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Cost-Benefit Analysis under OSHA: After the Cotton Dust Decision

by

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COST-BENEFIT ANALYSIS UNDER OSHA: AFTER THE COTTON DUST DECISION

The Occupational Safety and Health Act (the Act)[1] requires the Secretary of Labor[2] to formulate standards for the purpose of controlling worker exposure to significant health and safety risks. As a direct result of its broad scope and pervasiveness, the Act has been highly controversial since its passage in 1970.[3] Unions hail it as a workers' bill of rights, while employers criticize it as costly over-regulation of the workplace by the federal government.[4]

In the debate over the proper extent of regulation by the Occupational Safety and Health Administration (OSHA), cost-benefit analysis,[5] feasibility analysis,[6] and quantitative risk assessment[7] have been

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[1] 29 U.S.C. §§ 651-678 (1976).

[2] Section 6(b) of the Act provides: "The Secretary may by rule promulgate, modify, or revoke any occupational safety or health standard. . . ." *Id.* § 655(b). The Secretary referred to above is the Secretary of the United States Department of Labor (Secretary).

[3] In order to effect the Act's desired reach, Congress determined that job-related injury and illness imposed a substantial burden on interstate commerce and therefore the Act applies to all employment performed in a business affecting commerce among the several states. *See Id.* § 651. Excluding only a relatively small number of employees protected by specialized federal job safety programs, it has been estimated that over four million establishments, employing fifty-seven million persons, are covered by the Act. *See* Cohen, *The Occupational Safety and Health Act: A Labor Lawyer's Overview*, 33 OHIO ST. L.J. 788, 788 (1972).

[4] President Carter, in a speech to employees of the Labor Department, stated: " 'Of all the beneficial legislation that has been passed by Congress in recent years the one that has the best prospect of improving the lives of American workers and the one that had the most adverse acceptance, has been the OSHA program.' " Taylor, *Reasonable Rulemaking Under OSHA: Is It Feasible?*, 9 ST. MARY'S L.J. 215, 216 n.8 (quoting 301 EMPL. SAFETY & HEALTH GUIDE (CCH) 1 (Feb. 16, 1977)). On May 19, 1977, then Secretary of Labor, Raymond Marshall, stated that OSHA had been " 'everyone's favorite whipping boy because of the implementation of overly specific and insignificant regulations.' " *Id.* (quoting 315 EMPL. SAFETY & HEALTH GUIDE (CCH) 1 (May 24, 1977)). The Secretary's comment was made during a speech announcing a "common sense approach" to OSHA policymaking. This approach was adopted to respond to criticism that the agency produced too many "nitpicking" regulations. The Secretary announced an easing of regulatory burdens on smaller business and a new focus on larger, high-risk industries. *Id.* Secretary Donovan's efforts to reduce the Act's regulatory burden are typical of announcements made by subsequent secretaries and presidents. Industry typically views such announcements as mere promises.

[5] There are any number of definitions of cost-benefit analysis, each with varying degrees of acceptance by those who have occasion to use it. Indeed, acceptance of any one definition depends on its use in fields such as economic modeling, business, or social policy setting. As used in this Note, cost-benefit analysis will refer to

> a methodology for determining which government actions, projects, or regulations are worth the investments and sacrifices they require. . . . Recognizing that government decisions often require a reconciliation of incommensurable interests, cost-benefit analysis

selectively advocated by worker representatives and employers, each claiming the analysis it advocates is the surest guide to establishing the proper level and means of occupational health and safety regulation. Generally, employers have argued that cost-benefit analysis is the proper policy guide,[8] while the Secretary and labor representatives have supported the use of feasibility analysis.[9]

Since the Supreme Court's decision in *Industrial Union Department AFL-CIO v. American Petroleum Institute*[10] (the Benzene Decision), both groups recognize that the Secretary must quantify a significant risk of harm[11] and outline a means of abatement before any regulation may be undertaken. Subsequent to the Benzene Decision, in June of 1981, the Supreme Court held, in *American Textile Manufacturer Institute, Inc. v. Donovan*[12] (the Cotton Dust Decision), that cost-benefit analysis was not required to support the Secretary's standard for reducing worker exposure to ambient cotton dust.[13] The Court found that feasibility analysis was all that the Act required

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seeks to reduce all concerns to a common denominator—the dollar. It then compares the costs and benefits, in dollar terms, of competing government options. Cost-benefit analysis thus emulates the investment decision of the private firm.

Rodgers, *Benefits, Costs, and Risks: Oversight of Health and Environmental Decision-making*, 4 HARV. ENVTL. L. REV. 191, 193 (1980). For other definitions of cost-benefit analysis of particular utility in a public policy context, see E. MISHAN, ECONOMICS FOR SOCIAL DECISION: ELEMENTS OF COST-BENEFIT ANALYSIS 13 (1973); R. STEINER, THE THEORY OF MARGINAL PUBLIC EXPENDITURE CHOICES IN BENEFIT-COST POLICY ANALYSIS 235 (1974); Prest & Turvey, *Cost-Benefit Analysis: A Survey*, 75 ECON. J. 683, 686 (1965). *See also infra* notes 104-22 and accompanying text.

[8] "Feasibility analysis" is a term of art under the Act's sections dealing with toxic materials and harmful physical agents. For a detailed discussion of feasibility analysis, see *infra* notes 95-103 and accompanying text.

[7] Quantitative risk assessment has been defined as "a statistical process that attempts to use data from laboratory tests or epidemiological studies to predict the number of cancer cases or deaths that would result from human exposure to a specific carcinogen." Leape, *Quantitative Risk Assessment in Regulation of Environment Carcinogens*, 4 HARVARD ENVTL. L. REV. 86-87 (1980). As part of the assessment process, quantitative risk assessment takes account of both carcinogenic potency and the extent of human exposure. *Id.* at 86. *See also infra* notes 82-94 and accompanying text.

