Portland Cement Ass'n v. Ruckelshaus

United States Court of Appeals for the District of Columbia Circuit

January 29, 1973, Argued ; June 29, 1973, Decided

No. 72-1073

Reporter
486 F.2d 375 *; 1973 U.S. App. LEXIS 9083 **; 158 U.S. App. D.C. 308; 3 ELR 20642; 5 ERC (BNA) 1593

PORTLAND CEMENT ASSOCIATION AN ILLINOIS NOT-FOR-PROFIT CORPORATION, PETITIONER, v. WILLIAM D. RUCKELSHAUS, ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY, RESPONDENT, MEDUSA PORTLAND CEMENT CO., and NORTHWESTERN STATES PORTLAND CEMENT CO., INTERVENORS

Prior History: [1]** Petition for Review of an Order of the Administrator, Environmental Protection Agency.

LexisNexis® Headnotes

Environmental Law > Air Quality > General Overview

HN1[] **Environmental Law, Air Quality**

See *42 U.S.C.S. § 1857c-6(a)(1)*.

Environmental Law > Air Quality > General Overview

HN2[] **Environmental Law, Air Quality**

See *42 U.S.C.S. § 1857c-6(a)(2)*.

Environmental Law > Air Quality > General Overview

HN3[] **Environmental Law, Air Quality**

See *42 U.S.C.S. § 1857c-6(a)(4)*.

Business & Corporate Compliance > ... > Environmental Law > Assessment & Information Access > Environmental Impact Statements

Environmental Law > Air Quality > General Overview

Environmental Law > Natural Resources & Public Lands > National Environmental Policy Act > General Overview

HN4[] **Environmental & Natural Resources, Environmental Impact Statements**

See *42 U.S.C.S. § 4332(2)(C)*.

Governments > Legislation > Interpretation

HN5[] **Legislation, Interpretation**

The "plain meaning" doctrine has always been subservient to a truly discernible legislative purpose however discerned, by equitable construction or recourse to legislative history.

Governments > Legislation > Interpretation

HN6[] **Legislation, Interpretation**

In statutory interpretation, the courts must often, in effect, consider what answer the legislature would have made as to a problem that was neither discussed nor contemplated.

Business & Corporate
Compliance > ... > Environmental
Law > Assessment & Information
Access > Environmental Impact Statements

Environmental Law > Administrative
Proceedings & Litigation > Jurisdiction

Environmental Law > Natural Resources &
Public Lands > National Environmental Policy
Act > General Overview

HN7[] **Environmental & Natural Resources, Environmental Impact Statements**

The quality of a draft impact statement might be lessened to conform to the requirements of speedy action. NEPA requires compliance only "to the fullest extent possible", *42 U.S.C.S. § 4332*, and is subject to a construction of reasonableness. The need for timely action is not exclusive with the Environmental Protection Agency.

Business & Corporate
Compliance > ... > Environmental
Law > Assessment & Information
Access > Environmental Impact Statements

Environmental Law > Administrative
Proceedings & Litigation > Jurisdiction

Environmental Law > Natural Resources &
Public Lands > National Environmental Policy
Act > General Overview

HN8[] **Environmental & Natural Resources, Environmental Impact Statements**

The policy thrust toward exemption of the environmental agency is discernible from these factors, taken in combination: (1) An exemption from NEPA is supportable on the basis that this best serves the objective of protecting the environment which is the purpose of NEPA. (2) This comes about because NEPA operates, in protection of the environment, by a broadly applicable measure that only provides a first step. The goal of protecting the environment requires more than NEPA provides, i.e. specific assignment of duties to protection agencies, in certain areas identified by Congress as requiring extra protection. (3) The need in those areas for unusually expeditious decision would be thwarted by a NEPA impact statement requirement. (4) An impact statement requirement presents the danger that opponents of environmental protection would use the issue of compliance with any impact statement requirement as a tactic of litigation and delay.

Administrative Law > Agency
Rulemaking > Formal Rulemaking

Administrative Law > Agency
Rulemaking > Informal Rulemaking

Administrative Law > Agency
Rulemaking > Rule Application &
Interpretation > General Overview

HN9[] **Agency Rulemaking, Formal Rulemaking**

It is not consonant with the purpose of a rule-making proceeding to promulgate rules on the basis of inadequate data, or on data that, critical degree, is known only to the agency.

Administrative Law > Agency
Rulemaking > Rule Application &
Interpretation > General Overview

Administrative Law > Agency Rulemaking > Informal Rulemaking

HN10[] **Agency Rulemaking, Rule Application & Interpretation**

In order that rule-making proceedings to determine standards be conducted in orderly fashion, information should generally be disclosed as to the basis of a proposed rule at the time of issuance. If this is not feasible, as in case of statutory time constraints, information that is material to the subject at hand should be disclosed as it becomes available, and comments received, even though subsequent to issuance of the rule, with court authorization where necessary. This is not a requirement that the rule be suspended, though the court may consider an application for stay based on probability of success and furtherance of the public interest. Conversely, challenges to standards must be limited to points made by petitioners in agency proceedings. To entertain comments made for the first time before the court would be destructive of a meaningful administrative process.

Environmental Law > Administrative Proceedings & Litigation > Jurisdiction

HN11[] **Administrative Proceedings & Litigation, Jurisdiction**

It is one thing to use a method of testing to observe possible violations of a standard; it is another to constitute that method as the standard itself. If a test is to be a standard, and if violations can result in enforcement actions without further testing, the standard must be consistent with the statute and congressional intent.

Administrative Law > Judicial Review > Standards of Review > Clearly Erroneous Standard of Review

Civil Procedure > Appeals > Standards of Review > Clearly Erroneous Review

HN12[] **Standards of Review, Clearly Erroneous Standard of Review**

The necessity to review agency decisions, if it is to be more than a meaningless exercise, requires enough steeping in technical matters to determine whether the agency has exercised a reasoned discretion. The court cannot substitute its judgment for that of the agency, but it is the court's duty to consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.

Counsel: Robert E. Haythorne, with whom Perry S. Patterson was on the brief for Petitioner.

James R. Walpole, Attorney, Department of Justice with whom Kent Frizzell, Assistant Attorney General, Edmund B. Clark and Martin Green, Attorneys, Department of Justice, were on the brief, for Respondent. Raymond N. Zagone, Attorney, Department of Justice also entered an appearance for Respondent.

Robert H. Shepard was on the brief for Intervenor, Northwestern States Portland Cement Company.

William H. Wallace was on the brief for Intervenor, Medusa Corporation.

Turner T. Smith, Jr., filed a brief on behalf of Long Island Lighting Company and National Asphalt Pavement Association, as Amici Curiae urging reversal.

Perry S. Patterson entered an appearance for Intervenors.

Judges: Fahy, Senior Circuit Judge, Leventhal and Robb, Circuit Judges. Opinion for the Court filed by Circuit Judge LEVENTHAL.

Opinion by: LEVENTHAL

Opinion

[*377] LEVENTHAL, Circuit Judge:

Portland Cement Association seeks review [1] of the action of the Administrator **[*378]** of the Environmental Protection Agency (EPA) **[**2]** in promulgating stationary source standards for new or modified portland cement plants, pursuant to the provisions of Section 111 of the Clean Air Act. [2] Medusa Corporation and Northwestern States Portland Cement Company were granted leave to intervene by this court and they together with petitioner, will be referred to as the cement manufacturers. Long Island Lighting Company has filed a brief as an Amicus Curiae.

I. STATEMENT OF THE CASE

Section 111 of the Clean Air Act directs the Administrator to promulgate "standards of performance" governing emissions of air pollutants by new stationary sources constructed or modified after the **[**3]** effective date of pertinent regulations. [3] **[**4]** The focus of dispute in this case concerns EPA compliance with the statutory language of Section 111(a) which defines "standard of performance" as follows: [4]

> *HN1*[↑] (1) The term "standard of performance" means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated.

After designating portland cement plants as a stationary source of air pollution which may "contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare", under Section 111 (b)(1)(A) of the Act, [5] the Administrator published a proposed regulation establishing standards of performance for portland cement plants. The proposed regulation was accompanied by a document entitled "Background Information For Proposed New-Source Performance Standards," which set forth the justification. [6] **[**6]** Interested parties were afforded an opportunity to participate in the rule making by submitting comments, and more than 200 interested parties did so. [7] The "standards of performance" were adopted by a regulation, issued December 16, 1971, which requires, inter alia, that particulate matter emitted from portland cement plants shall not be: [8]

> (1) In excess of 0.30 lb. per ton of feed to the kiln (0.15 Kg. per metric ton), maximum 2-hour average.
>
> (2) Greater than 10% opacity, except that where **[**5]** the presence of uncombined water

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[1] Section 307(b)(1) of the Clean Air Act, *42 U.S.C. § 1857h-5(b)(1)*, requires that a petition for review of the action of the Administrator in setting standards of performance under section 111 of the Act "be filed only in the United States Court of Appeals for the District of Columbia."

[2] *42 U.S.C. § 1857c-6*.

[3] The term "new source" is defined as:

> *HN2*[↑] any stationary source, the construction or modification of which is commenced after the publication of regulations (or, if earlier, proposed regulations) prescribing a standard of performance under this section which will be applicable to such source. *42 U.S.C. § 1857c-6(a) (2)*.

Modification is, in turn, defined as:

> *HN3*[↑] any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted. *42 U.S.C. § 1857c-6(a) (4)*.

[4] *42 U.S.C. § 1857c-6(a) (1)*.

[5] *42 U.S.C. § 1857c-6(b)(1)(A)*. The designation of portland cement plant emissions was made on March 31, 1971, ***36 Fed. Reg. 5931 (1971)***.

[6] The proposed standards were issued on August 3, 1971 and published on August 17, 1971, *36 Fed. Reg. 15,704 (1971)*. The Background Document, prepared by the Environmental Protection Agency, Office of Air Programs, states: "The proposed standards . . . are being distributed concurrently with this document." (JA at 20).

[7] 34 comments, specifically addressed to the Portland Cement standards, are at Tab VIII of the Certified Record (C.R.). They have been filed as a supplement to the Joint Appendix.

[8] *36 Fed. Reg. 24,876 (1971)*.

is the only reason for failure to meet the requirements for this subparagraph, such failure shall not be a violation of this section.

[*379] The standards were justified by the EPA as follows: [9]

The standards of performance are based on stationary source testing conducted by the Environmental Protection Agency and/or contractors and on data derived from various other sources, including the available technical literature. In the comments on the proposed standards, many questions were raised as to costs and demonstrated capability of control systems to meet the standards. These comments have been evaluated and investigated, and it is the Administrator's judgment that emission control systems capable of meeting the standards have been adequately demonstrated and that the standards promulgated herein are achievable at reasonable costs.

On March 21, 1972, EPA published a "Supplemental Statement in Connection With Final Promulgation", [10] amplifying the justification for its standards and indicating that it had been prompted by the action of this court in *Kennecott Copper Corp. v. E.P.A., 149 U.S. App. D.C. 231, 462 F.2d 846 (1972)*, to offer "a more specific explanation of how [the Administrator] had arrived at the standard." This statement relied principally on EPA tests on existing portland cement plants to demonstrate that the promulgated standards were achievable.

