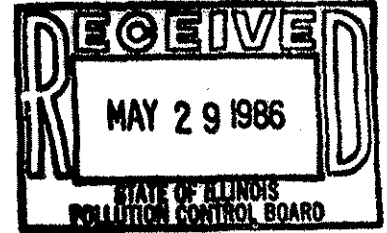


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BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS



ALTON PACKAGING CORPORATION,)
)
 Petitioner,)
)
 v.)
)
 ILLINOIS ENVIRONMENTAL)
 PROTECTION AGENCY,)
)
 Respondent.)

PCB 85-145

NOTICE

To: William D. Ingersoll
Illinois Environmental
Protection Agency
2200 Churchill Road
Springfield, IL 62706

Richard J. Doyle
Four N. Vermilion St.
Suite 806
Danville, IL 61832

PLEASE TAKE NOTICE that I have today filed with the Clerk of the Illinois Pollution Control Board Petitioner's Motion for Reconsideration, a copy of which is attached hereto and herewith served upon you.

ALTON PACKAGING CORPORATION

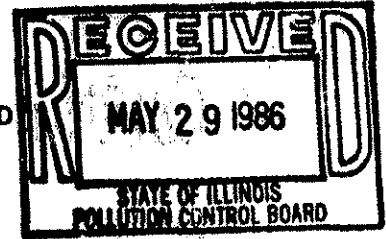
By *Richard J. Doyle*
One of Its Attorneys

Dated: May 29, 1986

RICHARD J. KISSEL
Martin, Craig, Chester &
Sonnenschein
115 South LaSalle Street
Chicago, IL 60603
312-368-9700

KARL K. HOAGLAND, JR.
Hoagland, Maucker, Bernard
& Almeter
401 Alton Street
Alton, IL 62002
618-465-7745

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MOTION FOR RECONSIDERATION

Now comes Alton Packaging Corporation ("Alton"), by Richard J. Kissel, Martin, Craig, Chester & Sonnenschein and Karl K. Hoagland, Jr., and hereby moves that the Pollution Control Board ("Board") reconsider its opinion and order of April 24, 1986 in this case. Alton believes that upon reconsideration the Board should reverse the decision of the Environmental Protection Agency ("Agency") to deny permits to Alton. In support of its motion, Alton states as follows:

1. Alton believes that the Board erred in finding that excursions from the 24-hour SO₂ AAQS had occurred and in finding that the Agency properly denied the permit on that basis. These arguments are all set forth in previous briefs filed with the Board in this matter. However, that notwithstanding, Alton believes that the Board has clearly erred in assessing what Alton was required to demonstrate

to the Agency and whether it had the ability to do so, as outlined below.

2. As a principal basis for its opinion, the Board states, in essence, that the burden was on Alton to respond to the Agency and to "prove that a violation would not occur in the future." This statement by the Board was made in the context that Alton questioned the predictive capacity of the Agency's excursion study and, in addition, failed to provide adequate information to the Agency. In the context of this record, the Board's position with regard to Alton is in error for two reasons:

- (1) First, as the Board knows, as a result of other proceedings before it, Alton has compiled a significant amount of information regarding the emissions from the Alton boilers and made it available to the Agency (See Alton Packaging Corp. v. IEPA, PCB 83-49 and 83-55). Among the data made available to the Board was a modelling study done by Murray & Trettel. Not only did the Agency receive the study, but in another proceeding, supra, was allowed to cross-examine the scientist who prepared it. Further, not only did the Agency have the study and review it, but the permit engineer who reviewed the "record" in this permit application knew of the

existence of the study (R. 88). However, for some unknown reason, the permit engineer did not use the Alton modelling study as part of his evaluation in this case. In addition to the modelling study, there were a significant number of other documents which were not considered as well. Thus, unless and until the Board looks at those documents, it truly cannot say that Alton has not given any information to the Agency.