[8] *See, e.g.*, American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 506 (1981); Industrial Union Dept., AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 639 (1980).

[9] *See, e.g.*, American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 506-07 (1981); Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 639 (1980).

[10] 448 U.S. 607 (1980).

[11] The plurality in the Benzene Decision stated: "For we think it is clear that § 3(8) does apply to all permanent standards promulgated under the Act and that it requires the Secretary, before issuing any standard, to determine that it is reasonably necessary and appropriate to remedy a significant risk of material health impairment." *Id.* at 639.

[12] 452 U.S. 490 (1981).

[13] The Court stated that "cost-benefit analysis by OSHA is not required by the statute because feasibility analysis is." *Id.* at 509.

where toxic substances[14] were at issue. Since cotton dust is a toxic substance which the Secretary had shown to pose a significant occupatonal risk that could be controlled by lowering exposure levels, cost-benefit analysis was not required as a policy guide to OSHA standard-setting.

To explicate the continuing role which cost-benefit analysis may play under the Act after the Cotton Dust Decision, and to distinguish the proper application of quantitative risk assessment and feasibility analysis, a discussion of the Act beyond that found in the Benzene and Cotton Dust Decisions must be presented. This extended discussion is necessary because the Benzene and Cotton Dust Decisions dealt with the narrow issue of pre-enforcement[15] challenges to permanent health and safety standards[16] governing harmful substances and toxic materials. While the provisions analyzed in these cases are certainly some of the most salient and controversial, their workings do not control enforcement policies, inspection penalties, safety stan-

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[14] *Id.* at 512-13, 540. The Occupational Safety and Health Act does not define the terms "toxic" or "harmless physical substance." By analogy, the definition of toxic in regulations promulgated under the Consumer Products Safety Act, 15 U.S.C. § 2051 (1976) may be a useful guide:

> 'Hazardous substance' means: Any substance or mixture of substances which is toxic, corrosive, an irritant, a strong sensitizer, flammable or combustible, or generates pressure through decomposition, heat or other means, if such substance or mixture or substances may cause substantial personal injury or substantial illness during or as a proximate result of any customary or reasonably foreseeable handling or use. . . .

16 C.F.R. § 1500, 3(b)(4)(i)(A) (1982). " 'Toxic' shall apply to any substance (other than a radio active substance) which has the capacity to produce personal injury or illness to man through ingestion, inhalation or absorption through any body surface." *Id.* § 1500(b)(5).

[15] A pre-enforcement challenge is one made prior to the legal effective date of a permanent occupational safety or health standard. Such a challenge was made with respect to the cotton dust and benzene standards. The procedure for promulgating a standard is set out in § 6(b) of the Act, 29 U.S.C. § 655(b) (1976), and requires publication in the Federal Register, an opportunity to submit written objections to the proposed standard, and a hearing. *Id.* Following the period for submission of written objections or within 60 days following a hearing, the Secretary shall issue a rule promulgating, modifying, or revoking the proposed rule. *Id.* For details of the procedures followed for promulgation of a standard, see *infra* note 53. These challenges have been many and varied. *See, e.g.*, Associated Indus. of N.Y. State, Inc. v. Department of Labor, 487 F.2d 342 (2d Cir. 1973) (setting aside two carcinogen emergency standards); Dry Color Mfgrs. Ass'n v. Department of Labor, 486 F.2d 98 (3d Cir. 1973) (setting aside two carcinogen emergency standards).

[16] *See* Occupational Safety and Health Act, § 29(b)(3), 29 U.S.C. § 651(b)(3) (1976). The Act delineates five types of standards. They include: (1) "national consensus standards" defined as those established by "nationally recognized standards-producing organizations", *id.* § 652(9); (2) "established federal standards" defined to be any occupational safety and health standard promulgated by any federal agency and in effect on the date the Act was passed, *id.* § 652(10); (3) "standards" which are established through previous federal acts and declared by Congress in the Act to be OSHA standards, *id.* § 653(b)(2); (4) permanent standards, *id.* §§ 652(8), 655(a); and (5) "emergency temporary standards", *id.* § 655(c).

dards, or the setting of general priorities. It is in some of these areas that cost-benefit analysis[17] will be shown to have superior utility.

The Cotton Dust and Benzene Decisons will, nevertheless, be presented in some detail, since they provide judicial guidance on the proper use of the analytical constructs mentioned. The divergent views of the Fifth Circuit and District of Columbia Circuit Courts of Appeals will be presented to illustrate the controversy that attends OSHA regulation. Next, the Supreme Court's resolution of these lower court decisions will be examined. Cost-benefit analysis will be compared with the alternative two analyses, followed by a discussion of the use of cost-benefit analysis in the enforcement of standards. The substantial evidence standard of review required by the Act will then be briefly discussed. This Note will conclude with a forecast for possible areas of future use for cost-benefit analysis with particular recommendations for its recognition as part of the labor-management bargaining process.

I. Supreme Court OSHA Decisions: The Benzene and Cotton Dust Decisions

A. *The Benzene Decision*

Industry's challenge to the benzene standard was heard by the Fifth Circuit in *American Petroleum Institute v. OSHA*.[18] The challenge resulted from an OSHA proposal to reduce a permanent health and safety standard[19] regulating occupational exposure to benzene from ten to one parts per million.[20] OSHA's actions were based on an increasing number of epidemiological studies which showed that exposure to high concentrations of the toxic substance benzene could

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[17] *See infra* notes 138-84 and accompanying text.

[18] 581 F.2d 493 (5th Cir. 1978), *aff'd sub nom.* Industrial Union Dept., AFL-CIO v. American Petroleum Inst., 448 U.S. 607 (1980).