The action of the Administrator has been challenged on the following grounds: **[**7]** (1) The Administrator did not comply with the National Environmental Policy Act of 1969 (NEPA). (2) Economic costs were not adequately taken into account and the standards unfairly discriminate against portland cement plants, in comparison with standards promulgated for power plants and incinerators. (3) The achievability of the standards was not adequately demonstrated.

II. COMPLIANCE WITH NEPA

Petitioners argue that EPA acted contrary to the requirements of the National Environmental Policy Act of 1969, *42 U.S.C. §§ 4321-35*, in failing to file a "NEPA" statement in conjunction with the promulgation of the stationary standards. They draw particularly on the language of ***HN4*** § 102(2)(C) of NEPA which states: [11]

The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter, and (2) all agencies of the Federal Government shall --

* * *

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the **[**8]** quality of the human environment, a detailed statement by the responsible official on --

(i) the environmental impact of the proposed action . . . .

1. Petitioners, in effect, predicate an EPA obligation to file an impact statement on this simple syllogism: (1) All federal agencies must file an impact statement; (2) EPA is a federal agency; (3) EPA must file an impact statement. *Anaconda Co. v. Ruckelshaus, 352 F. Supp. 697, 4 ERC 1817, 1828 (D. Col. 1972)*. If the premises be accepted, the logic is clear. But the argument is more simplistic than simple, for the premises require a more precise determination of legislative intent. In ascertaining congressional intent we begin with the language of a statute, [12] but this is subject to an

[9] Id. at para. 17.

[10] *37 Fed. Reg. 5767 (1972)*.

[11] *42 U.S.C. § 4332 (2)(C)(1970)*.

[12] *Caminetti v. United States, 242 U.S. 470, 485, 61 L. Ed. 442, 37 S. Ct. 192 (1917)*.

overriding requirement of looking to all sources including purpose and legislative history, to ascertain discernible **[*380]** legislative purpose. [13] The question is whether EPA is a "federal **[**9]** agency" within the meaning of NEPA -- whether, and to what extent, Congress intended it to be subject to the NEPA mandate concerning preparation of impact statements.

2. A primary purpose of NEPA, and specifically the impact statement requirement, was the design to co-ordinate disparate environmental policies of different federal agencies. [14] At the time NEPA was enacted on January 1, 1970, [15] EPA was not yet in existence. EPA was created **[**10]** by Reorganization Plan No. 3, submitted to Congress on July 9, 1970, [16] which was designed to bring under one roof the major environmental federal programs which until that time had been scattered throughout different agencies of the government. It is by no means clear, as will appear, that NEPA's impact statement requirement was intended at time of passage of NEPA to be applicable to such environmental agencies as the National Air Pollution Control Administration of the Department of Health, Education and Welfare or the Federal Water Quality Administration of the Department of the Interior. But even assuming it was applicable to them, it does not necessarily follow that NEPA is applicable to EPA, which Congress did not have before it, and which in its own organization accomplished the purpose of coordination of environmental approach. ***HN6***[↑] In statutory interpretation, the courts must often, in effect, consider what answer the legislature would have made as to a problem that was neither discussed nor contemplated. *Montana Power Co. v. F.P.C., 144 U.S. App. D.C. 263, 445 F.2d 739 (1970)* (en banc), cert. denied, *400 U.S. 1013, 27 L. Ed. 2d 627, 91 S. Ct. 566 (1971)*. **[**11]**

3. The impact statement issue requires us to consider not only NEPA, but also the Clean Air Act and particularly the statutory scheme by which new stationary source standards are promulgated. [17]

[12]** Section 111 of the Clean Air Act establishes precise time schedules for the promulgation of new source standards. [18] The Administrator was required to publish, 90 days after December 31, 1970, a list of categories of stationary sources which "contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare." Within 120 days of the inclusion of a category, the Administrator is required to propose standards, and 90 days thereafter the standards are to go into effect. Obviously, a strong argument can be made that the Clean Air Act, and the provisions for unusual expedition in disposing of the complex environmental and other problems faced by the agency, assumed that the agency would not be subject to the additional time required to prepare a "detailed" proposal of an impact statement, circulate the statement to the agencies for comment and assess the comments made.

[*381] The time constraint of **[**13]** the Clean

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[13] ***HN5***[↑] "The 'plain meaning' doctrine has always been subservient to a truly discernible legislative purpose however discerned," by equitable construction or recourse to legislative history. *Wilderness Society v. Morton, 156 U.S. App. D.C. 121, 479 F.2d 842, 855 (1973)* (en banc), cert. denied ***411 U.S. 917, 36 L. Ed. 2d 309, 93 S. Ct. 1550 (1973)***; *District of Columbia v. Orleans, 132 U.S. App. D.C. 139, 141, 406 F.2d 957, 959 (1968)*.

[14] *See Calvert Cliffs Coordinating Committee v. AEC, 146 U.S. App. D.C. 33, 47, 449 F.2d 1109, 1123 (1971)*; *National Resources Defense Council, Inc. v. Morton, 148 U.S. App. D.C. 5, 13, 458 F.2d 827, 835 (1972)*.

[15] 83 Stat. 853.

[16] The reorganization plan was effective December 2, 1970, *35 Fed. Reg. 15623 (1970)*. *See 42 U.S.C. § 4321* note (1970).

[17] In order to give full effect to the Clean Air Act, it must be read, at minimum *in pari materia* with NEPA. *See United States v. Stewart, 311 U.S. 60, 85 L. Ed. 40, 61 S. Ct. 102 (1940)*. There is doctrine to the effect that in case of conflict between two federal laws, the later enactment is given precedence. *United States v. Wrightwood Dairy Co., 127 F.2d 907 (7th Cir. 1942)*.

[18] *42 U.S.C. § 1857c-6(b) (1)*.

Air Act is perhaps not decisive [19] but it is a substantial consideration and, as will be seen, an inter-related aspect of that Act reinforces the conclusion that NEPA is inapplicable to determinations under it.

[14]** Long Island Lighting Company argues that the Act could accommodate delay in the time allowed for publication of the list of categories of stationary sources until an impact statement had been duly prepared, in compliance with NEPA, and completed. This is at odds with the express language of the Act which specifies that any source which contributes to the endangerment of public health or welfare shall be placed on that list at the end of 90 days.

4. As we have already indicated, there is a serious question whether NEPA is applicable to environmentally protective regulatory agencies. There is no express exemption in the language of the Act or Committee Reports. [20] However, such an exemption is set forth in a document entitled "Major Changes in S. 1075 as passed by the Senate" introduced into the Congressional Record by Senator Jackson during debate over approval of the Conference Report. [21]

[15]** The document, in analyzing Section 102 of NEPA, detailing the procedures and requirements of an impact statement, stated that the provisions were "not designed to result in any change in the manner in which [environmental agencies] carry out their environmental protection authority". It stated immediately thereafter:

> This provision is, however, clearly designed to assure consideration of environmental matters by all agencies in their planning and decision making -- especially those agencies who now have little or no legislative authority to take environmental considerations into account. [22]

Senator Muskie commented on this language as coming from his discussions with Senator Jackson, and then stated, in debate:

> It is clear then, and this is the clear understanding of the Senator from Washington [Jackson] and his colleagues, and of those of us who serve on the Public Works Committee, that the agencies having authority in the environmental improvement field will continue to operate under their legislative mandates as previously established, and that those legislative mandates are not changed in any way by section 102-5. [23]

Manifestly, the **[**16]** statements of these two Senators, who were among the most active in securing the passage of NEPA, [24] **[*382]** are entitled to weight in ascertaining legislative intent.

However, their understanding was not formalized by any statement in the Conference Report or in the

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[19] ***HN7***[↑] The quality of a draft impact statement might be lessened to conform to the requirements of speedy action. NEPA requires compliance only "to the fullest extent possible", *42 U.S.C. § 4332*, and is subject to a construction of reasonableness. *National Resources Defense Council v. Morton, 148 U.S. App. D.C. 5, 15, 458 F.2d 827, 837 (1972)*. The need for timely action is not exclusive with the Environmental Protection Agency. *See SCRAP v. United States, 346 F. Supp. 189, 199 (D.D.C. 1972)* (3-judge court), probable jurisdiction noted ***409 U.S. 1073, 93 S. Ct. 683, 34 L. Ed. 2d 662 (1973)***.

A major difficulty with this approach is that it tends to result in a group of second-class impact statements, ascribed to time urgencies. In contrast, the Council on Environmental Quality has established a relatively short comment time in the interest of a uniform procedure that can accommodate even agencies on a tight time table -- to avoid "a delay incompatible with the nature of some government programs." THIRD ANNUAL REPORT 237 (1972).

The crunch under the Clean Air Act is that there is no legal latitude available to delay the action, in order to give more than lip service to the comment procedure.

[20] S. REP. No. 296, 91st Cong., 1st Sess. (1969); H. REP. No. 765, 91st Cong., 1st Sess. (1969).

[21] 115 CONG. REC. 40417 (1969).

[22] *Id.* at 40418.

[23] *Id.* at 40423.

[24] Senator Jackson, floor manager of the debate on the Conference Report, was the sponsor of the original Senate bill on NEPA, S. 1075, chaired the Senate Committee on Interior and Insular Affairs, which considered the bill, and was a member of the Conference Committee. Senator Muskie was the Chairman of the Subcommittee on Air Pollution of the Committee on Public Works.

section-by-section analysis of the bill as reported by the Conference Committee. [25] Senator Allott, ranking minority member of the Interior Committee and of the Conference Committee, also a supporter of NEPA, stated: [26]

> . . . while the explanatory statements relative to the interpretation of the conference report **[**17]** language, as provided by the chairman, are useful, they have not been reviewed, agreed upon, and signed by the other Senate conferees. Only the conference report itself was signed by all the Senate conferees, and therefore, only it was agreed upon and is binding.

As for the House of Representatives, its action on the Conference Report was equally ambiguous. Representative Dingell submitted the Conference Report to the House on December 22, 1969, [27] two days after the report had been submitted to the Senate by Senator Jackson. As part of his opening remarks, Rep. Dingell introduced into the record the text of answers to certain questions posed to him by Rep. Fallon, the Chairman of the Committee on Public Works. His answer to one of those questions tracked the language of the "Major Changes" document submitted to the Senate, indicating no intended change in requirements for "environmental control" agencies. **[**18]** [28] There is no indication, however, of any debate or acceptance of Rep. Dingell's answer by any other member of the House.

5. We now turn to consideration of the import of subsequent congressional actions.

In the Federal Water Pollution Control Act Amendments of 1972 (FWPCA), Congress provided that NEPA did not control certain actions taken by EPA pursuant to their water pollution control activities. [29] **[**19]** The question arose in debate, and is carried on by the parties to this case, as to whether this was an "exemption" -- in which case the assumption would be that prior law generally intended NEPA to be applicable -- or an affirmative declaration that NEPA did apply to only a limited number of EPA activities specified in the amendments. Such debate of a later Congress have been described by the Supreme Court as offering a hazardous basis for inferring the intent of the earlier Congress; [30] and this is borne out by our analysis.