(2) Second, this record shows that the Agency did make its (the Agency's) study available to Alton and Alton communicated with the Agency that it (Alton) could not respond to the study unless it (Alton) received additional information which information was in the total control of the Agency. The Agency never responded to Alton--never gave Alton the data it needed to prepare a response to the Agency's study. How, therefore, can the Board hold Alton to a standard of having to provide information unless it has the ability to do so particularly when the opposition (the Agency) withholds the information? Isn't that an unreasonable standard? We think so.

3. In addition to now allowing Alton to properly respond, the modelling study done by the Agency cannot

be used as a predictive tool in this case for two reasons:

- (1) The first is that the modeler himself said it was not predictive. (R. 19)
- (2) The second is that a recent decision in the Sixth Circuit Court of Appeals holds that the use of a model as a predictive tool is arbitrary and capricious unless the model is validated with actual data. State of Ohio, et al. v. U.S.EPA, decided February 26, 1986 (a copy of the opinion is attached). In this matter, the modeler admitted that the study done was not validated by the actual data. When asked the following questions, he gave the following answers:

Q. So the Board understands, the study, on which you are now saying there may be some future violations in and of itself did not predict that there would be an exceedance of the National Ambient Air Quality Standard at the Barton School, is that correct?

A. I'm sorry you have to repeat that.

HEARING OFFICER: Read back the question.

(Whereupon the reporter read the last question back.)

A. That study was not able to explain all of the SO₂ concentration which was measured at the Barton School monitor.

What it did do was show that Alton Packaging Corporation was the predominant contributor on those two days.

Q. Mr. Shrock, I am not talking about a predominant contributor. You are now going beyond that and saying you are putting a predictive nature into this modeling effort.

I am trying to ask you the question of, the fact is that this effort in and of itself, Exhibit 5, did not predict an excursion of the National Ambient Air Quality Standard at the Barton School, is that correct? It is yes or no.

A. The results of the modeling did not predict an excursion. (R68-9)

While Alton believes that the actual monitoring data is subject to some question, even using the Alton approach the data does not reflect what the Agency study said it should. Simply put, the Agency study was not validated; therefore, using it as a predictive tool is an arbitrary and capricious act.

WHEREFORE, Alton believes that the Board should reconsider its decision and reverse the denial of the permit by the Agency.

ALTON PACKAGING CORPORATION

By 
One of Its Attorneys

Dated: May 29, 1986

RICHARD J. KISSEL
Martin, Craig, Chester &
Sonnenschein
115 South LaSalle Street
Chicago, IL 60603
312-368-9700

KARL K. HOAGLAND, JR.
Hoagland, Maucker, Bernard
& Almeter
401 Alton Street
Alton, IL 62002
618-465-7745

CLIENT IDENTIFIER: ALTON-PACK-RJKCBS
 DATE OF REQUEST: 03/13/86
 THE CURRENT DATABASE IS ALLFEDS
 YOUR QUERY:

OHIO & ENVIRONMENTAL & 80 +S 3575 & DATE(AFT 2-15-86)

Citation	Rank (R)	Database	Mode
--- F.2d ----	R 1 OF 1	ALLFEDS	P
STATE OF OHIO, Commonwealth of Massachusetts, Cleveland Electric Illuminating Company, Northern Ohio Lung Association, North American Coal Corporation and NACCO Mining Company, Petitioners, Commonwealth of Pennsylvania, State of New York, State of New Hampshire, Ohio Mining and Reclamation Association, and Youghiogheny & Ohio Coal Company, Intervenor.			
v.			
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Anne M. Gorsuch, Administrator, Respondents.			
Nos. 80-3575, 80-3576, 80-3579, 80-3581, 80-3582 and 81-3525, United States Court of Appeals, Sixth Circuit.			
Argued Jan. 15, 1985. Decided Feb. 25, 1986.			
Mark Segreti, Jr. (argued), Bieser, Greer & Landis, Dayton, Ohio, Michael L. Hardy (argued), Thompson, Hine & Flory, Cleveland, Ohio, William J. Brown, Atty. Gen. of Ohio, Robert J. Styduhar, Asst. Atty. Gen., Environmental Law Section, Columbus, Ohio, for petitioners.			
Peter S. Everett, U.S. Dept. of Justice, Land and Natural Resources Div., Environmental Defense Section, Lydia Hegman, Office of Gen. Counsel, U.S.E.P.A., Richard B. Ossias (argued), U.S.E.P.A., Gen. Counsel, Air & Radiation Div., Washington, D.C., Susan Schaffer, Office of Regional Counsel, U.S.E.P.A., Chicago, Ill., for U.S.			
Francis X. Bellotti, Atty. Gen. of Mass., Stephen M. Leonard, Asst. Atty. Gen., Environmental Protection Div., Dept. of Atty. Gen., Janet G. McGabe, Stephen M. Leonard, Lee Breckenridge, Environmental Protection Div., Public Protection Bureau, Dept. of Atty. Gen., Boston, Mass., for State of Mass.			
Robert Abrams, David R. Wooley, Atty. General's Office, New York City Dept. of Law, Environmental Protection Bureau, Rueben Goldwaser, Asst. Atty. Gen., Albany, N.Y., for State of N.Y.			
Ronald R. Janke, Thomas R. Jackson, Jones, Day, Reavis & Pogue, Cleveland.			