[19] The benzene standard was adopted in 1971 without rulemaking, under the authority of 29 U.S.C. § 655(a)(1976). This section of the Act authorized the Secretary to promulgate as an occupational safety or health standard any national consensus standard that he determined would result in improved safety or health for employees. *Id.*

[20] The original benzene standard was adopted by OSHA in 1971 under the authority of 29 U.S.C. § 655(a) (1976). This section directed the Secretary, within two years after the effective date of the Act, to promulgate a national consensus standard that he determined would improve worker health and safety. *Id.* The standard is codified at 29 C.F.R. § 1910.1000 (1982) (table Z-2), and is based on the nonmalignant toxic effects of benzene exposure. The proposed standard which was rejected in the Benzene Decision, and OSHA's statement of reasons in support of the standard, are published at 43 Fed. Reg. 5918-70 (1978).

cause leukemia.[21]

Industry challenged the new standard by arguing that the Secretary had not adequately documented that a reduction in exposure level was "reasonably necessary" to provide for employee safety. This challenge was supported by reference to the Act's mandate, contained in the sections dealing with toxic substances, which requires the Secretary to utilize the "best available evidence" when making a determination.[22] Industry also claimed that the Secretary must justify the standard through cost-benefit analysis.[23] Labeled the "billion dollar decision,"[24] industry contended that it would be unable to afford the cost of complying with the new standard.

The Fifth Circuit, relying on a previous holding[25] which construed the Consumer Products Safety Act,[26] vacated the regulation on two grounds. First, the regulation was found invalid in the absence of a factual record indicating that measurable benefits to be achieved by the reduction bore a "reasonable relationship" to the one-half billion dollar cost of such regulation.[27] Second, the court found that the Secretary exceeded his authority because he had not shown that the new benzene standard was "reasonably necessary or appropriate to provide safe or healthful employment" as required by section 3(8) of the Act.[28]

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[21] In 1974, the National Institute for Occupational Safety and Health (NIOSH), OSHA's research arm, noted a "distinct possibility" that benzene caused leukemia. During the following two years, additional studies were published which led NIOSH to find "conclusive" the proof that a causal link connected high exposure levels of benzene and leukemia. Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 619-20.

[22] American Petroleum Inst. v. OSHA, 581 F.2d at 500.

[23] *Id.* at 501.

[24] OSHA estimated compliance costs for the affected industries to be $187-205 million in first year operating costs, $266 million in engineering control costs, and $34 million in recurring annual costs. American Petroleum Inst. v. OSHA, 581 F.2d at 503. Although industry did not seriously contest these cost estimates, they referred to the standard as the "$1 billion decision." *Id.* at 503 n.22.

[25] Aqua Slide 'N' Dive Corp. v. Consumer Prod. Safety Comm'n, 569 F.2d 831 (5th Cir. 1978). *Aqua Slide* dealt with the Consumer Product Safety Act, which authorizes the Consumer Product Safety Commission to promulgate safety standards provided that "[a]ny requirement of such standard be reasonably necessary to reduce an unreasonable risk of injury associated with such product." 15 U.S.C. § 2056(a) (1976). The Act also requires the Consumer Product Safety Commission to make a specific finding that its rules are "reasonably necessary to eliminate or reduce an unreasonable risk of injury." 15 U.S.C. § 2058(c)(2)(A) (1976).

[26] 15 U.S.C. § 2051 (1976).

[27] American Petroleum Inst. v. OSHA, 581 F.2d at 504.

[28] *Id.* at 500. Section 3(8) of the Act, 29 U.S.C. § 652(8) (1976) defines the term "occupational safety and health standard" as "a standard which requires conditions, or the adoption or the use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment." *Id.*

In so ruling, the Fifth Circuit found substance in the Act's definitional section and identified a factor underlying OSHA's statutory charge that the agency had ignored. That factor authorized the Secretary to promulgate only those health and safety standards "reasonably necessary or appropriate" to produce significant health benefits.[29] In emphasizing this language, and by interpreting it to mean that the proposed standard must be justified by cost-benefit analysis, the Fifth Circuit recognized that its holding ran counter to those of other circuit courts.[30] The court, however, justified this divergent approach in three ways. It found that OSHA had failed to produce an adequate record to support the proposed standard,[31] that no other court had analyzed the feasibility of a standard in terms of whether it was "reasonably necessary or appropriate,"[32] and that adherence to its own precedent concerning statutes containing similar language mandated the result reached.[33] Moveover, the court not only required that the record show underlying factual data for OSHA's policy choice, but it also demanded that the Agency take a "hard look"[34] at its statutory obligations and all factors relevant to meeting those obligations.

The Fifth Circuit's voiding of the benzene standard has been criticized as a product of overly intrusive judicial review.[35] As a subse-

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[29] American Petroleum Inst. v. OSHA, 581 F.2d at 503-04.

[30] The Court identified the following circuits and decisions as not requiring cost-benefit analysis: American Petroleum Inst. v. OSHA, 581 F.2d at 505; American Iron & Steel Inst. v. OSHA, 577 F.2d 825 (3d Cir. 1978) (coke standard), *cert. denied*, 448 U.S. 992 (1980), Society of Plastics Indus., Inc. v. OSHA, 509 F.2d 1301 (2d Cir.) (vinyl chloride standard), *cert. denied*, 421 U.S. 992 (1975); Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974) (asbestos dust standard).

[31] The Fifth Circuit was impressed by industry's showing that better scientific evidence could have been readily obtained to support the dermal contact provisions of the regulation. The Court stated that "OSHA's decision to regulate on the basis of dated, inconclusive data when modern experimental methods can quickly and efficiently provide reliable information contravenes the directive from Congress to promulgate standards on the basis of the 'best available evidence.'" American Petroleum Inst. v. OSHA, 581 F.2d at 507. The best evidence standard is put forth in § 6(b)(5) of the Occupational Safety and Health Act, 29 U.S.C. § 655(b)(5).

[32] American Petroleum Inst. v. OSHA, 581 F.2d at 505.

[33] *Id.* at 502.