Senator Muskie pointed during the 1972 debates to the Muskie-Jackson colloquy as expressing the intent to exempt EPA, and that the present legislation merely imposed some affirmative NEPA obligations, so as to narrow the exemption. [31] **[**20]** Others, such as Senator **[*383]** Nelson,

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[25] H.R. REP. No. 765, 91st Cong., 1st Sess. 7 (1969).

[26] 115 CONG. REC. 40422 (1969).

[27] *Id.* at 40922 (1969).

[28] *Id.* at 40925.

[29] Pub. L. No. 92-500, 86 STAT. 816 (1972). Section 511 (c) (1) provides that NEPA is not applicable to EPA, at least as to impact statements, except in two cases: where grants are made for the construction of publicly owned waste treatment works and where the agency issues new source permits.

[30] *United States v. Southwestern Cable Co., 392 U.S. 157, 170, 20 L. Ed. 2d 1001, 88 S. Ct. 1994 (1968)*.

[31] 118 CONG. REC. 16877-78 (daily ed., Oct. 4, 1972). Senator Muskie also referred to an intervening interpretation of the Council on Environmental Quality that EPA was exempt from NEPA, *36 Fed. Reg. 7724 (1971) § 5(d)*. This CEQ interpretation as to EPA, reflected its earlier view that the Federal Water Quality Adminstration and the National Air Pollution Control Board were exempt from NEPA, ***35 Fed. Reg. 7391 (1970)*** *§ 5(d)*. The CEQ view was based on its reading of the legislative history of NEPA, which we find highly ambiguous, and cannot therefore assign this administrative determination controlling weight. At least part of the deference assigned to administrative construction of a statute, concerns the passage of time under which the agency view has become an accepted interpretation and in which the Congress has not acted to nullify the agency practice. Deference may also be accorded an administrative interpretation to avoid dislocation where agencies have shaped their actions in accordance with the interpretation, and the court concludes that the interpretation is not inconsistent with discernible legislative intention. Here, however, the issue of meaning turns on statutory wording and legislative history, available in extenso to the court, and not affected by any considerations of special technical expertise of CEQ, which might lead to extra deference. *See Wilderness Society v. Morton, supra*, Slip Opinion at 40-51, for discussion of deference to be given administrative construction of statutes. We note that CEQ, in its latest Proposed

clearly perceived the water pollution control amendments as, in fact, exempting EPA from NEPA. [32] Senator Jackson had doubts by 1972, as to the wisdom of his prior position on a broad exemption for "environmental control" agencies. [33]

6. The matter resolves itself, as to this issue of exemption for environmental agencies, that we have items which are entitled to some weight as indicia of legislative intent, but cannot be taken as decisive. [34] **[**21]** It becomes appropriate, then, [35] to consider the policies underlying the legislation. [36] Here, again, we encounter competing considerations reflecting the difficulty in resolving the question; but perhaps they point the way toward a resolution.

[22]** *HN8*[↑] The policy thrust toward exemption of the environmental agency is discernible from these factors, taken in combination: (1) An exemption from NEPA is supportable on the basis that this best serves the objective of protecting the environment which is the purpose of NEPA. (2) This comes about because NEPA operates, in protection of the environment, by a broadly applicable measure that only provides a first step. The goal of protecting the environment requires more than NEPA provides, i.e. specific assignment of duties to protection agencies, in certain areas identified **[*384]** by Congress as requiring extra protection. (3) The need in those areas for unusually expeditious decision would be thwarted by a NEPA impact statement requirement. [37] **[**23]** (4) An impact statement requirement presents the danger that opponents of environmental protection would use the issue of compliance with any impact statement requirement as a tactic of litigation and delay. [38]

The policies against a NEPA exemption embrace the endemic question of "Who shall police the police"? As Senator Jackson stated, "It cannot be assumed that EPA will always be the good guy." [39] **[**24]** Concern was also voiced by petitioners in

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Guidelines for Preparation of Environmental Impact Statements, 38 Fed. Reg. 10856, 10865 (1973), has retracted § 5d and its broad claim that EPA was exempt from all NEPA requirements. We do not reach the question as to the scope of authority of the Council on Environmental Quality to interpret the requirements of the Act.

[32] Senator Buckley viewed section 511(c)(1) as a provision "which grants broad exemptions", 118 CONG. REC. S16884 (daily ed., Oct. 4, 1972). Senator Nelson stated: "While this section [511(c)(1)] does specifically authorize some exemptions from the environmental policy act to avoid conflict with other key environmental aims, the reach of these exemptions would appear to be narrow." *Id.* at 16888.

[33] *Id.* at 16886-88.

[34] *Compare* United States v. Thompson, 147 U.S. App. D.C. 1, 13, 452 F.2d 1333, 1345 (1971), cert. denied, ***405 U.S. 998, 31 L. Ed. 2d 467, 92 S. Ct. 1251 (1972)***. *Also see* Calvert Cliffs, supra, 146 U.S. App. D.C. at 49-50, 449 F.2d at 1125-26.

[35] We think little guidance to the resolution of this issue is to be obtained from consideration of section 309 of the Clean Air Act, 42 U.S.C. § 1857h-7, which petitioners greatly relied on during oral argument of this case. That section merely requires the Administrator to review and comment in writing on the impact on the environment of projects of another federal agency "[which contains] any matter related to duties and responsibilities granted [to the Administrator] pursuant to this chapter." The contention that this section implies the Administrator must file a draft impact statement can only be resolved in the framework of the legislative history which we have already reviewed.

[36] *See* United States v. Sisson, 399 U.S. 267, 297-98, 26 L. Ed. 2d 608, 90 S. Ct. 2117 (1970), where Justice Harlan stated: "The axiom that courts should endeavor to give statutory language that meaning that nurtures the policies underlying legislation is one that guides us when circumstances not plainly covered by the terms of the statute are subsumed by the underlying policies to which Congress was committed." *Also see* District of Columbia v. Orleans, supra, 132 U.S. App. D.C. at 140-41, 406 F.2d at 958-59.

[37] Senator Muskie stated, during the debate on the applicability of NEPA statements to EPA, pursuant to the FWPCA amendments of 1972, 118 CONG. REC. 16878 (daily ed., Oct. 4, 1972): "If the general procedural or substantive reforms achieved in NEPA . . . were permitted to override, supersede, broaden, or affect in any way the more specific environmental mandate of the FWPCA, the administration of the Act would be seriously impeded and the intent of Congress in passing it frustrated." For problems in complying with both NEPA and the Clean Air Act's requirements for speedy action, *see* note 19 *supra*.

[38] *Id.*

[39] *Id.* at 16887. Senator Jackson raised this pointed concern: "Since EPA was formed, they have done an admirable job and they are continuing to do so, at least for the present. However, it cannot be forgotten that EPA is a regulatory agency and in the past in

this case that EPA might wear blinders when promulgating standards protecting one resource as to effects on other resources, as is asserted in this case, that air standards may increase water pollution. Finally, it is argued that a NEPA statement's procedures, though burdensome, allow for needed input by other federal agencies and simultaneously open up the decision-making process to scrutiny by the public. [40]

[25]** 7. Our consideration of the complex questions raised by a broad exemption claim, reinforce our conclusion that these should not be decided in the present case, which may appropriately be determined upon the logic of a narrow exemption from NEPA applicable to determinations under section 111 of the Clean Air Act. What is decisive, ultimately, is the reality that, section 111 of the Clean Air Act, properly construed, requires the functional equivalent of a NEPA impact statement. Thus in this case, as in *International Harvester v. Ruckelshaus, 155 U.S. App. D.C. 411, 478 F.2d 615, 650 n.130 (D.C. Cir. 1973)*, [41] we refrain from a determination

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Washington almost all regulatory agencies have eventually come under the control of those that they are charged with regulating," quoting from the September 22, 1972 National Wildlife Federation Conservation Report.

[40] *Id.* (Statement of Senator Jackson). We do not think that the post-decision reporting requirements of the Clean Air Act to Congress, pursuant to sections 312(a) and 313 of the Act, *42 U.S.C. §§ 1857j-1, 2 (1970)*, offer the same timely and substantive impact on decision making as would comments on possible adverse environmental impact during a rule-making proceeding. Section 312(a) calls for "Comprehensive economic cost studies", and EPA has already issued its first required report, which includes a discussion of portland cement. S. Doc. No. 92-67, Annual Report of the Administrator, The Economics of Clean Air, 92d Cong., 2d Sess. 4-36-43 (1972), which is based largely on a study made for the purpose of arriving at the promulgated standard and introduced into the rule-making record. ELIAS, J. R. AND J. M. DEMENT, THE FINANCIAL IMPACT OF AIR POLLUTION CONTROL UPON THE CEMENT INDUSTRY (1971) (prepared for EPA) (hereinafter FINANCIAL IMPACT). C.R. Tab V (f).

Section 313 of the Act requires, inter alia, a report on "the development of air quality criteria and recommended emission control requirements." Two reports have already issued. S. Doc. 92-66, Annual Report of the Administrator of the Environmental Protection Agency, Progress in the Prevention and Control of Air Pollution, 92 Cong., 2d Sess. (1972); S. Doc. 92-11, 92 Cong., 1st Sess. (1971 Annual Report). Both reports are summary in nature, and neither discusses portland cement.

It is, therefore, apparent that Congress receives no required information about the possible adverse environmental impact of proposed standards for new stationary sources.

[41] To date, only a few cases have dealt with the application of NEPA to EPA. In *Getty Oil Co. (Eastern Operations) v. Ruckelshaus, 467 F.2d 349 (3rd Cir. 1972)*, cert. denied *409 U.S. 1125, 35 L. Ed. 2d 256, 93 S. Ct. 937 (1973)*, the issue was raised in the context of an enforcement proceeding by EPA of Delaware's approved implementation plan under § 110 of the Clean Air Act. Petitioners argued that the failure to file an impact statement rendered the compliance order ultra vires. The Third Circuit held that this objection was improperly raised in an enforcement proceeding, thus not reaching the question, though noting that authority for application was "not persuasive", *citing Kalur v. Resor, 335 F. Supp. 1 (D.D.C. 1971)*.

In *Kalur*, the court held that the Corps of Engineers was required to issue an impact statement before granting a permit to dump "refuse" into navigable waters, pursuant to its administration of the Rivers and Harbors Act of 1899, *33 U.S.C. § 407 (1971)*. This decision was partly responsible for the FWPCA Amendments of 1972, giving EPA authority over the issuance of discharge permits, and exempting issuance from NEPA. Pub. L. No. 92-500, 86 Stat. 816 (1972). *See* statement of Senator Hart, 118 CONG. REC. 16890 (daily ed. Oct. 4, 1972). *Kalur* was subsequently dismissed as moot on appeal to this court by order, following the enactment of the new legislation, and is of no precedential value.