Ohio, for North American Coal Co. and Nacco Min. Co.

John W. Edwards, David W. T. Carrol, Smith & Schnake, A Legal Professional Ass'n, Columbus, Ohio, for Ohio Min. and Reclamation Assoc.

Jonathan E. Thackeray, William W. Falsgraf, Cleveland, Ohio, for Youghiogheny and Ohio Coal Co.

Thomas Y. Au (argued), Asst. Atty. Gen., Com. of Pa., Harrisburg, Pa., for Com. of Pa.

E. Tupper Kinder, Asst. Atty. Gen., Environmental Protection Div., Office of Atty. Gen., Concord, N.H., for State of N.H.

Henry V. Nickel, Hunton & Williams, Washington, D.C., for amicus curiae Alabama Power Co.

Gregory W. Sample, State of Me., Dept. of Atty. Gen., Augusta, Me., for amicus curiae State of Me.

Before ENGEL, MERRITT and MILBURN, Circuit Judges.

MERRITT, Circuit Judge.

This case seeks review of air pollution emissions limitations established by the Environmental Protection Agency for the smokestacks of two electric utility plants in the Cleveland area. Petitioners' principal argument is that the computer model, called CRSTER, used by EPA to forecast pollution from these plants and to set emissions limits allows too much pollution. They assert that this model should not be used in its present form to set emissions standards at the plant. We conclude that EPA acted arbitrarily in using the CRSTER model to set emissions limits without adequately validating, monitoring, or testing its reliability or its trustworthiness in forecasting pollution in the vicinity of these plants, and we order further action to test and validate the model as an adequate forecasting technique for these plants.

BACKGROUND

A. Procedural History

The Clean Air Act of 1970, 42 U.S.C. ss 7401-7642 (1982), as extensively revised in 1977, requires that the states establish acceptable written plans limiting the discharge into the atmosphere of various harmful gases such as ozone, nitrogen oxides, and sulfur dioxide. These state plans must be established under federal guidelines (s 7410) and enforced (ss 7413(a)(2), 7416) in order to meet "national ambient air quality standards" set by the Environmental Protection Agency. In 1971, EPA set the primary national standard for sulfur dioxide, a gas released when coal, oil, or similar petroleum based products are burned by utilities, automobile engines, and other similar sources. The standard limits the concentration of sulfur dioxide in the ambient air to .03 parts per million as an annual arithmetic mean and .14 parts per million as a maximum 24-hour concentration not to be exceeded more than once per year.

The purpose of the primary national sulfur dioxide standard and the enforcement scheme established by the Act is to ensure that the air breathed by people in all regions of the country will not contain more sulfur dioxide than the amount specified, the maximum level considered healthful (with a margin of safety) if inhaled for extended periods. The purpose of the state implementation plan is to ensure that the air in a state meets the national standards and that regions of dirty air are brought into compliance (s 7410(a)(2)). In order to bring into compliance a region of dirty air, a so-

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called "nonattainment area," the plan must establish a maximum emission level for a pollutant by individual large-scale producers. The maximum level is called an "emissions limit" and a large-scale producer a "major stationary source."

