps would appear to be part of the necessary effort in a mercury abatement program.

The logic, simplicity and directness of the thrust of Sherwin-Williams mercury abatement program - elimination at the source - by merely discontinuing the use of mercury-bearing compounds must be applauded. The other aspects of the company's program also cannot be faulted. Sherwin-Williams in addition to continuing to use non-mercurials in their paint formulations has pledged to (1) continue to survey its suppliers of raw materials and supplies and to obtain certification of the mercury content of the materials (2) substitute raw materials and supplies of lower mercury content where appropriate (3) enforce strict handling practices of mercury and (4) clean sumps.

In granting the requested variance we will hold the petitioner to its promises in its mercury abatement program as well as imposing other conditions. We grant a variance to allow the discharge of up to 5 ppb as a daily average and further limit the discharge so as not to exceed 10 pounds/year.

Graham Paint & Varnish Company, PCB 71-114

Graham Paint & Varnish Company (Graham) is located at 4800 South Richmond Street in Chicago, manufactures a variety of paint products at its plant at that location and employs 60 persons (R. 531).

The company has found a substitute for the mercurial which it had been using as a bacteriacide but has not found an adequate substitute to use as a mildewcide. It thus continues to use phenyl mercury oleate and phenyl mercury acetate to serve both purposes (R. 533).

For the first nine months of this year Graham used 2240 pounds of mercury additives (R. 534). It is unspecified if this figure represents the total amount of the mercury compounds or just the quantity of mercury in the compounds. It would be desirable to reduce the amount to zero as other paint manufacturers with very complicated product lines have done. Substitution is not only possible but very likely a lot easier than any of us might have believed a short year ago.

One of the three mercury samples analyzed and presented in evidence showed an extremely high mercury concentration. On June 18, 1971 a mercury concentration of 900 ppb was noted in the plant effluent. Mr. Thomas O'Connell, the assistant manager theorized that the sample was taken at a time when a tank not included in the recycle program was being washed (R. 546). The sample analyses and attendant explanation perhaps explains more about the ill-advised use and consequent environmental broadcast of mercury compounds than any other single piece of evidence adduced at the hearing. Particularly dramatic is the illustration when one looks at the two other samples on either side of the 900 ppb sample and Mr. O'Connell's further explanation. Analyses of the plant effluent on June 17, 1971 showed a mercury concentration of 1.4 ppb. On August 1 the concentration was 2.7 ppb. In explaining away the seemingly anomalous 900 ppb, taken between the above dates, Mr. O'Connell said, "[The sample was taken at the time] when they were washing out one of the tanks, latex tanks.... They washed it down. He just happened to grab it at that particular time. If he had grabbed it five minutes earlier or fifteen minutes later, it would have probably been nil" (R.546). Nothing could be more eloquent testimony to the desirability of eliminating the use of mercury compounds and short of that, if it was impossible to eliminate their use, to completely recycle and safely dispose of contaminated wash water.

It is obvious that even after this company removes mercury compounds from all of its formulations they will still require exemption from the limitation in the regulation, at least for some, hopefully short, period. The 2.7 ppb mercury concentration was noted in the plant effluent in a sample which was taken three days after the company had stopped all effluent from the plant except the sanitary and cooling water (R. 548). Graham is placing its reliance on recycling (R. 560). At best, this can only be an interim answer as was illustrated by the effluent sample analyses in this case.

Mr. Raymond Shilvock the President of the company testified that after the first of the year recycling of the plant's wash water will be complete while Mr. O'Connell testified that recycling was a reality at the time of the hearing (R. 539-540, 550, 566). In any event the company's recycling program will be in 100% operation at an early date and thereafter there will be no tank washings flushed to the sewer whatsoever.

Graham has had an independent contractor clean out the catch basin and manhole areas and has pledged to continue this procedure on a regular bi-monthly schedule (R. 557, 559). The material removed was taken to a land disposal site. Again we must point out the petitioner's obligation under the regulation to dispose of the sludge in such as way "so as to minimize to the greatest feasible extent all hazards...[of] environmental contamination" (Reg. R70-5,

No.3). We will require Graham to include information regarding ultimate disposal in the reports which it makes to the EPA and the Board.

Graham has requested an exemption averaging 30 ppb of its annual flow of waste water (R.561-562). On the state of the record it is an unrealistic request. We grant a variance in this case to shield the company from prosecution in an amount which the evidence shows would work an arbitrary or unreasonable hardship on the petitioner. We will not issue a license to pollute far beyond any showing of the evidence. We will allow Graham to be protected up to a 24 hour average concentration of 5 ppb and a total annual amount of 0.75 pounds.