The case most directly on point is *Anaconda Copper Co. v. Ruckelshaus, 352 F. Supp. 697, 4 E.R.C. 1817 (D. Colo. 1972)*. That case dealt with the ability of Anaconda's copper smelter, which emitted sulphur oxides, to conform with EPA standards under § 110 of the Clean Air Act. After the Governor of the State of Montana had deleted that portion of the State plan, relating to these emissions -- which affected only Anaconda -- EPA proposed its own standards. After administrative hearings, Anaconda brought suit in the district court to enjoin promulgation of the rule. The district court held that more than the minimal due process required in rule-making proceedings should have been afforded at the EPA hearing since the regulation in effect applied only to Anaconda, that there was insufficient evidence to support the standards, and that EPA should have been required to file an impact statement pursuant to NEPA. Leaving aside the threshold question as to whether the district court properly took jurisdiction of the proposed rule, *see Environmental Defense Fund et al. v. Enviromental Protection Agency, 158 U.S. App. D.C. 1, 485 F.2d 780 (1973)*, we think the thrust of the district court's concern, which we share, was the seeming refusal of the EPA to take into account possible adverse impact on water quality which might arise from its air standards. This problem was "not studied or considered by the Administrator" according to the findings of fact of the district court. This concern could have been reflected in a

of any broader claim of NEPA exemption.

[26]** Enlarging on our conclusion as to a narrower exemption, we note that section 111 of the Clean Air Act requires a "standard of performance" which reflects "the best system of emission reduction", and requires the Administrator to take "into account the cost of achieving such reduction." These criteria require the Administrator to take into account counter-productive environmental effects of a proposed standard, as well as economic costs to the industry. The Act thus requires that the Administrator accompany a proposed standard with a statement of reasons that sets forth the environmental considerations, pro and con which have been taken into account as required by the Act, and fulfillment of this requirement is reviewable directly by this Court. [42]

[27]** **[*386]** Although the rule-making process may not import the complete advantages of the structured determinations of NEPA into the decision-making of EPA, it does, in our view strike a workable balance between some of the advantages and disadvantages of full application of NEPA. Without the problems of a NEPA delay conflicting with the constraints of the Clean Air Act, the ability of other agencies to make submissions to EPA concerning proposed rules, provides a channel for informed decision-making. These comments will be part of the record in the rule-making proceeding that EPA must take into account. [43]

[28]** EPA's proposed rule, and reasons therefor, are inevitably an alert to environmental issues. The EPA's proposed rule and reasons may omit reference to adverse environmental consequences that another agency might discern, but a draft impact statement may likewise be marred by omissions that another agency identifies. To the extent that EPA is aware of significant adverse environmental consequences of its proposal, good faith requires appropriate reference in its reasons for the proposal and its underlying balancing analysis. While there is more flexibility than NEPA's requirement of an impact statement, this court has stated, and EPA has recognized, that an EPA statement of reasons for standards and criteria require a fuller presentation than the minimum rule-making requirement of the *Administrative Procedure Act. Kennecott Copper v. EPA, supra.*

Similarly, EPA's proposed rule, and reasons therefor, are an alert to the public and the Congress who will have the opportunity to comment as to possible adverse environmental effects of the proposed rule, during the pendency of the rule making proceeding. And finally, the courts will be able to scrutinize the analysis of environmental **[**29]** considerations, in assuring

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requirement that information be developed on this point in conjunction with the hearings on the standard, but instead the court chose to enjoin the rule on the basis of the failure to file an impact statement. We think the examination of support for this holding was myopic, and rested heavily on the logic of the words "all federal agencies" which, as we have indicated *infra*, text at notes 12, 13, is only itself dependent on the non-obvious premise that EPA is a "federal agency" within the meaning of NEPA.

See also *Appalachian Power Co. v. EPA, 477 F.2d 495, 5 ERC 1222 (4th Cir. 1973)* and *Duquesne Light Co. v. EPA, 481 F.2d 1 (3rd Cir. 1973)* holding NEPA inapplicable to actions of Administrator in approving state implementation plan under § 110 of the Clean Air Act.

[42] One of the major reasons Senator Muskie offered for not generally applying NEPA to EPA water pollution control activity, during the FWPCA amendments debate of 1972, was that the Federal Water Pollution Control Act "specifically identifies factors to be considered by the Administrator". 118 CONG. REC. 16878 (daily ed. Oct. 4, 1972). The standard of the "best system" is comprehensive, and we cannot imagine that Congress intended that "best" could apply to a system which did more damage to water than it prevented to air.

[43] This approach avoids the straitjacket that NEPA would impose on the time requirements mandated by the Clean Air Act. EPA would have 120 days to issue, as part of its reasons, its consideration of possible adverse environmental effects, along with its proposed standard. This need not be the "detailed" statement required by NEPA. We would expect, however, that all documents which supported its conclusion on this question be made available for comment. Standard CEQ guidelines, or those of the Environmental Protection Agency, for circulation of impact statements could be adapted to provide for circulation to other federal agencies of the statement of reasons and supporting documents. Time allowed for comment would be made to depend on the strict time requirements of the section 111 proceeding.

that a reasoned decision has been reached. [44]

The court's review guards against arbitrary disregard of environmental factors by EPA without significantly increasing the administrative burden on the agency. And since all environmental questions will have to be considered within the same review proceeding as other challenges to the validity of standards, the potential for incremental litigation delay is minimized.

As to the standard here at issue, petitioners raise possible adverse environmental impact questions in their briefs. [45] **[*387]** But they have not indicated that these problems were brought to the attention of the agency. Since we are remanding the case **[**30]** for other reasons subsequently discussed, EPA should respond to these questions on remand.

We add, finally, a word of clarification: we establish a narrow exemption from NEPA, for EPA determinations under section **[**31]** 111 of the Clean Air Act. NEPA must be accorded full vitality as to non-environmental agencies, as established by our outstanding precedents. [46]

III. ECONOMIC COSTS

The objecting companies contend that the Administrator has not complied with the mandate of § 111 of the Act, which requires him to "[take] into account the costs" of achieving the emission reductions he prescribes, a statutory provision that clearly refers to the possible economic impact of the promulgated standards. [47] The nature of these cost and economic contentions is such that it is possible, and we find it convenient, to consider them now, before describing the industry's processes, which will be presented below in the consideration of other issues.

[32]** The Administrator found in the Background Document that, for a new wet-process plant with a capacity of 2.5 million barrels per year, the total investment for all installed air pollution control equipment will represent approximately 12 percent of the investment for the total facility. He also found that "annual operating costs for the control equipment will be approximately 7 percent of the total plant operating costs if a baghouse is used for the kiln, and 5 percent if an electrostatic precipitator is used." [48]

Petitioners argue that this analysis is not enough -- that the Administrator is required to prepare a quantified cost-benefit analysis, showing the benefit to ambient air conditions as measured against the cost of the pollution devices. However desirable in the abstract, such a requirement would conflict with the specific time constraints imposed on the Administrator. The difficulty, if not impossibility, of quantifying the benefit to ambient

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[44] The combination of reasons relating to possible adverse environmental impact with those justifying the standards generally, directs the attention of the reviewing court to the "reasoned basis" which supports the rule as a whole, rather than permitting challenges based on particular *per se* violations of NEPA.

[45] Petitioner Portland Cement Association asserts in its Brief at 34:

> Increased electricity needed to operate precipitators with greater collection capacity can create increased air pollution by the source of the electricity.

Also, stricter standards will result in the collection of more particulates. These must be disposed of somehow.

The alkaline content of cement must be limited and, since much of the collected particulate is substantially alkaline, it cannot be used in production but must be discarded. This waste is usually combined with water and may cause alkaline pollution through direct discharge or the seepage of percolating waters into streams and rivers. Currently Petitioner is discussing with E.P.A. a study to determine what can be done to reduce or avoid this result.

[46] *Calvert Cliffs, supra.*

[47] An amendment which would have deleted consideration of economic impact was proposed by Congressman Ryan of New York, who stated:

> I believe that the threat to our environment is so great that, as a matter of public policy, industry should be required to use the most advanced technology regardless of whether or not a particular industry finds it economically feasible.

This amendment was rejected on voice vote. 116 CONG. REC. 19242-43 (1970).

[48] JA at 50.

air conditions, [49] further militates against **[**33]** the imposition of such an imperative on the agency. Such studies should be considered by the Administrator, if adduced in comments, but we do not inject them as a necessary condition of action.

The EPA contention that economic costs to the industry have been taken into account, derives substantial support from a study prepared for EPA, which was made part of the rule-making record and referred to in the Background Document, entitled "The Financial Impact of Air Pollution Control Upon the Cement Industry". [50] It concluded that the additional **[*388]** costs of control equipment could be passed on without substantially affecting competition with construction substitutes such as steel, asphalt and aluminum, because "demand for cement, derived for the most part from demand for public and private construction, is not highly elastic with regard **[**34]** to price and would not be very sensitive to small price changes." The study did note that individual mills may be closed in the years ahead, but observed that these plants were obsolete both from a cost and pollution point of view. Petitioners have not challenged these findings here. The Administrator has obviously given some consideration to economic costs.

2. Two questions related to economic considerations remain: (1) the possible effect of the standards on the future building of wet-process plants generally, and the use of electrostatic precipitators as a control device; and (2) possible unfair discrimination between standards set for cement plants, and those set for power plants and incinerators.

As appears from our examination of technological feasibility, in Part IV of this opinion, a substantial question arises as to whether either wet process plants, or any process using electrostatic precipitators, will be able to achieve mandated pollution control. **[**35]** The HEW Atmospheric Emissions Study, relied on by EPA, reported that as of 1967 there were 110 wet process and 69 dry process plants in the United States, and that they were "expected to increase at a comparable rate." [51] As to exclusion of electrostatic precipitators, the record shows that they are a cheaper technology than fabric filters. Since remand is required for other reasons, as appear from Part IV, we confine our analysis at this juncture to a declaration that on remand the Administrator should consider, as a matter of economic costs, contentions and presentations submitting that the standard as adopted unduly precludes supply of cement, including whether it is unduly preclusive as to certain qualities, areas, or low-cost supplies.

3. Petitioners **[**36]** also challenge the cement standards as unfair in light of lower standards mandated for fossil-fuel-fired steam generating power plants and incinerators. [52] They claim that while the cement standard, as expressed in grains of particulates allowed per standard cubic foot of gas (g/scf), requires a reduction to.03, [53] power plants are permitted to reach.12 and incinerators to be at.10. Also opacity standards differ, with no opacity standard set for incinerators, and with a 20% requirement for power plants (with 40% opacity permitted for not more than 2 minutes in any hour).

[37]** First, we identify petitioner's mistake in

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[49] *See* Note, Cost-Benefit Analysis and the National Environmental Policy Act of 1969, 24 STANF. L. REV. 1092, 1098ff (1972), and authorities cited therein.

[50] FINANCIAL IMPACT, *supra* note 40, at 42.

[51] KREICHELT, T. E., KEMNITZ, D. A., AND CUFFE, S. T., ATMOSPHERIC EMISSIONS FROM THE MANUFACTURE OF PORTLAND CEMENT, U.S. Dept. HEW, PHS, National Center for Air Pollution Control, PHS Publication No. 999-AP-17 (1967) (hereinafter ATMOSPHERIC EMISSIONS), at 6.