[34] The court quotes from its holding in Aqua Slide 'n' Dive Corp. v. Consumer Prods. Safety Comm'n, 569 F.2d 831 (5th Cir. 1978) as follows:

> "In evaluating the 'reasonable necessity' for a standard, the Commission has to take a *hard look*, not only at the nature and severity of the risk, but also the potential the standard has for reducing the severity or frequency of the injury, and the effect the standard would have on the utility, cost or availability of the product."

American Petroleum Inst. v. OSHA, 581 F.2d at 502 (emphasis added). As OSHA was found to have failed in its duty to take a "hard look," the court itself felt compelled to void the standard. *Id.* at 508.

[35] Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 688. In the

quent section will note, circuit courts are charged with reviewing OSHA standards using the substantial evidence test.[36] This reviewing standard is less deferential than the usual arbitrary and capricious test and arguably permits the court to ascribe substance to the words "reasonably necessary or appropriate" where the agency had failed to recognize the substantive limitations contained in this phrase.[37]

Benzene Decision, Justice Marshall protested:

> In cases of statutory construction, this Court's authority is limited. If the statutory language and legislative intent are plain, the judicial inquiry is at an end. . . . [A] court is not permitted to distort a statute's meaning in order to make it conform with the Justice's own views of sound social policy.
>
> Today's decision flagrantly disregards these restrictions on judicial authority.

Id. (Marshall, Brennan, White, Blackmun, J.J., dissenting) (citation omitted).

[36] "Substantial evidence" is the reviewing standard that the circuit courts of appeals apply to permanent OSHA standards. 29 U.S.C. § 655(f) (1976). Under the Administrative Procedure Act, 5 U.S.C. § 706(2)(e) (1976), the substantial evidence test applies to formal rule-making or adjudication, not to informal rule-making as pertained to the Benzene standard. Under this Act, such informal rule-making would be tested by the arbitrary and capricious standard. *Id.* § 706(2)(a). For further discussion of the role of substantial evidence review under OSHA, see *infra* notes 185-93 and accompanying text.

[37] *See infra* note 187 and accompanying text. The Fifth Circuit's application of the substantial evidence test in the benzene case stands in vivid contrast to the deference typically shown OSHA regulations by circuit courts. Yet the Fifth Circuit's intrusions upon the Secretary's policymaking authority can be justified when viewed in terms of well-established principles of judicial review where informal rulemaking is at issue. *See generally* Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 414-16 (1971).

As with all statutory review, the court had to independently interpret the Act and determine whether the Secretary's proposed action was within the scope of his authority. *See generally* K. DAVIS, ADMINISTRATIVE LAW OF THE SEVENTIES §§ 29.01-.10 (1976). In so doing, the Fifth Circuit concluded that the Act's "reasonably necessary or appropriate" language contained a substantive limitation on the Secretary's rulemaking authority. American Petroleum Inst. v. OSHA, 581 F.2d at 502. Unless a proposed standard was "reasonably necessary or appropriate" in that it appreciably reduced an identified and significant risk, the court held that the Secretary had no authority to act. *Id.* Additionally, the Fifth Circuit interpreted the Act's "best available evidence" criteria as an affirmative charge for the agency to explore the latest, relevant scientific and technical data rather than rely on assumptions based on less exacting tests and studies. *Id.* at 504.

Next, the court had to determine whether the Secretary had acted arbitrarily or capriciously or otherwise contrary to the law. In making this determination, the court had to assess whether the Secretary had given proper consideration and weight to all factors found relevant by Congress. As the Secretary had not considered the Act's "reasonably necessary or appropriate" language as limiting his authority to act, *a fortiori*, this factor had been overlooked. *Id.* at 501-02. In light of the Supreme Court's "significant risk" test, it is notable that the Fifth Circuit did not particularly stress this factor. According to the Fifth Circuit, Congress was cognizant that the costs of regulation must be reasonably related to the benefits sought. *Id.* at 501.

Finally, the court had to assess whether OSHA complied with the Act's procedural requirements. Ironically, the Fifth Circuit was not explicitly critical of the procedures used by OSHA to compile the benzene record. The procedures used were apparently deemed adequate to ventilate the relevant issues. The court was critical, however, of OSHA's failure to subject the record to an analytical framework that sufficiently addressed and gave proper weight to factors relevant to determining whether the standard was "reasonably necessary or appropriate." *Id.* at

On appeal to the Supreme Court by the Secretary and the unions,[38] a plurality affirmed[39] that portion of the Fifth Circuit's decision which limited the Secretary's rulemaking authority to measures which are reasonably necessary or appropriate to abate a significant health risk.[40] By requiring the Secretary to find a "significant risk" and a means of abatement, the Court embraced quantitative risk assessment as a proper analytical construct to guide the Secretary in the promulgation of standards. In finding the benzene standard invalid, the Supreme Court moved away from the cost-benefit rationale emphasized by the Fifth Circuit. The Supreme Court stated that until a finding of a significant health risk was made,

> [i]t is not necessary to address the further question of whether the Court of Appeals correctly held that there must be a reasonable correlation between cost and benefits, or whether, as the federal parties argue, the Secretary is then required by Section 6(b)(5) to promulgate a standard that goes as far as technologically and economically possible to eliminate the risk.[41]

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505. The Fifth Circuit viewed cost-benefit analysis as the proper construct, *id.*, and appeared unconcerned whether its holding appeared to be procedural imposition.

[38] Industrial Union Dept., AFL-CIO v. American Petroleum Inst., 448 U.S. 607 (1980).

[39] Chief Justice Burger and Justice Stewart concurred in full with Justice Steven's opinion. *Id.* at 611. Justice Powell concurred with the statutory and constitutional conclusions reached by the plurality, but disagreed slightly with the plurality's conception of the findings made by OSHA. *Id.* at 664-71. Thus, Justice Powell reached additional conclusions on issues the plurality felt were unnecessary to the holding. *Id.* at 670. In a separate concurrence, Justice Rehnquist declared that the benzene standards should be invalidated because § 3(8) of the Act constitutes an unconstitutional delegation of Congress' legislative function. *Id.* at 685-88. (Rehnquist, J., concurring in judgment). The dissenters, in an opinion written by Justice Marshall, also disagreed that § 3(8) imposes any limitations on § 6(b)(5), but would have upheld the validity of that section standing alone. *Id.* at 688-729 (Marshall, Brennan, White & Blackmun, J.J., dissenting). For an in-depth treatment of the overbroad "delegation of powers" argument advanced by Justice Rehnquist, see Note, *Administrative Law—Delegation of Powers,* 4 WHITTIER L. REV. 275 (1982).