The Cleveland, Ohio region is a nonattainment area for sulfur dioxide; the region includes areas where the concentration of sulfur dioxide in the ambient air exceeds the national standard. See 40 C.F.R. s 52.1871 (1985); *Ohio v. Ruckelshaus*, No. 84-3667 slip op. (6th Cir. November 15, 1985). The two major sources whose sulfur dioxide levels are in question in this case, the Eastlake and Avon Lake plants, are electric utility plants owned by the Cleveland Electric Illuminating Company.

In the early 1970s, the state of Ohio developed a state plan setting emissions limits for producers of sulfur dioxide in Ohio. In 1973, EPA's approval of this plan was set aside by the Sixth Circuit because of procedural irregularities, *Buckeye Power Co. v. EPA*, 481 F.2d 162 (6th Cir. 1973), and Ohio subsequently withdrew key portions of its plan including the sulfur dioxide emissions limits at the two plants involved in this case. In 1976, because Ohio failed to develop a new plan, EPA promulgated a plan for the state of Ohio as required by 42 U.S.C. s 7410(c). In developing this plan, EPA used a computer model called the "Urban RAM model" to predict how sulfur dioxide emitted from the two power plants would be dispersed and would contribute to the pollution level in the atmosphere in the vicinity of the plants. The plan limited the amount of sulfur dioxide that the plants could emit to 1.43 pounds per million BTUs generated by fuel combustion at the Eastlake plant and 1.15 pounds per million BTUs for the Avon Lake plant.

In 1978, the utility company requested that EPA relax the emissions standard on the Eastlake and Avon Lake plants. In support of its request the company submitted studies showing that the Urban RAM model's predictions of sulfur dioxide concentrations in the air were significantly higher than actual empirically tested or monitored concentrations. These "validation studies" convinced EPA that the Urban RAM model overpredicted sulfur dioxide concentrations and that that model was not an appropriate tool for setting emissions limits at the plants. EPA tentatively concluded that the uncontrolled emissions of the plants would not result in a violation of national standards for sulfur dioxide. Consequently, on June 12, 1979 (before the date when the plants were required to comply with the 1976 emissions limits), EPA stayed enforcement of the limits, then proposed under s 7410(c) to change the emissions limits to levels equalling the plants' uncontrolled emissions, and asked for public comment.

The responses EPA received cast doubt on EPA's tentative conclusion that the proposed emissions limits would ensure that the region would come into compliance with the national standard. After the comment period had closed on the proposed change, EPA conducted additional modeling on the two plants. This time it used a model known as "CRSTER." On June 24, 1980, based on sulfur dioxide concentration predictions generated by the CRSTER model, EPA set the sulfur dioxide emissions limits at 5.65 pounds per million BTUs for the Eastlake plant and 4.1 or 4.65 pounds--depending on the sulfur content of the oil burned--per million BTUs for the Avon Lake plant.

In August 1980, the utility company, as well as North American Coal Corporation, NACCO Mining Company, and Northern Ohio Lung Association, all of whom are parties in this proceeding, filed petitions for reconsideration with EPA. In January 1981, EPA granted the petitions for reconsideration. EPA

received further comments and reconsidered the new emissions limits, but on July 22, 1981, it reaffirmed the new limits. The utility company, **Ohio, Massachusetts, Northern Ohio Lung Association, North American Coal Corporation and NACCO Mining Company** filed timely petitions for review of EPA's actions by the Court of Appeals for the Sixth Circuit under s 7607(b)(1), and EPA stayed enforcement of the emissions limits pending review by this Court. Pennsylvania, New York, New Hampshire, **Ohio Mining & Reclamation Association, and Youghiogheny & Ohio Coal Company** have been allowed to intervene under Rule 15(d) of the Federal Rules of Appellate Procedure.