[52] These standards were proposed jointly with those of portland cement, *36 Fed. Reg. 15704 (1971)*, and were adopted at the same time, *36 Fed. Reg. 24876 (1971)*. The standards for fossil fuel steam generators are challenged in appeal to this court in *Appalachian Power Co. v. EPA, 158 U.S. App. D.C. 360, 486 F.2d 427 (1973)*.

[53] The promulgated standards for cement, expressed in particulate levels measured against pounds per ton of feed to the kiln, are convertible, for purposes of comparison, into grains of particulates per standard cubic foot of gas.

making a comparison of the proposed standards, whereas the standards as finally adopted permitted pollution standards of only.08 for incinerators and.10 for power plants, compared with.03 for cement plants.

EPA, in response to comments from petitioners on this issue of discrepancy, stated in its supplemental statement in March 1972: "The difference between the particulate standard for cement plants and those for steam generators and incinerators is attributable to the superior technology available therefor (that is, fabric filter technology has not **[*389]** been applied to coal-fired steam generators or incinerators)." [54]

[38]** This statement seems to be supported by the Background Document. [55] It suggests that there has indeed been a difference in the extent of application of fabric filter technology to cement plants, on the one hand, and power plants and incinerators on the other, although we are not informed by the Administrator as to what characteristics of the concerned industries might account for such differences.

[39]** This March 1972 statement of the Administrator was made in response to comments of the cement producers, and was not offered as justification for the cement standards, which were based solely on emission control available to that industry. Petitioners did not identify this part of the March 1972 supplemental statement as troublesome when they sought a remand from this court on other points. However, this is more a matter of atmosphere than dispositive ruling, for if the producers now gave significant indication that they had been dealt with unfairly or invalidly we could doubtless find a procedural path for consideration.

The core of our response to petitioners is that the Administrator is not required to present affirmative justifications for different standards in different industries. Inter-industry comparisons of this kind are not generally required, or even productive; and they were not contemplated by Congress in this Act. The essential question is whether the mandated standards can be met by a particular industry for which they are set, and this can typically be decided on the basis of information concerning that industry alone. This is not to say that evidence collected **[**40]** about the functioning of emission devices in one industry may not have implications for another. Certainly such information may bear on technological capability. But there is no requirement of uniformity of specific standards for all industries. The Administrator applied the same general approach, of ascertaining for each industry what was feasible in that industry. It would be unmanageable if, in reviewing the cement standards, the court should have to consider whether or not there was a mistake in the incinerator standard, with all the differences in parties, practice, industry procedures, and record for decision. Of course, the standard for another industry can be attacked, as too generous, and hence arbitrary or unsupported on the record, by those concerned with excessive pollution by that industry. There is, therefore, an avenue of judicial review and correction if the agency does not proceed in good faith to implement its general approach. But this is different from the supposition that a claim to the same specific treatment can be advanced **[*390]** by one who is in neither the

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[54] *37 Fed. Reg. 5767 (1972)*. We also note that EPA disagreed with petitioners as to the relevant numbers to compare. EPA stated that the power plant standard was "0.06 grains per standard cubic foot at normal excess air rates", and that the incinerator standard, while.08 "corrected to 12 percent carbon dioxide", was.05 "uncorrected, at normal conditions of 7.5 percent carbon dioxide."

[55] The August 1971 Background Document was used to support the incinerator and power plant standards, as well as cement standards. The statement is subject to the amplification (JA 29) that fabric filters "are scheduled to be installed" at a power station, though "no full scale fabric filters have been demonstrated on coal fired steam generators." As to municipal incinerators, the Document refers to a "small Swiss unit" with a fabric filter tested with European sampling procedures, to lower emission in a "small pilot installation" operated by Pasadena in 1960, and to incinerators (over 50 tons per day) equipped with baghouses that "will be put into service in late 1971 in the United States and Switzerland." (JA at 40, 41). If the same technology is now available and in use for incinerators, steam power plants and cement plants, the Administrator on remand may wish to offer some further explanation of the difference in standards set simultaneously for the three industries.

same nor a competitive industry.

There is, of course, a significant and proper scope for inter-industry **[**41]** comparison in the case of industries producing substitute or alternative products. This bears on the issue of "economic cost". But this comparison was utilized in arriving at the agency decision, and no contention is raised in this court that such competitive-industry impact was either ignored or assessed invalidly.

IV. ACHIEVABILITY OF EMISSION STANDARD

Section 111 of the Act requires "the degree of emission limitation achievable [which] . . . the Administrator determines has been adequately demonstrated." Petitioners contend that the promulgated standard for new stationary sources has not been "adequately demonstrated", raising issues as to the interpretation to be given to this requirement, the procedures followed by the agency in arriving at its standard, and the scientific evidence upon which it was formulated. An examination of these questions requires a brief description of the process used to manufacture portland cement and the devices presently employed to control emissions.

A. *Present types of Emission Control in the Manufacture of Portland Cement*

In the manufacturing process for portland cement, [56] the principal ingredients, limestone and clay, are combined, **[**42]** after having been reduced to a powdery fineness, to make a substance known as raw feed. The powdered limestone and clay are mixed by either the wet process or the dry process. In the wet process, water is added to the limestone and clay to make a slurry, which is then introduced into a kiln. In the dry process, the two substances are mixed mechanically and by use of air before the mix is introduced into a kiln.

[43]** Raw feed is introduced to the kiln at ambient air temperature and is then heated to a temperature of about 2700 degrees Fahrenheit, produced within the kiln by the use of various fuels. The emission standards under challenge here relate solely to the control of particulate matter produced by the kiln operation.

The kiln operation involves the chemical process known as calcining limestone; carbon dioxide is driven from the limestone, converting calcium carbonate (CaCO[3]) into calcium oxide (CaO), (CaCO[3] yields CO[2] + CaO). The calcium oxide later combines with the clay to form a substance known as "clinker", the basic component of cement. The calcination process produces gases and dust as by-products. The particulate matter is suspended in the hot exhaust gas and the various types of emission control devices remove this matter from the gas, before it is emitted into the atmosphere through a stack.

The two types of equipment principally used in removing particulate matter from the exhaust gas are electrostatic precipitators and glass fabric bags, impregnated with graphite, located in a "bag house." When the precipitator is used, dust particles are charged and pass through **[**44]** an electrical field of the opposite charge, thus causing the dust to be precipitated out of the exhaust gas and thereafter collected by the device. When glass fabric bags are used, the exhaust **[*391]** gas is cooled, sometimes by a water spray, so that the bags will operate without damage from excessive heat. The bag filters out the particulate dust, though sometimes the coolant combines with the dust to form a

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[56] The following description of the manufacturing process is based on ATMOSPHERIC EMISSIONS, *supra* note 51, and the Affidavit of Ralph H. Striker, a professional engineer, sworn on June 9, 1972. C.R., Tab IX, at 1. Striker described his background as follows:

> Since 1938 I have been engaged in various process phases of the cement industry; my professional specialty is the chemistry of portland cement manufacture, including process design and related instrumentation control. Within the scope of my specialty is the chemical processes occurring in the manufacture of portland cement and emissions and gas emanating therefrom. Presently I am Vice President of Bendy Engineering Company, St. Louis, Missouri, where I have participated in the design from a basic process standpoint of not less than ten kilns in the last ten years.

gummy substance as residue in the bags, which must be continuously cleaned out in order to avoid impairing the permeability of the bag.

It is the ability of control devices such as precipitators and bags to separate out a sufficient amount of particulate from the exhaust -- in accord with the proposed standards -- which is under challenge by the manufacturers. The standard requires that the particulate matter emitted from portland cement plants not be "in excess of 0.30 lb. per ton of feed to the kiln . . . maximum 2-hour average".

B. *Technology Available For New Plants*

We begin by rejecting the suggestion of the cement manufacturers that the Act's requirement that emission limitations be "adequately demonstrated" necessarily implies that any cement plant now in **[**45]** existence be able to meet the proposed standards. Section 111 looks toward what may fairly be projected for the regulated future, rather than the state of the art at present, since it is addressed to standards for new plants -- old stationary source pollution being controlled through other regulatory authority. [57] It is the "achievability" of the proposed standard that is in issue.

The language in section 111 was the result of a Conference Committee compromise, and did not incorporate the **[**46]** language of either the House or Senate bills. [58] The House bill would have provided that "the Secretary . . . [give] appropriate consideration to technological and economic feasibility", while the Senate would have required that standards reflect "the greatest degree of emission control which the Secretary determines to be achievable through application of the latest available control technology, processes, operating methods, or other alternatives."

The Senate Report made clear that it did not intend that the technology "must be in actual routine use somewhere." [59] The essential question was rather whether the technology would be available for installation in new plants. The House Report also refers to "available" technology. Its caution that **[**47]** "in order to be considered 'available' the technology may not be one which constitutes a purely theoretical or experimental means of preventing or controlling air pollution" [60] merely reflects the final language adopted, that it must be "adequately demonstrated" that there will be "available technology".

The resultant standard is analogous to the one examined in *International Harvester, supra.* The Administrator may make a projection based on existing technology, though that projection is subject to the restraints of reasonableness and cannot be based on "crystal ball" inquiry. *478 F.2d at 629*. As there, the question of availability is partially dependent on "lead time", the time in which the technology will have to be available. Since the standards here put **[*392]** into effect will control new plants immediately, as opposed to one or two years in the future, the latitude **[**48]** of projection is correspondingly narrowed. If actual tests are not relied on, but instead a prediction is made, "its validity as applied to this case rests on the reliability of [the] prediction and the nature of [the] assumptions." *International Harvester* at 45.

C. *Right to Comment on EPA Methodology*

We find a critical defect in the decision-making

[57] Under §§ 109-110, *42 U.S.C. §§ 1857c-4*, *5*, of the Clean Air Act the Administrator sets national primary and secondary ambient air standards relating to required air quality for each air pollutant. States must draw up a plan to comply with such standards, which in turn must be approved by EPA. These ambient air standards relate to pollution from any source, whether it be old or new, stationary or moving, but specific new or modified stationary sources are only regulated directly under § 111.

[58] The Conference Committee considered S.4358, 91st Cong., 2d Sess., 113 (1970) and H.R. 17255, 91st Cong., 2d Sess. sec. 112 (1970). The Report of the Conference does not discuss the language finally adopted, H. REP. No. 91-1783, 91st Cong., 2d Sess. 9, 45 (1970).

[59] S. REP. No. 9-1196, 91st Cong., 2d Sess. 16 (1970).

[60] H. REP. No. 91-1146, 91st Cong., 2d Sess. 10 (1970).

process in arriving at the standard under review in the initial inability of petitioners to obtain -- in timely fashion -- the test results and procedures used on existing plants which formed a partial basis for the emission control level adopted, and in the subsequent seeming refusal of the agency to respond to what seem to be legitimate problems with the methodology of these tests.