[40] Writing for the plurality, Justice Stevens asserted that OSHA, by assuming that no safe exposure level for benzene existed, had evaded its burden of determining that a significant risk was posed by exposure under the current standard. Industrial Union Dep't, ALF-CIO v. American Petroleum Inst., 448 U.S. at 637, 645. Justice Stevens noted OSHA's disregard for the need to show a significant risk through its interpretation that the phrase "reasonably necessary or appropriate" contained in § 3(8) merely required that its standards be reasonably expected to improve the safety of the work environment. *Id.* at 640-41. Justice Stevens stated that "[t]he Secretary is required to make a threshold finding that a place of employment is unsafe in the sense that significant risks are presented and can be eliminated or lessened by a change in practices." *Id.* at 642. For a thorough treatment of the "significant risk" holding of the Benzene Decision, see Note, *Avoiding the Use of Cost-Benefit Analysis in the Context of Occupational Safety and Health; The Requirement of Significant Risk;* Industrial Union Department AFL-CIO v. American Petroleum Institute, 22 B.C.L. REV. 1149 (1981).

[41] Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 615.

Clearly, the Benzene Decision left unanswered whether cost-benefit analysis was necessary to support the validity of a permanent health and safety standard.

B. The Cotton Dust Decision

A year after the Benzene Decision, the Supreme Court again encountered the applicability of cost-benefit analysis with respect to a proposed health standard.[42] Once again, the Agency proposed to reduce the permissible exposure levels of a toxic substance, in this case ambient cotton dust,[43] to a level which the Agency claimed was feasible but which industry said was cost ineffective.

The District of Columbia Circuit heard industry's challenge to OSHA's regulation of occupational exposure to cotton dust.[44] As the Supreme Court had not yet rendered its Benzene Decision, the textile industry relied on the "reasonably necessary or appropriate" language previously emphasized by the Fifth Circuit in striking down the benzene standard.[45] Industry contended that the Act required a showing of a reasonable relationship between the costs and benefits anticipated from the standard.[46] The Secretary of Labor claimed that after finding conclusive evidence on the causal relationship between exposure to cotton dust and respiratory disease, the Act merely required OSHA to show that the standard was within the constraints of economic and technological feasibility.[47] Unlike the Fifth Circuit's holding in the benzene case, the District of Columbia Circuit supported the Secretary and upheld the standard.[48]

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[42] American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490 (1981).

[43] The final cotton dust standard called for an exposure limit of 200 grams per cubic meter, reduced from 1000 grams per cubic meter. 29 C.F.R. § 1910, 1043 (1982).

[44] American Fed'n of Labor v. Marshall, 617 F.2d 636 (D.C. Cir. 1979), *vacated and remanded sub nom.* Cotton Warehouse Ass'n v. Marshall, 449 U.S. 809 (1980), *modified sub nom.* American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490 (1981).

[45] *Id.* at 662-663 & n.153. The Fifth Circuit compared similar "reasonably necessary" language contained in the Consumer Products Safety Act and imputed the textual significance under the latter act to serve as a substantive limit on OSHA's rulemaking and authority under the Occupational Safety and Health Act. American Petroleum Inst. v. OSHA, 581 F. 2d at 502. *See supra* notes 25-33 and accompanying text.

[46] American Fed'n of Labor v. Marshall, 617 F.2d at 662. The textile industry also argued that the standard was technically and economically infeasible. *Id.*

[47] *Id.* at 663.

[48] *Id.* at 666. The District of Columbia Circuit struck down the cotton dust standard pertaining to the cottonseed oil mills, holding that OSHA had failed to support by substantial evidence the economic feasibility of this regulation. *Id.* at 670-71.

The District of Columbia Circuit adopted judicial deference toward OSHA policymaking in its review of the cotton dust standards. American Fed'n of Labor v. Marshall, 617 F.2d 636,

The District of Columbia Circuit openly disputed the wisdom of the Fifth Circuit's holding concerning the benzene standard.[49] The court viewed the Fifth Circuit as having misinterpreted congressional intent when it ascribed dispositive significance to the words "reasonably necessary or appropriate" contained in the Act's definitional section. Further, although the District of Columbia Circuit took a "hard look"[50] in reviewing the Secretary's proposed standard, it observed

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650-51 (D.C. Cir. 1979). Such deference was warranted, according to Justice Bazelon, for several reasons: the medical and scientific uncertainty regarding the nature of threatening diseases, *id.* at 652; OSHA's necessary reliance on predictions of possible future events and extrapolations from limited data, *id.* at 657-58; and Congress' allowance of the "best available evidence" criteria to fill gaps in the agency's knowledge, *id.* at 658. Justice Bazelon construed the Act as mandating that the Secretary regulate when the best available evidence indicates a serious occupational health hazard exists. *Id.* Justice Bazelon stated that the court's role was to assure "public accountability" by requiring the agency to explain the assumptions underlying its predictions and extrapolations, as well as its basis for resolving ambiguities. *Id.* at 651. The District of Columbia Circuit explicitly outlined its review functions as ensuring that the agency: "(1) act within the scope of its authority, (2) follow the procedures required by statute and by its own regulation; (3) [explicate] the basis for its decision; and (4) [adduce] substantial evidence in the record to support its determinatio[n]." *Id.* at 650. The District of Columbia Circuit's treatment of the Cotton Dust standard did not trigger the probing analysis undertaken by the Fifth Circuit regarding the scope of the Secretary's authority because quantitative risk assessment had been conducted by the agency in the development of a dose-response curve showing the incidence of byssinosis at alternate cotton dust exposure levels. *Id.* 654. The threshold factor of "significant risk" had therefore been substantially supported. The second factor which the Fifth Circuit found OSHA to have ignored in setting its benzene standard—assuring a reasonable relationship between costs and benefits—also did not trouble the District of Columbia Circuit. Justice Bazelon, acutely aware of the judiciary's lack of authority to impose upon administrative agencies procedures not required by statute, determined that imposition of a cost-benefit requirement would be an unwarranted judicial intrusion into OSHA's procedural framework. *Id.* at 664-65. Finally, the court determined that the Secretary had adequately explained the basis for his decision and adequately supported the economic and technological feasibility of the standard. *Id.* at 666.