Massachusetts, Pennsylvania, New York, New Hampshire and Northern **Ohio Lung Association** (hereinafter referred to as "petitioners") favor more restrictive emissions limits. They argue that EPA violated the Clean Air Act when: (1) EPA revised the emissions limits for the plants using the CRSTER model without adequately demonstrating that the new standard will ensure attainment of the air quality standards for **Ohio**; (2) EPA failed to require continuous monitoring of sulfur dioxide emissions at the plants; (3) EPA failed to perform a "Prevention of Significant Deterioration" review before changing the limits; and (4) EPA failed to provide notice and opportunity for public comment prior to promulgating the latest emissions limits. EPA is generally aligned with North American Coal Corporation, NACCO Mining Company, **Ohio, the utility company, Ohio Mining & Reclamation Association, and Youghiogheny & Ohio Coal Company** in arguing that: (1) EPA adequately demonstrated that the new emissions limits will ensure attainment of the national air quality standard; (2) the Act's monitoring requirement will be satisfied by a general monitoring provision to be promulgated by EPA in rulemaking unrelated to this case; (3) EPA is not required to conduct a "Prevention of Significant Deterioration" review in the situation involved in this case; and (4) EPA cured any procedural defect by giving notice and opportunity to comment after the new limits were promulgated while EPA was reconsidering its decision to change the emissions limits.

B. The CRSTER Model

In "nonattainment areas" the Clean Air Act provides for measuring the amount and the spread of dirty air from a source by actual testing or by "air quality modeling," 42 U.S.C. s 7501(2). In such areas, the Act emphasizes the need for "a comprehensive, accurate, current inventory of actual emissions from all sources" in order "to assess the need" for more "reduction" to meet national standards, and presumably as a check on modeling techniques. 42 U.S.C. s 7502(b)(4).

An "air quality model" or "computer model" is a forecasting technique. It is a mathematical equation or algorithm expressing a theory and a set of predictions about the content and circulation of air in a limited area, usually less than 50 kilometers in radius. After plugging data in numerical form into the variables of the algorithm, the model uses the mathematical theory to forecast the physical and chemical behavior of pollutants in the air and to describe the way the pollutants will spread out in space and time. Models can be used to predict pollution from a single source, after factoring in an assumption about the amount of background pollution, or they can be used to predict the spread of pollution from each of a number of sources. The model must be supplied with a "data base" consisting of information about variables such as the capacity of the power plants, the sulfur content of the fuel used, the height and diameter of the smoke stacks, the geographical characteristics of the surrounding terrain, and at least one year's monitored weather

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conditions. See Case, *Problems in Judicial Review Arising from the Use of Computer Models and Other Quantitative Methodologies in Environmental Decision Making*, 10 B.C.Env.Aff.L.Rev. 251, 317, 324-25 (1982). In order to be useful, a model must accurately predict the "behavior" of the air system being modeled.

Most of the controversy in the instant case arises from EPA's use of one such model, known as CRSTER, in setting emissions limits for the two power plants. The CRSTER model is a single source model designed for application to hot, buoyant, stack effluents of the kind commonly produced by power plant and furnace chimneys. After factoring in background pollution, the CRSTER model is actually capable of modeling up to 19 sources, but only if they are in close proximity to one another--multiple stacks at a single plant, for example. It treats all sources being modeled as occupying the same location. See U.S. EPA 450/2-77-013, *User's Manual for Single-Source (CRSTER) Model*, at 2-24, 2-25 (1977) (hereinafter referred to as the "CRSTER Manual"). The CRSTER model is a "gaussian plume dispersion" model, which means that it describes how a plume of dirty air emerging from a smoke stack will spread upward and outward according to the principles of fluid dynamics.

The model consists of a "preprocessor subroutine," which translates input data such as meteorological conditions and source characteristics into a format suitable for the model, and a set of subroutines that perform the actual modeling. These subroutines use data translated by the preprocessor to calculate how pollution from the source will spread out in light of the conditions (e.g., wind speed and direction) embodied in that data. In so doing, the model makes a number of simplifying assumptions about such factors as the constancy of wind speed and direction, the uniformity of emission, the inability of the plume to cross a low atmospheric layer called the "mixing level," the absence of vertical wind shear, the nonreactivity of the effluent, and the degree of diffusion of the plume.