1. *Unavailability of Test Methodology*

The regulations under review were first proposed on August 3, 1971 and then adopted on December 16, 1971. Both the proposed and adopted rule cited certain portland cement testing as forming a basis for the standards. In the statements accompanying the proposed rule, the Administrator stated: [61]

> The standards of performance set forth herein are based on stationary source testing conducted **[**49]** by the Environmental Protection Agency and/or contractors . . . .

On December 16, this test reliance was reiterated: [62]

> The standards of performance are based on stationary source testing conducted by the Environmental Protection Agency and/or contractors . . . .

As indicated in the earlier statement of the case, the proposed standard was accompanied by a Background Document which disclosed some information about the tests, but did not identify the location or methodology used in the one successful test conducted on a dry-process kiln. Further indication was given to petitioners that the Administrator was relying on the tests referred to in the Background Document, when the statement of reasons accompanying the adopted **[**50]** standard were expanded in mid-March of 1972, in the supplemental statement filed while this case was pending on appeal to our court. The Administrator there stated: [63]

> The proposed standard was based principally on particulate levels achieved at a kiln controlled by a fabric filter.

For the first time, however, another set of tests was referred to, as follows:

> After proposal [of the regulation], but prior to promulgation a second kiln controlled by a fabric filter was tested and found to have particulate emissions in excess of the proposed standard. However, based on the revised particulate test method, the second installation showed particulate emissions to be less than 0.3 pound per ton of kiln feed.

These two testing programs were referred to in the March 1972 supplemental statement, but the details, aside from a summary of test results, were not made available to petitioners until mid-April 1972. At that time, it was revealed **[**51]** that the first set of tests was conducted April 29-30, 1971, by a contractor for EPA, at the Dragon Cement Plant, a dry process plant in Northampton, Pennsylvania, and that the second set was performed at the Oregon Portland Cement plant, at Lake Oswego, Oregon, a wet process plant, on October 7 and 8, 1971. The full disclosure of the methodology followed in these tests raised certain problems, in the view of petitioners, on which they had not yet had the opportunity to comment. Their original comments in the period between **[*393]** the proposal and promulgation of the regulation could only respond to the brief summary of the results of the tests that had been disclosed at that time.

After intervenor Northwestern States Portland Cement Company received the detailed test information in mid-April 1972, it submitted the test data, for analysis of reliability and accuracy, to

[61] *36 Fed. Reg. 15704 (1971)*.

[62] *36 Fed. Reg. 24876 (1971)*.

[63] *37 Fed. Reg. 5767 (1972)*.

Ralph H. Striker, an engineer experienced in the design of emission control systems [64] for portland cement plants. He concluded that the first series of tests run at the Dragon Cement Company were "grossly erroneous" due to inaccurate sampling techniques to measure particulate matter. [65] Northwestern States **[**52]** then moved this Court to remand the record to EPA so that the agency might consider the additional comments on the tests. This motion was granted on October 31, 1972. [66] This action by the Court was based on "the flexibility and capacity of reexamination that is rooted in the administrative process". *International Harvester, 478 F.2d at 632*. We considered this opportunity to make further comments necessary to sound execution of our judicial review function. [67]

We are aware that EPA was required to issue its standards **[**53]** within 90 days of the issuance of the proposed regulation, and that this time might not have sufficed to make an adequate compilation of the data from the initial tests, or to fully describe the methodology employed. This was more likely as to the second tests, which were begun during the pendency of the proposed regulation. In contrast, more than three months intervened between the conduct of the first tests and the issuance of the proposed regulation. Even as to the second tests however, as we indicated in *International Harvester*, which involved the issue of the availability of the Technical Appendix upon which the auto emission suspension decision was based, the fact that the agency chose to perform additional tests and release the results indicates that it did not believe possible agency consideration was frozen. Slip opin. at 26. *HN9*[↑] It is not consonant with the purpose of a rule-making proceeding to promulgate rules on the basis of inadequate data, or on data that, critical degree, is known only to the agency.

2. The EPA response to the Remand

In this case, EPA made no written submission as to the additional comments made by petitioners. Our remand was ordered, as **[**54]** to Northwestern, on October 31, 1972. All that EPA did was to comply with the mandate that the analysis of Mr. Striker be added to the certified record. It may be that EPA considers Mr. Striker's analysis invalid -- but we have no way of knowing this. As the record stands, all we have is Mr. Striker's repudiation of the test data, without response. The purpose of our prior remand cannot be realized unless we hear EPA's response to his comments, and the record must be remanded again, for that purpose.

We are not establishing any broad principle that EPA must respond to every comment made by manufacturers on the validity of its standards or the methodology and scientific basis for their formulation. In the case of the Striker presentation, however, our prior remand reflects this court's view of the significance, or at least potential significance, of this presentation. If this were a private lawsuit, we might reverse the order under appeal for failure of its proponent to meet the burden of refutation or explanation. Since this is a matter involving the public interest, in which **[*394]** the court and agency are in a kind of partnership relationship for the purpose of effectuating **[**55]** the legislative mandate, we remand. This agency, particularly when its decisions can literally mean survival of persons or property, has a continuing duty to take a "hard look" at the problems involved in its regulatory task, and that includes an obligation to comment on matters identified as potentially significant by the court order remanding for further presentation. Manufacturers' comments must be significant enough to step over a threshold requirement of

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[64] *See* note 56 *supra*.

[65] C.R. Tab IX, Striker Affidavit at 2.

[66] A motion of similar effect was granted as to petitioner-intervenor Medusa Corp., to make additional presentations to the agency, on June 23, 1972.

[67] Written comments were submitted as requested, and as required by the APA § 4(c), *5 U.S.C. § 553(c)*. Obviously a prerequisite to the ability to make meaningful comment is to know the basis upon which the rule is proposed.

materiality before any lack of agency response or consideration becomes of concern. The comment cannot merely state that a particular mistake was made in a sampling operation; it must show why the mistake was of possible significance in the results of the test. This was certainly done by Mr. Striker, who on the basis of some extensive mathematical calculations stated:

> It is my personal opinion that the particulate matter emissions of.202 pounds in test 1 per ton of kiln feed reported in the summary sheet on Page vii and again on Page 6 of Exhibit 4-A is grossly erroneous, and that the correct emission of particulate matter is in the neighborhood of.404 pounds per ton of kiln feed.
>
> Mistakes and conditions **[**57]** occurred which prevented the test from using *observed, measured* values. Encrusted solids were thought to cause a high reading in Run 1 so lower readings from other tests were substituted. The area of a duct was calculated rather than measured due to the presence of deposits. And liquid from Run 3 was erroneously poured into a beaker from Run 2.

From the reference supplied in petitioner's brief, we discern that this criticism of testing procedure was based upon data released on the testing after the 45 day period of comment had passed, and so there was no opportunity at that time to bring this sampling error to the attention of the agency. However, our October 1972 remand gave EPA an opportunity, in its updating and ongoing reexamination, to make a specific comment on petitioner's objection to the Dragon plant test. Instead, only the comment of Mr. Striker was presented.

Ordinarily, we would not consider comments not presented to EPA. But here there **[**58]** was belated disclosure by EPA of back-up testing, and remand will be necessary concerning the Striker criticism. Accordingly, we will provide that EPA should, on remand, consider the contentions presented in briefs to this court, though not previously raised, unless EPA explains why they are not **[*395]** material. It will be for EPA, on the remand, to examine the relevancy and import of petitioners' criticisms of the Administrator's methodology.

3. Analysis of Support for Standards

A troublesome aspect of this case is the identification of what, in fact, formed the basis for the standards promulgated by EPA -- a question that must be probed prior to consideration of whether the basis or bases for the standards is reliable. Nominally, there would seem to be three major bases for the rule and its standards: (1) the tests run on the dry-process Dragon Cement Plant, (2) the tests run on the wet-process Oregon Cement

HN10[↑] In order that rule-making **[**56]** proceedings to determine standards be conducted in orderly fashion, information should generally be disclosed as to the basis of a proposed rule at the time of issuance. If this is not feasible, as in case of statutory time constraints, information that is material to the subject at hand should be disclosed as it becomes available, and comments received, even though subsequent to issuance of the rule -- with court authorization, where necessary. This is not a requirement that the rule be suspended, though the court may consider an application for stay based on probability of success and furtherance of the public interest. *Virginia Petroleum Jobbers v. F.P.C., 104 U.S. App. D.C. 106, 259 F.2d 921 (1958)*.

Conversely, challenges to standards must be limited to points made by petitioners in agency proceedings. To entertain comments made for the first time before this court would be destructive of a meaningful administrative process.

There are claims made in this court which were not presented to EPA. For example, petitioner Portland Cement Association states in its brief, [68] in regard to the first set of tests at the Dragon Cement Plant:

[68] Portland Cement Association Brief at 17-18.

Plant, and (3) literature sources. The two tests were discussed by EPA in the supplemental statement issued subsequent to the issuance of the rule. As to literature sources, the Background Document issued with the proposed rule identifies as "a principal literature **[**59]** source" a government study, undertaken under the auspices of HEW in 1967, entitled "Atmospheric Emissions from the Manufacture of Portland Cement".

In the briefs to this Court, EPA counsel disclaim reliance on these three sources, despite statements directly to the contrary accompanying the proposed and promulgated rule, and the supplementary statement of reasons issued on the basis of *Kennecott*.

In regard to the tests, the EPA brief states: [69]

> Since the tests conducted by EPA were used, *along with other items*, to assist in determining what emission levels were being achieved by properly maintained and operated control equipment, and were not used as the *primary* basis for the cement standards, petitioner's criticisms of such tests and testing procedures are irrelevant. (emphasis supplied)

The brief further states that the HEW study "was not relied upon to support the achievability of the cement standards". [70]

Counsel on appeal **[**60]** cannot substitute new reasons for those offered by the agency. [71] Certainly, counsel cannot disclaim reliance on reasons offered by the agency in its statement of reasons, except in the sense that errors may be asserted to fall within the limited "harmless error" doctrine applicable to administrative agencies.

We turn now to the specific technical problems raised by the cement manufacturers.

a. *Dragon Cement Plant tests* [72]

[61]** Two kilns were tested by the EPA contractor at the Dragon Cement Plant. [73] A test of a dry-process kiln controlled with a baghouse is used for support of the standard since testing "showed particulate emissions of 0.20 pound per ton of feed, which is below the proposed standard." [74] This particular plant was selected for testing on the **[*396]** basis that it was reportedly one of the 12 best controlled plants in the United States.

[62]** The first point raised by petitioner, and included in the comments by cement manufacturers presented to the agency on its proposed standard, [75] was that a single test offered a weak basis for inferring that all new cement plants would be able to meet the proposed standards. As we stated in *International Harvester, supra, 478 F.2d at 647*, "It would . . . seem incumbent on the Administrator to estimate the possible degree of error [inherent] in his prediction." The significance of the lack of any indication of statistical reliability was underscored by T. E. Kreichelt, the author of the HEW study relied upon by the Administrator, in a letter, by way

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[69] Brief at 21-22.

[70] *Id. at 19*.

[71] *Burlington Truck Lines v. United States, 371 U.S. 156, 168-9, 9 L. Ed. 2d 207, 83 S. Ct. 239 (1962)*; *International Harvester, supra*, slip op. at 25; *Braniff Airways, Inc. v. CAB, 126 U.S. App. D.C. 399, 411, 379 F.2d 453, 465 (1967)*.