General Paint & Chemical Co., PCB 71-115

General Paint & Chemical Co. (General) operates a plant at 2001 Mandell Street in Chicago at which it employs 75 to 100 people (R. 303-304). The entire production of the plant is made for General's parent company (R. 305). The principal product, 70% of the plant's production is latex paint. About 80% of the latex production is a white formulation (R. 309).

General uses phenyl mercury compounds at the rate of about 15,000 pounds/year as a 10% Hg solution (R. 314). Non-mercurials are available and feasible and it is to be hoped that General is working rapidly to eliminate the use of mercurials.

We will set a figure of 5 ppb as an upper limit as a daily average for General's discharge in granting this variance.

Enterprise Paint Manufacturing Co., PCB 71-116

Enterprise Paint Manufacturing Co. (Enterprise) is located at 2841 South Ashland Avenue in Chicago. Surface coatings, detergents, polishes, concrete curing compounds and [illegible] are produced at that location at which about 50 people are employed (R. 465-466).

Mercury compounds are used only in the paint formulations (about 200) other uses having been eliminated as recently as early this year (R. 466-468). In 1970 the company used about 11,000 pounds of phenyl mercury compounds ranging in concentration of mercury from 10 to 59% (R. 469-470).

Mr. Arthur F. Bohnert, vice president in charge of research and development went through a catalog of difficulties attendant to accumulting and reusing wash waters (R. 479-482). The number and variety of problems is enough to convince any skeptic that recycle of wash water is only a temporary solution and that elimination of use must be achieved to fully protect against any environmental hazard. It is not unreasonable to expect that Enterprise phase out its use of mercury compounds at an early date.

Enterprise has requested their material suppliers to inform them of the mercury concentration of their incoming materials (R. 470-471). They must continue this program and use the results appropriately.

Enterprise asked to be permitted to discharge 35 ppb Hg with a further limitation of 12 pounds/year. The request is for permission to discharge an amount approximately equal to the concentration noted in the plant effluent (R. 499-500). The plant's waste water discharge is 43 million gallons per year (R. 498). We will allow the petitioner to discharge up to 35 ppb Hg as a daily average and further limit the discharge to 7 pounds/year.

Armstrong Paint Company, PCB 71-117

The Armstrong Paint Company (Armstrong) petition was originally filed by Armstrong Chemcon, Inc. Motion to substitute Armstrong for its predecessor company was allowed. Armstrong operates paint manufacturing facilities at 1330 S. Kilbourn in Chicago and employs about 300 people (R. 567-570).

Phenyl mercury compounds are still used in about 500 formulations (R. 572). About 2,000 pounds (as Hg) of the mercury preservatives were used in 1970 (R. 573).

At the time of the rule-making hearing way back in December of 1970 the paint industry expressed the opinion that substitution of mercury-containing additives could be effected within one year. Now after 75% of that year has passed Armstrong is asking for more than another year to "field test" non-mercury containing coatings (R. 580). It is demonstrably feasible to compress the time frame of effecting substitution and Armstrong should be doing this.

Armstrong is asking its suppliers to inform it of the mercury content of its raw materials (R. 574, Armstrong Ex. 1). More than paper shuffling should be the results of the program. Action must be taken where indicated.

Mr. Kenneth F. Schultz, vice-president of Armstrong testified that the company's request to be allowed to dump 10 pounds/year of mercury into the sewers was based on the 16 ppb sample analyses (R. 614). Additionally the company asked for a 50 ppb daily average. The record does not sustain the burden for such a loose license. We will allow petitioner to discharge up to 10 ppb Hg as a daily average and up to 8 pounds for the year.

Jewel Paint & Varnish Co., PCB 71-118

Jewel Paint & Varnish Co. (Jewel) is a paint manufacturer located at 345 North Western Avenue in Chicago with about 65 employes (R. 316).

Phenyl mercury compounds are [illegible] about 200 to 250 formulations (R. 319). The 1970 usage was [illegible]12 pounds as a 10% Hg solu-

tion (R. 343). The company has a relatively small annual discharge of waste water of about 1.5 million gallons (R. 321).