The model's predictions are presented in the form of readings at a hypothetical network of sensors or monitors surrounding the source. The model provides for five rings of such sensors along 36 compass azimuths evenly spaced every ten degrees. In addition, the model produces outputs of highest and second-highest concentrations at each receptor, a ranking of the 50 highest concentrations for the year, and various other useful data, some of which are suitable for use as input data for other analytic programs.

C. Validation

The user's manual for the CRSTER model indicates that EPA subjected CRSTER to four validation studies at locations not involved in this case. CRSTER Manual at App. D-F. In an effort to determine the validity and overall accuracy of CRSTER, EPA attempted to validate the model at the Canal power plant, along Cape Code Bay in Massachusetts, and at the Philo, Stuart, and Muskingum plants in southern Ohio.

Based on empirical testing, EPA concluded that CRSTER generally tends during any given year to underestimate the highest and second-highest 24-hour estimated average and the 3-hour estimated average concentrations of sulfur dioxide. With respect to the 1-hour average, the CRSTER model overpredicted as often as it underpredicted. The amount of over- or underprediction varied from plant to plant, but the model is, according to the user's manual, "generally accurate within a factor of 2," a 200% deviation from actual fact. The user's manual states that this "accuracy is widely accepted for such point [i.e., 'single'] source models." *Id.*, at D-4.

Several conclusions may be drawn about the CRSTER model on the basis of these COPR. (C) WEST 1986 NO CLAIM TO ORIG. U.S. GOVT. WORKS

four validation studies. First, CRSTER predicted the second-highest 1-hour sulfur dioxide estimated concentrations within a factor of two at two-thirds of the sampling sites. EPA believes that this is an acceptable range of accuracy. Second, CRSTER consistently underpredicted the second-highest 24-hour sulfur dioxide concentrations. Third, plant-specific factors appear to affect the degree to which CRSTER over- or underpredicts sulfur dioxide concentrations. Finally, CRSTER tends to underpredict at greater distances from the pollution source. The four validation tests described here make clear that EPA can validate the CRSTER at a particular site. It appears that on-site validation of CRSTER requires at least one full year of data gathering by EPA.

II. ACCURACY OF THE CRSTER MODEL

Petitioners' primary argument is that EPA has not shown that the new emissions limits, based on predictions generated by the CRSTER model, will ensure attainment of the national air quality standard for sulfur dioxide as required by the Clean Air Act, 42 U.S.C. s 7410(a)(2)(B). The main thrust of their argument is an attack on the CRSTER model. They assert that the model's predictions are not accurate reflections of actual pollution concentrations.

The first issue presented is whether EPA has demonstrated the CRSTER model to be sufficiently accurate to be used in setting emissions limits for the plants. In other words, is the CRSTER model accurate enough that EPA's reliance on this model was reasonable rather than arbitrary? 42 U.S.C. s 7607(d)(9)(A). We are asked to assess the model's accuracy even though we are limited by a lack of information in the record demonstrating how reliably the model predicts the diffusion of sulfur dioxide in the region around the plants. No on-site study has been performed on the CRSTER model, as was done on the Urban RAM model, comparing the model's predictions of sulfur dioxide concentration for the areas surrounding the plants with actual monitored concentrations in these areas. No one has empirically tested the model or cross-checked its predictions against reality at the locations of the company's power plants.

The Clean Air Act requires that state implementation plans contain provisions that ensure empirical testing of source emissions and ambient air quality. Under section 7502(b)(4), implementation plans developed for nonattainment areas must require a "comprehensive, accurate, current inventory of actual emissions from all sources." [FN1] The Act also provides that EPA may not approve a plan unless "it includes provision for establishment and operation of appropriate devices, methods, systems and procedures necessary to ... monitor, compile, and analyze data on ambient air quality." 42 U.S.C. s 7410(a)(2)(c). Additionally, a plan must provide "for installation of equipment by owners or operators of stationary sources to monitor emissions from such sources ... for periodic reports" and for correlation of this information with air quality standards. 42 U.S.C. s 7410(a)(2)(F).