[72] A description and analysis of these tests is in the Certified Record, Tab V (i). Emission Testing Report, ETB Test Number 71-MM-05. Emissions from Dry Process Cement Kiln at Dragon Cement Company, Northampton, Pennsylvania. Environmental Protection Agency, Office of Air Programs.

[73] The Background Document indicates that two wet process kilns controlled by electrostatic precipitators were unable to meet the proposed standards, and they are not relied upon here. We are not supplied with an identification of the plant(s) where these tests were performed. The Background Document states that four kilns were tested but that "results of only three tests were available at the time the standards were proposed" and also discloses that the missing test was performed upon a dry process kiln. JA at 47-48. We are uncertain whether this fourth kiln was one of the two tested at the Dragon Plant or was located at still another plant.

[74] *Id. at 48*.

[75] *See* Comments in C.R. Tab VIII, items 10 (Portland Cement Association), 14 (General Portland Cement Company), 20 (Ideal Basic Industries, Inc.).

of comment, on the proposed standard. [76] He stated that "the emission limit was based on one (1) test, i.e. the fabric filter test. . . . I do not believe that the emission limits should be selected on only four tests, much less one test."

[63]** Mr. Kreichelt raised a second and related point addressed to the reliability of a prediction based on a successful dry-process plant, for a prediction that wet-process plants would be able to also meet the standard. He stated in this regard: [77]

> Another outcome of basing emission limits on insufficient data is that the limit may represent only part of a given industrial classification. For example, is 0.30 lb/ton of feed attainable only for dry-process kilns? Or is it also attainable for wet-process kilns? Probably both, but there is not even one test to substantiate the limit for wet-process kilns. For each variation of each process of each source classification, the number of tests required should be sufficient (say, three tests within the limit) to result in statistically sound limits.

We are not here considering a regulation that was issued in the contemplation that all new cement plants will be dry-process, and controlled by baghouses on the theory that this is the "best **[**64]** system" of emission control. Possibly such an approach would be feasible, but in any event it would require underlying reasons, by EPA, to terminate the process which the HEW had identified as major now and in future projection. [78]

A second objection is to the techniques used by the EPA to measure emissions from the Dragon plant.

These "sampling" techniques assume particular importance if they deviate from procedures, outlined by regulation, for ascertaining compliance with prescribed standards. Although this difference could be eliminated -- as the Administrator attempted to do in *International Harvester* -- by rewriting "sampling" techniques, rather than lowering standards, a significant difference between techniques used by the agency in arriving at standards, and requirements presently prescribed for determining compliance with standards, raises serious questions about the validity of the standard. [79]

[65]** **[*397]** The cement manufacturers point, in this regard, to the absence of continuous sampling in the EPA data, since the "longest elapsed time of any sampling episode was 30 minutes", [80] whereas under the regulations promulgated, conformity is to be measured on the basis of maximum 2-hour averages. [81] It is incumbent on the Administrator to explain the discrepancy.

The second point raises the question, on the basis of a handwritten note made by the EPA contractor, as to whether the tested plant was operating at maximum performance during testing. The contractor had noted, "Baghouse is undersize and production is held back due to this." [82] Compliance tests under the regulation require, however, that "All performance tests shall be conducted while the affected facility is operating at or above the

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[76] Letter of Thomas E. Kreichelt, C.R. Tab VIII, item 27, at 2.

[77] *Id.*

[78] *See* ATMOSPHERIC EMISSIONS, *supra* note 51, at 6-7.

[79] "Sampling" techniques were modified by EPA between the date of the proposed rule and the promulgated rule in this case. The EPA stated in adopting the rule here under review, *36 Fed. Reg. 24876 (1971)*, at para. 1:

> Particulate matter performance testing procedures have been revised to eliminate the requirement for impinges in the sampling train. Compliance will be based only on material collected in the dry filter and the probe preceding the filter.

We speak here of inconsistencies between the revised standards and the tests performed on which the standards were based.

[80] This claim is made on the basis of inspection of the full report of the EPA contractor. *See* C.R. Tab V (i), App. E, at 41.

[81] § 60.62 (a) (1), *36 Fed. Reg. 24876 (1971)*.

[82] C.R. Tab V (i), App. B, at 22. This notation was made on a form which required, in part, a "description of any unusual features about environment; height; odors; toxic conditions, temperature, dust, etc.

maximum **[**66]** production rate. . . ." [83]

Thirdly, petitioner contends that mistakes made in the measurement process prevented the test from using observed, measured values. As previously noted, encrusted solids can collect in the bag, and must be constantly cleaned out if the baghouses are to operate with efficiency. In one of the runs conducted, the presence of the solids in the bag were thought to cause a high reading, so lower readings from other test runs were substituted. On another run, the liquid, which was to be the basis for a measurement of particulate concentration, was erroneously poured into a beaker from a previous run. [84] However, deviations from prescribed measurement techniques are not necessarily significant as to testing results, and **[**67]** if petitioners press this point on remand they must establish that such test deviations bear significant consequences.

Finally, engineer Striker claims significant errors of measurement were made in determining the measurement of the cubic feet of stack gas per minute, and a resulting understatement of the true volume of calcining carbon dioxide included in total stack gas. He states that commonly "35% (plus or minus 1%) of raw feed is converted into carbon dioxide in the burning process." [85] He then notes that an accurate measure of raw feed is the volume of calcining carbon dioxide [86] appearing in stack gas, which in turn depends on an accurate measurement of the volume of stack gas. His own calculations, based on EPA data showing a stack flow rate of 51,187 cubic feet per minute of dry gas, indicate that there were 2153 cubic feet per hour of stack gas in the test attributable to calcining carbon dioxide coming from the raw feed and that "as a matter of basic chemistry" 2153 cubic **[**68]** feet of calcining carbon dioxide "comes only from 22.11 tons of raw feed." [87] This was at variance from the kiln rate of 44.03 tons of raw feed per hour reported in the test. He concludes that the error lay not in the measurement of the raw feed, but in the test data reported on the stack gas volume -- flow rate of 51,187 -- which in his judgment requires more sophisticated equipment for recording than does the raw feed which is easily measurable. Having corrected the stack gas figure, he states his opinion that the EPA assumption of emissions satisfying **[*398]** its ultimate 0.30 standard was in error. [88] He concluded:

> It is my personal opinion that the particulate matter emissions of.202 pounds in test 1 per ton of kiln feed reported . . . is grossly erroneous and that the correct emission of particulate matter is in the neighborhood of.404 pounds per ton of kiln feed.

We are not competent to decide if Mr. Striker's methodology and conclusions are correct. We can note, however, that he claims that as a matter of "basic chemistry" two test values, for feed and gas volume, cannot co-exist. This is certainly the type of criticism EPA should be required to discuss **[**69]** on remand.

b. *Oregon Portland Cement Plant tests* [89]

The Oregon plant was wet-process controlled by a baghouse. Three tests were made on the kiln operation. The brief of petitioner Portland refers to the test results of the EPA contractor, and points out that these show that in test 1 and 2, particulate emissions were.535 and.361 pounds per ton of kiln **[**70]** feed. Only in the third test was there a result of.291 pounds. Petitioners argue that when

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[83] § 60.64 (b), *36 Fed. Reg. 24876 (1971)*.

[84] C.R. Tab V (i), at 7.

[85] C.R. Tab IX, at 3.

[86] The term calcining carbon dioxide is used to distinguish it from the carbon dioxide that is the result of burning fuel in the kiln.

[87] C.R. Tab IX, at 4.

[88] *Id. at 2*.

[89] A description and analysis of these tests is in the Certified Record, Tab V (h), Emission Testing Report, ETB Test Number 71-MM-15. Emissions from Wet Process Kiln at Oregon Portland Cement, Lake Oswego, Oregon. Environmental Protection Agency, Office of Air Programs.

only one out of the three tests meet the EPA standards (0.3 percent), the data undercut the validity of the standard. EPA's brief did not address itself to this point, relying instead on its general expertise. If our study of the matter is accurate, it appears that petitioners failed to take into account that the standard, as promulgated, eliminated one of the sampling techniques required by the standard as proposed. This undercuts petitioner's contention. [90]

[71]** A more serious matter is presented by intervenor Northwestern, which points to the fact that the EPA contractor's report indicates that sampling was not conducted when "process operation was interrupted" and that sampling was only conducted during the periods of "normal operation". The report states:

> Several conditions contributing to these interruptions were: (1) excessive pressure drop across bag house, (2) visible emissions from leaking bags, and (3) breakdown of dust removal equipment. (C.R. Tab V (h) at 9).

The concern of the manufacturers is that "start-up" and "upset" conditions, due to plant or emission device malfunction, is an inescapable aspect of industrial life, and that allowance must be made for such factors in the standards that are promulgated. On August 18, 1972, some eight months after the issuance of the standards under review, and prior to our October, 1972 remand, the EPA proposed a new regulation to take "startup, shutdown and malfunction" problems into effect. [91] **[**73]** The proposed **[*399]** regulation, which as yet has not been adopted, sets up a procedure by which emissions due to malfunction will not be the basis of an enforcement action. **[**72]** It requires reports from manufacturers in cases where emissions exceed standards, recording the "violation" and indicating what measures will be taken to correct or minimize the excess emission levels. The proposed regulation provides: [92]

> (f) Nothing in this section shall relieve a source from compliance with the standards set forth in this part unless the Administrator determines that (1) the occurrence in question did not result from the failure by the owner or operator of the source to operate and maintain properly the affected facility, (2) all reasonable steps were taken to correct, as expeditiously as practicable, the condition causing the emissions to exceed the standards, including the use of off-shift labor and overtime if necessary, and (3) all reasonable steps were taken to minimize

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[90] C.R. Tab V (h) at 5. Curiously EPA did not make the point that the test results of.535,.361,.291, showing only 1 out of 3 successful tests, were based on "total catch". This means that the results reflected readings based on probe, filter and impinger sampling techniques. As we observed however, note 79 *supra*, the adopted standard was based only on probe and filter sampling techniques. The Oregon test gave these results for tests conducted on that basis:.247,.309,.261, which shows two successful tests and one almost successful. C.R. Tab V (h), at 4-5.

[91] ***37 Fed. Reg. 17214*** (August 18, 1972). EPA admitted in its introduction to the proposed regulation that the standards here under review did not take into account this problem. EPA attempted to obviate the implicit criticism by stating in its proposal:

> Such occurrences generally are dealt with by the exercise of discretion in the Agency's enforcement activities. The exercise of this discretion would have been accomplished by means of an informal process, in which, before the Agency took enforcement action, sources that had exceeded the standards would have attempted to demonstrate to the Agency that such excess emissions had been unavoidable.

Broadly read, however, this view of enforcement discretion would defer the question of "available" technology to the enforcement stage, an approach not contemplated by section 111. Companies must be on notice as to what will constitute a violation. Moreover, an excessively broad theory of enforcement discretion might endanger securing compliance with promulgated standards.