[49] The District of Columbia Circuit openly criticized the Fifth Circuit's elevation of the "reasonably necessary or appropriate" language of § 3(8). *Id.* at 665 n.169. First, the court acknowledged that congressional acts sometime require a showing of unreasonable risk prior to regulation. *See, e.g.*, Federal Hazardous Substances Act, 15 U.S.C. § 1261(s) (1976) (an article is a mechanical hazard if it presents "unreasonable risk of personal injury or illness"); Consumer Products Safety Act, 15 U.S.C. § 2058(c)(2)(A) (1976) (a rule must be "reasonably necessary to eliminate or reduce an unreasonable risk of injury"); Toxic Substances Control Act, 15 U.S.C. § 2605(a) (1976) (requirements may be imposed if a chemical presents "unreasonable risk of injury to health or the environment"). Next, the District of Columbia Circuit remarked that industry's reliance on *American Petroleum*, which was in turn based on the Fifth Circuit's holding in Aqua Slide 'N' Dive Corp. v. Consumer Prod. Safety Comm'n, 569 F.2d 831 (5th Cir. 1978), was unpersuasive precisely because, unlike the Consumer Product Safety Act, the Occupational Safety and Health Act does not require the prior finding of an unreasonable risk. American Fed'n of Labor v. Marshall, 617 F.2d at 663-65.

[50] *See supra* note 34 and accompanying text. Writing for the District of Columbia Circuit, Justice Bazelon announced that the substantial evidence test requires more rigorous scrutiny over agency action than does the "arbitrary and capricious" test. He described the creation by Congress of an "uneasy partnership" between the agency and the reviewing court, with the

judicial restraint, as required by its own precedent.[51] The court viewed a judicially imposed requirement that the record be subject to cost-benefit analysis prior to promulgation of a standard as procedural in nature and prohibited by a recent Supreme Court holding.[52] Thus, in passing on the validity of the cotton dust standard the court was unwilling to impose any judicial mandates on OSHA that could be deemed a procedural measure not required by the Act.[53]

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court's obligation being to check extravagant exercises of the agency's authority to regulate risk. American Fed'n of Labor v. Marshall, 617 F.2d at 649. Judge Bazelon stated: "Our role in this partnership is to ensure that the regulations resulted from a process of reasoned decision-making consistent with the agency's mandate from Congress." *Id.* at 649-50. *See infra* notes 80-81 and accompanying text for a discussion of the goal of "reasoned decision-making" within this partnership.

[51] Industrial Union Dept. v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974). In the Cotton Dust holding, the District of Columbia Circuit quoted *Hodgson's* construction of substantial evidence review under the Act as follows:

> What we are entitled to at all events is a careful identification by the Secretary, when his proposed standards are challenged, of the reasons why he chooses to follow one course rather than another. Where that choice purports to be based on the existence of certain determinable facts, the Secretary must, in form as well as substance, find those facts from the evidence in the record. By the same token, when the Secretary is obliged to make policy judgments where no factual certainties exist or where facts alone do not provide the answer, he should so state and go on to identify the considerations he found persuasive.

Id. at 475-76.

[52] Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519 (1978). *See* American Fed'n of Labor v. Marshall, 617 F.2d 665 n.167. In *Vermont Yankee*, the Court pronounced: "[A]gencies are free to grant additional procedural rights in the exercise of their discretion, but reviewing courts are generally not free to impose them if the agencies have not chosen to grant them." Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. at 524.

[53] The Act requires that rulemaking be preceded by notice to interested parties of issues to be presented in the proposed rule. The agency must also provide opportunities for such parties to offer contrary evidence and arguments. 29 U.S.C. §§ 655(b)(2)-(3) (1976). In addition, OSHA has supplemented these mandated procedures when promulgating health and safety standards under § 655 of the Act by undertaking five additional procedures. Such procedures include: publication of the proposed rule in the Federal Register, *id.* § 655(b)(2); opportunity for interested parties to submit "written data or comments" within thirty days after publication of the proposed rule, *id.*; opportunity for interested parties to submit "written objections to the proposed rule . . . and request a public hearing on such objections," *id.* § 655(b)(3); publication in the Federal Register of the time and place for hearings scheduled on objections to the proposed standard, *id.* § 655(b)(3); and promulgation of final rule, or decision not to issue one, within sixty days after period permitted for written comments, or within sixty days after completion of hearing, *id.* § 655(b)(4).