In 1978 another panel of our Court found that EPA's plan for Ohio did not comply with the emissions monitoring requirement of s 7410(a)(2)(F). *Northern Ohio Lung Association v. EPA*, 572 F.2d 1182 (6th Cir.1978). The Court remanded this aspect of the plan to EPA for reconsideration, but EPA has not yet complied with the Court's directive. EPA has failed to comply with the provisions of the Clean Air Act which contemplate that empirical data will be collected on the amount of sulfur dioxide being emitted and the resulting concentrations of this pollutant in the ambient air.

EPA's reliance on the CRSTER model without testing the model against any monitored emissions from the plants and ambient air quality data from the area
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around the plants is arbitrary under these circumstances. The CRSTER model's unimpressive showing in the validation studies conducted at other sites in Ohio and Massachusetts suggests that the model's accuracy is suspect. Moreover, these studies emphasize that site-specific factors, such as local geography and weather conditions, affect the model's accuracy. We have no information in the record about what effect Lake Erie has on the diffusion of sulfur dioxide from these plants built along the shoreline, although all sides appear to agree that this factor is significant. In the absence of reliable data of some type, the trustworthiness of CRSTER predictions cannot be assessed.

In so holding, we recognize that other courts, in some cases, have not required EPA to test model predictions against monitored air quality data. See, e.g., *South Terminal Corp. v. EPA*, 504 F.2d 646 (1st Cir.1974); *Mision Industrial, Inc. v. EPA*, 547 F.2d 123 (1st Cir.1976). However, in *South Terminal*, the First Circuit required EPA to demonstrate that its regulation was supported by adequate technical evidence. 504 F.2d at 663-67; see also *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971); *Appalachian Power Co. v. EPA*, 477 F.2d 495, 567 (4th Cir.1973) (agency has discretion in rulemaking, but must "explicate fully" its course of inquiry, analysis and reasoning so that reviewing court can conduct meaningful review). This circuit has favored requirements that EPA back up its regulations with checks against real world data. See, e.g., *Northern Ohio Lung Association*, 572 F.2d at 1182 (requiring emissions monitoring and correlation of emissions data with air quality data as provided for under 42 U.S.C. s 7410(a)(2)(F)).

The problems that complex technical cases such as this one pose for reviewing courts have been widely discussed. See, e.g., *Case, supra*; Yellin, *High Technology and the Courts*, 94 Harv.L.Rev. 489 (1981); Merges, *Apple v. Franklin: An Essay on Technology and Judicial Competence*, 2 Yale L. & Pol'y Rev. 62 (1983). No matter how sophisticated or involved the methods employed by EPA in reaching its decisions, in order to uphold those decisions under the Clean Air Act we must be able to see that the agency's actions were not arbitrary. In the absence of a record supporting the trustworthiness of agency decision-making tools as they were applied, we cannot uphold those tools' application. EPA has failed to provide such a record.

Furthermore, EPA's own guidelines explicitly recognize the importance of validation using monitored data.

It must be noted that [we] have never encouraged the use of air quality models in place of measured data. In fact, EPA encourages the use of measured data in evaluating the effectiveness of control strategies and in determining emission limits. The two should be used in a complementary manner whenever possible. The air quality data can be especially useful in validating air quality models and thus have a direct impact on the air quality assessment.

U.S. EPA, *Guideline on Air Quality Models* 6 (1978).

Given the CRSTER model's demonstrated sensitivity to site-specific characteristics, EPA's failure to validate CRSTER at the Eastlake and Avon Lake plants in accordance with its own guidelines was arbitrary and capricious.

Having so held, we order the parties to advise the Court on the following matters within the time limits set forth in the accompanying order:

1. What empirical testing program should be undertaken to validate the CRSTER model as it was applied at the company's East Lake and Avon Lake plants? In addition, each party should include a clear, concise, and not overly technical explanation of why its validation scheme should be employed.
2. What emission levels ought to be required, as an interim measure, at the COPR. (C) WEST 1986 NO CLAIM TO ORIG. U.S. GOVT. WORKS

East Lake and Avon Lake plants until the CRSTER model has been validated?