We do agree, however, with the policy reasons offered by EPA for moving from an informal to a formal system of regulation. EPA's explanation of its regulation stated:

> Three fundamental reasons suggested the correctness of this determination. First, the existence of a formal process better informs the public of the policy and factual issues which will underlie enforcement of the standards. Second, affected industries which are making good faith efforts to meet the standards will on the whole welcome a regularized means of informing the Agency in detail of the circumstances surrounding unavoidable emissions. Third, the Agency expects to benefit substantially from the information it will gain about the operation of the processes in question, for both future enforcement and standard setting.

[92] *Id.*

the emissions resulting from the occurrence.

The proposed regulation, if adopted, may have consequences which go beyond mere provision for malfunctions. In some sense it imparts a construction of "reasonableness" to the standards as a whole and adopts a more flexible system of regulation than can be had by a system devoid of "give." As we noted in *International Harvester, supra*, a regulatory system which allows flexibility, and a lessening of firm proscriptions in a proper case, can lend strength to the system as a whole. "The limited safety valve permits a more rigorous adherence to an effective regulation." *478 F.2d at 641*, quoting from *WAIT Radio v. FCC, 135 U.S. App. D.C. 317, 323, 418 F.2d 1153, 1159*.

If the EPA adopts, or intends to adopt, this proposed regulation, it may take the attendant flexibility into account, on remand, as pertinent to the manufacturers' objections, even though the new regulation has been proposed in a proceeding with a different docket number and caption.

c. *Literature Sources*

The principal source in the scientific literature used by EPA, **[**74]** HEW's "Atmospheric Emissions from the Manufacture of Portland Cement", [93] is called into question by petitioner on the ground that the test methods used to compile the results of the study were at odds with those used by EPA in its own tests. [94] While counsel for EPA disclaims reliance on the source, the study was cited in the EPA's Statement of Reasons, and EPA should address itself to this contention on remand.

[*400] In this connection, a comment on the proper use of scientific literature may be in order. If such literature is relied upon, the agency should indicate which particular findings of that literature are significant. A generalized reference, to a work as a whole, will avail the agency little if a problem arises on judicial review. On remand, any findings in the literature that **[**75]** are relied on by EPA should be specifically indicated. The same procedure is contemplated here as for the test data not submitted to the manufacturers prior to promulgation of the rule, that there be opportunity for comment, and an explanation presenting the EPA position on any challenge. [95]

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[93] *See* note 51 *supra*.

[94] As to how results might be skewed by different sampling methods, *see* note 90 *supra*, and Comments of Mr. Kreichelt on the proposed rule, C.R. Tab VIII, item 27, at 2-5.

[95] There is evidence in the record furnished by vendors of emission control devices but not relied upon by the EPA to support its standard that, with proper allowance for malfunction problems, the standards can be met. By way of comment to the proposed rule, Mr. R. E. Frey, Vice President, Mikro Pul Co., stated in a letter of September 20, 1971, C.R. Tab V (e), that: "A properly applied fabric filter (or bag house) will operate with no visible emission. Actual measured outlet loadings are almost always below 0.02 grains per cubic foot and often as low as 0.000 x grains per cubic foot." This would of course be below the required.03 grains per cubic foot standard, the converted measure of.30 lb. per ton of feed to the kiln.

Three letters were inserted into the record following our June 1972 remand of this case, following the motion of intervenor Medusa Corp. Mr. Jack C. Thomas, Sales Manager of Rock Products Industry represented to Medusa that:

> "We can and will guarantee that our Lurgi Electrostatic Precipitator will limit the effluent to less than .30 lbs. per ton of feed to the kiln. However, we cannot guarantee to meet this collection efficiency 100 per cent of the time. During kiln start-up and upset conditions and during possible malfunction, it is conceivable that the effluent would not be in compliance with the E.P.A. Code.

Similar guarantees were offered by Rock Creek for fabric filter bags.

Claims of capability to conform to the EPA standards were also in letters to Medusa -- though without mention of guarantees -- from Buell, Division of Envirotech Corp., and Kaiser Engineering. C.R. Tab X.

These claims by the vendors could not be responded to by way of comment, since they were themselves produced as comment, and can be considered on remand. We note, however, that if vendor representations were to be a principal source of reliance by the agency, representations peculiarly subject to considerations of self-interest, more might be required than mere comments. *See American Airlines v. CAB, 123 U.S. App. D.C. 310, 318-319, 359 F.2d 624, 632-33 (1966)* (en banc), cert. denied, ***385 U.S. 843, 17 L. Ed. 2d 75, 87 S. Ct. 73 (1966)***. *Compare International Harvester, supra*, slip op. at 22. *Also see Kennecott Copper supra*, *149 U.S. App. D.C. at 235, 462 F.2d at 850*: "There are contexts, however, contexts of fact, statutory framework and nature of action, in which the minimum requirements of the Administrative Procedure Act may not be sufficient."

[76]** d. *Opacity Standard*

Apart from the standard directly regulating particulate concentration, EPA has adopted an opacity standard which provides that there shall be no discharge of particulate matter from the kiln which is: [96]

> Greater than 10 percent opacity, except that where the presence of uncombined water is the only reason for failure to meet the requirements for this subparagraph, such failure shall not be a violation of this section.

Opacity is defined by the regulation as "the degree to which emissions reduce the transmission of light and obscure the view of an object in the background." [97]

It may be, as EPA argues, that the opacity test is an important enforcement tool, [98] and that the results of an opacity test, which is normally performed at some distance from the plant by trained observers, offers a cheaper **[*401]** and faster method of determining compliance than enforcement **[**77]** of the particulate concentration standard. [99] However, ***HN11***[↑] it is one thing to use a method of testing to observe possible violations of a standard; it is another to constitute that method as the standard itself. If the opacity test is to be a standard, and if violations can result in enforcement actions without further testing, the standard must be consistent with the statute and congressional intent.

The thrust of the manufacturers' comments to EPA, and repeated here, is that the opacity test is arbitrary **[**78]** -- that inspectors will be unable within any reasonable degree of accuracy to determine whether permitted opacity is 10%.

The critical question is how accurate can opacity observations be. On this point we essentially have before us only the contentions of the parties. The manufacturers do point to a test conducted for the National Center for Air Pollution Control (U.S. Dept. H.E.W.), where six trained smoke inspectors evaluated a white training plume known to have 0% opacity. [100] All six inspectors rated the plume at more than 0% opacity and 3 evaluated it at more than 20%. A plume known to be at 20% opacity was rated higher than 20% by 5 of the 6 inspectors (one rated it lower) and 2 of them rated it at almost 40%. Problems may also be posed for deciding when opacity is due to water content and when it is not. [101]

[79]** The difficulty is that this test has the thrust of indicating that opacity measurements are inherently inadequate, and does not seem to be probative of the manufacturer's quite different claim, namely, that it is at the low ranges that opacity tests become less reliable, and too unreliable to be a legal standard.

On the other hand, EPA's brief does nothing more than point to the fact that many states have required that the plumes from stack emissions conform to a specified percentage of opacity. We note, however, that the opacity standard is at least 20% in the states cited, which corresponds to No. 1 on the Ringelman Smoke Chart. [102]

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[96] § 60.62(a) (2), *36 Fed. Reg. 24876 (1971)*.

[97] *Id.* at § 60.2(j).

[98] *See* Comment of State of Maryland to the proposed rule: "Such a prohibition is one of the most effective tools available to state and local regulatory authorities." C.R. Tab VIII, item 24.

[99] Although the revised sampling methods of EPA may have lowered the cost of testing for compliance, National Gypsum Co. commented to the agency on the proposed rule that "the cost of running a test by the proposed method on a single baghouse ranges in the neighborhood of $10,000 to $15,000. . . ." Tab VIII, item 6.

[100] *See* Optical Properties and Visual Effects of Smoke Stack Plumes, Pub. Health Serv. Pub. 999-AP-30 (1967 National Tech. Info. Serv. PB 174-705), at 28.

[101] *Compare* ***State v. Fry Roofing Co., 9 Ore. App. 189, 495 P.2d 751, 757-58 (1972)***.

[102] *See* Arizona Rules and Regulations for Air Pollution, 1 BNA State Air Laws Environ. Reptr. (BNA Air) 311:0502 (40% for visible emission); Arkansas Air Pollution Control Code, 1 BNA Air 316:0504 (20% for new equipment used in a manufacturing process); *California Health and Safety Code § 24242* (1967) (40% for aircraft

[80]** We think the HEW test adduced by petitioners, though not decisive, suffices to require further consideration and explanation by EPA on remand, and a showing on the record that 10% opacity measurements can be made within reasonable accuracy. [103]

V. THE STANDARD OF JUDICIAL REVIEW AND CONCLUSIONS

We are quite aware that the standards promulgated and here under review are to be applied to *new* stationary sources. It would have been entirely appropriate **[*402]** if the Administrator had justified the standards, not on the basis of tests on existing sources or old test data in the literature, but on extrapolations **[**81]** from this data, on a reasoned basis responsive to comments, and on testimony from experts and vendors made part of the record. This course was not followed here. Instead, the Administrator in his statement of reasons relied on tests on existing plants and the literature, which EPA counsel now discounts without reference to other record support to take its place.

The Administrator's objectives are laudable, but the statute expressly requires, for the standards he promulgates, that technology be achievable. This record reveals a lack of an adequate opportunity of the manufacturers to comment on the proposed standards, due to the absence of disclosure of the detailed findings and procedures of the tests. This was not cured following our previous October 1972 remand to the agency.

We have identified a number of matters that require consideration and clarification on remand. While we remain diffident in approaching problems of this technical complexity, *see* *International Harvester, supra, 478 F.2d at 648*, **HN12**[↑] the necessity to review agency decisions, if it is to be more than a meaningless exercise, requires enough steeping in technical matters to determine whether the **[**82]** agency "has exercised a reasoned discretion". *Greater Boston TV v. FCC (I), 143 U.S. App. D.C. 383, 392, 444 F.2d 841, 850*, cert. denied, *403 U.S. 923, 91 S. Ct. 2229, 29 L. Ed. 2d 701 (1971)*. We cannot substitute our judgment for that of the agency, but it is our duty to consider whether "the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Citizens To Preserve Overton Park v. Volpe, 401 U.S. 402, 416, 28 L. Ed. 2d 136, 91 S. Ct. 814 (1971)*. Ultimately, we believe, that the cause of a clean environment is best served by reasoned decision-making. The record is remanded for further proceedings not inconsistent with this opinion.

So ordered.

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discharge). *Also see* Connecticut Administrative Regs., 1 BNA Air 331.0513 (20% for visible emissions); Delaware Administrative Regs., 1 BNA Air 336.0861 (20% for visible emissions).

[103] We think Congress anticipated, as in the National Traffic and Motor Vehicle Safety Act of 1966, that the standards be "objective", *15 U.S.C. § 1392(a)*, Otherwise "a manufacturer has no assurance that his own test results will be duplicated in tests conducted by the Agency." *Chrysler Corp. v. Dept. of Transportation, 472 F.2d 659, 675 (6th Cir. 1972)*.