Upon reviewing these procedures and finding that OSHA had conformed, Justice Bazelon stated that the court may not "impose additional procedural requirements." American Fed'n of Labor v. Marshall, 617 F.2d at 665 (citing Vermont Yankee Power Corp. v. Natural Resources Defense Council, 435 U.S. 519, 524 (1978)), Justice Bazelon explained that "this court may not require OSHA to conduct cost-benefit analysis unless the agency or Congress officially requires this procedure. Such analysis is certainly not mandated in explicit terms by the statute. Nor is it implicated in the extra-statutory procedures OSHA followed in promulgating the cotton dust

The District of Columbia Circuit's rejection of industry's call for cost-benefit analysis centered on three factors: the Act's preeminent legislative purpose of protectng employee health,[54] the permissible use by OSHA of "best available evidence"[55] to support the standard's economic and technological feasibility, and the quality of the record in documenting that the standards proposed were necessary to reduce an identified and significant risk of material health impairment.[56] The District of Columbia Circuit seemed in complete agreement with the Secretary's view that once a significant health risk is identified, the extent of permissible regulation is limited only by economic and technological feasibility. The circuit court held that the

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standard." American Fed'n of Labor v. Marshall, 617 F.2d at 665 n.167. Moreover, the court viewed the Act as mandating significant expenses for employee protection which were deemed as "reasonable and necessary costs of doing business." American Fed'n of Labor v. Marshall, 617 F.2d at 664 n.161. With regard to the extent of the expense, the court noted comments by Senator Yarbourough, the bill's sponsor, in which the Senator responded to claims that the bill would be too expensive:

> We are talking about people's lives, not the indifference of some cost accountants. . . . We are talking about assuring our American workers who work with deadly chemicals that when they have accumulated a few years seniority they will not have accumulated lung congestion and poison in their bodies, or something that will strike them down before they reach retirement age.

Id. at 664.

[54] The Act's declaration of purpose and policy states its goal is "to assure so far as possible every man and woman in the Nation safe and healthful working conditions and to preserve our human resources." 29 U.S.C. § 651(D) (1976).

[55] The Act requires or permits the agency to develop standards for toxic materials based upon "best available evidence." 29 U.S.C. § 655(b)(5) (1976). Acknowledging this fact, the court stated that "[t]his court will not require further survey research from the agency especially where it has made an informal decision to rely on other credible sources of information, such as the extensive expert testimony, written comments and briefs, and research studies used here." American Fed'n of Labor v. Marshall, 617 F.2d at 658.

[56] With regard to the requirement established in the Benzene Decision that a significant risk be identified and that a reasonable means of abatement be proposed, the Court found that through medical testimony on the record, OSHA had adequately documented the risk of health impairment which could result from continued exposure to cotton dust at then present permissible levels. Medical experts had testified that the early, acute symptoms of byssinosis weakened the worker's pulmonary system and increased his susceptability to the adverse effects of subsequent cotton dust exposure. *Id.* at 655. Concerning the adequacy of OSHA's findings of economic feasibility, the court pointed out that such findings are necessarily imprecise, and then alluded to the "best available evidence" authorization under § 6(b)(5) of the Act. *Id.* at 661.

Regarding technical feasibility and the adequate state of the record, the Court noted that other circuits have upheld OSHA standards that require compliance with permissible exposure limits (pels) that had never before been attained, Society of the Plastics Indus., Inc. v. OSHA, 509 F.2d 1301 (2d Cir.), *cert. denied*, 421 U.S. 992 (1975); or that had been reached only in the "newest, cleanest" plants, American Iron & Steel Inst. v. OSHA, 577 F.2d 825, 833, 834 (3rd Cir. 1978), *cert. dismissed*, 448 U.S. 917 (1980). American Fed'n of Labor v. Marshall, 617 F.2d at 658.

Secretary had adequately documented the feasibility of the proposed standard as it pertained to all but one segment of the textile industry.[57]

With a minor exception,[58] the Supreme Court upheld the District of Columbia Circuit's holding and analysis. Fault was found neither in the circuit court's application of "feasibility analysis"[59] nor in its finding that the cotton dust standard was authorized despite OSHA's failure to conduct cost-benefit analysis.[60] The Court began its review by analyzing the language of the statute itself, primarily the section

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[57] Only the portion of the standard proposed for regulating cotton dust exposure in the cottonseed oil mills was found to be invalid. Invalidity was based on the court's finding that the record failed to support the economic feasibility of the standard as applied to this work setting. American Fed'n of Labor v. Marshall, 617 F.2d at 670-71. Basically, the court reaffirmed, and consistently applied, the feasibility standard announced in Industrial Union Dept., AFL-CIO v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974). American Fed'n of Labor v. Marshall, 617 F.2d at 665-66. The court observed that OSHA had shown technological feasibility of the cottonseed oil standard by its reliance on the industry's own theoretical study. Although the study was not based on the compliance standard that was actually adopted, the court stated that "[a]gencies are permitted to rely on estimates and policy judgments of this kind so long as they are fully explained and authorized by statute." *Id.* at 670. In contrast, the agency's position on economic feasibility of the cottonseed oil standard was deemed unclear and inadequately supported by the record. This was so because OSHA summarily dismissed, without showing countervailing data, industry's estimate that 52% of its cottonseed oil production capacity would be eliminated by the cost of compliance. *Id.* Without evidence to refute the industry estimate, the court found itself unable to determine whether the industry's estimate was unreasonable. As a result, the court remanded this portion of the standard for the purpose of establishing a more complete record concerning economic feasibility. *Id.* at 671. The court explained:

> If the constraint of economic feasibility is to have any effect on the agency's rulemaking, it demands more serious consideration than it was given here. The agency is allowed to rely on the best available evidence, but here it simply gives general criticisms of the cottonseed industry's cost estimate. It failed to offer an alternative estimate of the standard's impact on this industry. As a result, the agency's position is too unclear to permit us to complete our reviewing function.

Id. at 672-73. For a discussion on the *Hodgson* based interpretation of "feasibility," see *infra* notes 100-03.

[58] American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 536-40 (1981). The Supreme Court overturned the District of Columbia Circuit's validation of a wage guarantee provision which was included in the proposed standard. The regulation, 29 C.F.R. § 1910.1043(f)(2)(v) (1982), provides that whenever a physician determined that an employee was unable to wear a respirator, the employee may transfer to an available position having a dust level at or below the permissible exposure level (pel) required by the standard. Such transfer was to occur so that the transferring employee would suffer no loss of earnings or other employment rights or benefits. *Id.* The Supreme Court observed that § 6(e) of the Act, 29 U.S.C. § 655(e) (1976), requires the Secretary to include a "statement of the reasons for such action, which shall be published in the Federal Register." American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 538. The Secretary had failed to support the wage guarantee provision with a statement of reasons or with record evidence concerning the measure's health related rationale. For this reason, the wage guarantee provision was remanded to the Agency. *Id.* at 536-41.