III. "PREVENTION OF SIGNIFICANT DETERIORATION" AND PROCEDURAL ERROR

Petitioners also argue that EPA violated the Clean Air Act by revising the Ohio plan without performing a "Prevention of Significant Deterioration" review. The Act requires such a review before a major source is built or modified causing an increase in emissions in an attainment area. S. Goldberg, Source Planning Under the New PSD Regulations, 11 BNA Environmental Reporter No. 30 (November 21, 1980). Petitioners assert that such a review is also required before the EPA may approve the relaxation of sulfur dioxide emissions limits.

We hold that EPA's promulgation of the new emissions limits does not trigger a Prevention of Significant Deterioration review. The regulations governing such reviews provide that "[i]f a State Implementation Plan revision would result in increased air quality deterioration over any baseline concentration, the plan revision shall include a demonstration that it will not cause or contribute to a violation of the applicable increment(s)." 40 C.F.R. s 51.24(a)(2) (1985). Thus, only plan revisions that will result in pollution levels higher than the "baseline concentration" require reviews. The Act defines the baseline concentration in terms of ambient air concentration levels, 42 U.S.C. s 7479(4), and the regulations clarify that this means actual concentration levels existing on a "baseline date" (sometime after August 7, 1977). 40 C.F.R. s 51.24(b)(13) (1985). The new emissions limits could not have caused a deterioration in air quality, measured in actual pollution concentration levels, because the new limits would force the plants to reduce their emissions to levels that are lower than their emissions at any time since before 1976. Consequently, no Prevention of Significant Deterioration review was required.

Petitioners' final argument is that EPA erred by failing to provide notice and opportunity to comment prior to enacting the new emissions limits based on the CRSTER model's predictions. Under section 7607(d)(9)(D) we could reverse EPA's action because of this procedural error only if, in addition to other conditions, "there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made." 42 U.S.C. s 7607(d)(8). We recognize the importance of the concept of prior notice and opportunity to comment. However, in light of the fact that EPA granted petitions for reconsideration and received comments on the use of the CRSTER model but, nevertheless, reaffirmed the emissions limits based on the model, we hold that there is no "significant likelihood that the rule would have been ... changed if the errors had not been made."

ENGEL, Circuit Judge, concurring.

I concur in Part III of Judge Merritt's opinion. I concur also in the issuance of the order as attached to the opinion.

Because I am interested in the responses which may be made by the parties to the inquiries set forth in the order, I am unable at this time to concur in that portion of the opinion that concludes that the EPA's failure to validate CRSTER at the Eastlake and Avon Lake Plants in accordance with its own guidelines was arbitrary and capricious. I therefore prefer to reserve my own judgment on this issue until we have received responses from the parties and have had a chance to evaluate it further.

FN1. Section 7502(b)(4)'s emissions inventory requirement is imposed for COPR. (C) WEST 1986 NO CLAIM TO ORIG. U.S. GOVT. WORKS

the purpose of providing data necessary to rule on an application to construct a new source, or modify an existing one, in the nonattainment area. See 42 U.S.C. ss 7410(a)(2)(I), 7502(a)(1). However, the requirement to develop this emissions inventory must apply to all sources in the nonattainment area. 42 U.S.C. s 7502(b)(4).

C.A.6, 1986.

State of Ohio v. U.S.E.P.A.

--- F.2d ----, Nos. 80-3575, 80-3576, 80-3579, 80-3581, 80-3582 and 81-3525.

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COPR. (C) WEST 1986 NO CLAIM TO ORIG. U.S. GOVT. WORKS

CERTIFICATE OF SERVICE

I, Linda B. Milewski, being first duly sworn on oath, state that I have served the foregoing Notice and Petitioner's Motion for Reconsideration upon the persons to whom said Notice is addressed by placing a copy in an envelope properly addressed and sending it by first class mail, postage prepaid, from Chicago, Illinois on May 29, 1986.

Linda B Milewski

Subscribed and sworn to
before me this 29th day
of May, 1986.

John J. Jasso
Notary Public