Analyses of samples for mercury content showed less than 0.5 ppb Hg on June 23, 1971, and 17.4 and 2.2 ppb on June 15 and June 16 (R.328, Joint Ex. 4). Another analyses on July 12, 1971 had an Hg content of 1.7 ppb (R. 329).

We grant a variance to the extent of allowing the discharge of mercury from the plant up to 10 ppb as a daily average and limited further to a maximum of 0.25 pounds/year.

The Valspar Corporation, PCB 71-119

The Valspar Corporation (Valspar) is the only company among the instant petitioners which is not located in the Chicago area. Valspar is located at 200 Sayer Street in Rockford, manufactures paint and varnishes there and has about 200 employes (R.270-271).

Of the more than 200 formulations used at the plant, mercury compounds have been eliminated in about 110 of them (R. 274,298). Mercury compounds, namely diphenyl mercury, dodecenyl succinate, phenyl mercury oleate, chloromethoxyacetyloxymercuropropane and phenyl mercury acetate are still being used (R. 272) although the quantity of mercurials consumed has been reduced 65% as compared to the 1970 usage (R. 282). The annual rate of usage of mercury compounds was reported as 31,500 pounds as is (R. 291). Mr. Lloyd Owen, vice-president of Valspar, anticipated that substitution by non-mercurials should be completely effected by the end of 1971 (R. 282-283).

The company discharges about 20 million gallons of waste water per year (R. 275-276). Samples of the plant effluent showed mercury concentrations of less than 0.5 ppb, 92.7, 0.9, 1.6, 0.3, and again 0.3 ppb (R. 288).

It is anticipated that in this case as in all of the others a variance may be needed even after mercury compounds have stopped being used. We will allow Valspar to discharge up to a daily average of 5 ppb Hg with a further limitation of no more than 1.0 pounds per year.

NL Industries, Inc., PCB 71-120

NL Industries, Inc. (NL) manufactures paint and allied products, battery oxides and lead carbonates at its plant at 12042 South Peoria Street in Chicago. The company employs about 150 people (R. 197-198).

Phenyl mercury compounds are used both as bactericides and mildewcides (R. 199). The total 1970 consumption of mercury compounds was 65,500 pounds on an as is basis (R. 239).

The plant discharges 18 million gallons per year of waste water (R. 203-204, 239). Mercury concentrations in the plant effluent were noted at 6.0, 0.6, 0.6, 0.7, 34.5, 1.9 and 0.6 ppb (R. 210-211, Joint Ex. 5). NL, as well as other petitioners, testified that it was their belief that if they either eliminated the use of mercury compounds or completely recycled their wash water they would be in compliance with the effluent limitation in the regulation. This has proven not to be the case.

Mr. Clarence P. Smith, plant manager of NL, explained the problem of residual mercury, a common concern of all of the petitioners, in the following manner:

Q. Have you any opinion as to what would be the effect on the sewer pipes of your company by reason of your having used mercury for many years, discharging your waste water from your mixing tanks, filling equipment, into the municipal sewer?

A. I am sure that some of the compounds have accumulated in the sewer system, in the pipes, in the low spots and remain there.

Q. How would this affect the amount of mercury in your effluent if your company were able to stop using mercury in any form in any of its products?

A. If we stop using mercury and put no more down, I am sure that we would continue to show some mercury in our effluent because the residual mercury in the system would gradually free itself and tend to wash itself out over a period of time.

Q. Have you any idea as to how long that would take?

A. I could not say, could not venture to guess on how long it might take because we don't know where it is, where it is located, anything else.

Q. Would you have any idea as to what effect in parts per billion of mercury would occur in this period of time while it was being washed?

A. No, I couldn't say because I have no idea, no way of me knowing how fast it would be released, whether released in bunches, slowly, or just in what manner.

Q. Do you know of any way of getting that out of there?

A. No way that I know of for getting it out of there. (R. 204-205).

Apparently a variance will be needed by NL even after they have eliminated the use of mercury compounds. NL has asked to be allowed to discharge 6 pounds/year. On the basis of their annual waste water discharge this would average out to be something more than 40 ppb, a greater concentration than any of the samples analyzed. Additionally the company has asked to be able to discharge a daily average concentration of 60 ppb. We grant a variance to allow the discharge of up to 20 ppb as a daily average and further limit the discharge so as not to exceed 3.0 pounds/year.

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

I, Christan Moffett, Acting Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above Opinion on 11 day of November, 1971.

Christan Moffett, Acting Clerk
Illinois Pollution Control Board