[59] American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 536.

[60] *Id.* at 509.

of the Act dealing with toxic substances.[61] This section requires that employees be protected "to the extent feasible" from "toxic materials or harmful physical agents" which threaten "material health impairment."[62] Citing a dictionary definition of "feasible" as " 'capable of being done, executed, or effected' ", the Court refused to find a cost-benefit requirement in the term.[63] The Court concluded that "Congress itself defined the basic relationship between costs and benefits, by placing the 'benefit' of worker health above all other considerations save those making the attainment of this 'benefit' unachievable."[64] Finally, the Court held that because feasibility analysis is required by OSHA, cost-benefit analysis is not.[65]

The Benzene[66] and Cotton Dust Decisions[67] affirmed two circuit court holdings which approved widely differing limits on the Secretary's standard-setting authority under the Act. Although both circuit courts focused on the Act's provisions concerning standard-setting for occupational health risks posed by toxic substances,[68] each emphasized different congressional concerns expressed within these provisions.[69]

As a result of these decisions, a two step analytical process has

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[61] *Id.* at 508. Occupational Safety and Health Act § 6(b)(5), 29 U.S.C. § 655(b)(5) (1976) provides in pertinent part:

> The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life.

Id.

[62] *Id.*

[63] American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 508-09 (quoting WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE 831 (1976)).

[64] *Id.* at 509.

[65] *Id.*

[66] Industrial Union Dept, AFL-CIO v. American Petroleum Inst., 448 U.S. 607 (1980), *aff'g*, American Petroleum Institute v. OSHA, 581 F.2d 493 (5th Cir. 1978) (benzene standard).

[67] American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490 (1981), *aff'g*, American Fed. of Labor v. Marshall, 617 F.2d 636 (D.C. Cir. 1979) (cotton dust standard).

[68] Both cases focused primarily on § 6(b)(5) of the Act. For the text of this section, see *supra* note 61.

[69] The Benzene Decision scrutinized the "material impairment" language in § 6(b)(5) of the Act, *id.*, and the definition of "occupational health and safety standard" set forth in Secton 3(8) of the Act, *id.* § 652(8). This section defines an occupational health and safety standard as "a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment." *Id.* The Cotton Dust Decision focused on the term "feasible" in § 6(b)(5) of the Act, which requires that the standard assure "to the extent feasible" that no employee will suffer material impairment of health. *Id.* § 655(b)(5).

been established to guide standard-setting for toxic substances. First, the Secretary must conduct some form of quantitative risk assessment[70] to show the standard is "reasonably necessary or appropriate" to abate an identified significant health risk.[71] Next, the Secretary must show that the standard is economically and technologically feasible as those terms were first defined in *Industrial Union Department v. Hodgson.*[72] Finally, cost-benefit analysis cannot be required by a reviewing court so long as economic and technological feasibility have been established.[73]

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[70] This construct, dubbed the "significant risk" test, is basically quantitative risk assessment as applied to the Act. The significant risk requirement is consistent with the Act's overall purpose of achieving, so far as possible, a safe working environment for every American worker. At the same time, it prevents costly regulatory intrusions into work practices that involve minimal risks. For a discussion of the proper use of risk assessment under the Act, see Note, *The Significant Risk Test and OSHA's Attempts to Regulate Toxic Substances:* Industrial Union Department, AFL-CIO v. American Petroleum Institute, 42 OHIO ST. L.J., 1119 (1981).

[71] *See supra* note 41 and accompanying text.

[72] 499 F.2d 467 (D.C. Cir. 1974) The District of Columbia Circuit based its assessment of the cotton dust standard's economic and technological feasibility on the statutory interpretation it announced in *Hodgson.* Economic feasibility was the primary issue in the cotton dust regulation, and the test employed was whether the standard threatens the competitive stability of the industry. *Id.* at 478. The Cotton Dust Circuit court found that the industry was not so threatened and that the Secretary supported this finding by substantial evidence. American Fed'n of Labor v. Marshall, 617 F.2d at 662. On appeal, the Supreme Court determined that the court of appeals had not " 'misapprehended or grossly misapplied' " the substantial evidence test with regard to economic feasibility. American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 536 (1981).

The *Hodgson* holding principally dealt with the economic feasibility of the standard proposed. Obviously, economic feasibility will also be affected by the cost of introducing advanced technology; a great many technological solutions can be found for occupational health and safety hazards given unlimited funds for research and development. In this light, *Hodgson* discusses the policy-oriented nature of OSHA decisions and their technological and economic consequences. Industrial Union Dep't v. Hodgson, 499 F.2d at 474. In Society of Plastics Indus., Inc. v. OSHA, 509 F.2d 1301 (2nd Cir. 1975), a case which relied heavily on the policy prerogatives permitted by *Hodgson,* and which dealt with the issue of technological feasibility, the court held that "[t]he Secretary is not restricted by the status quo. He may raise standards which require improvements in existing technologies or which require the development of new technology, and he is not limited to issuing standards based solely on devices already fully developed." *Id.* at 1309. Notably, the Supreme Court also observed in *American Textile Mfrs. Inst.* that "these cases do not present, and we do not decide, the question whether a standard that threatens the long-term profitability and competitiveness of an industry is 'feasible' within the meaning of § 6(b)(5) of the Act, 29 U.S.C. § 655(b)(5)." American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 530-31 n.55. *Cf.* AFL-CIO v. Brennan, 530 F.2d 109, 121 (3d Cir. 1975)(where the Third Circuit suggests that some health hazards are so great that, if technological controls were not feasible, the industrial activities could themselves be prohibited).

[73] In the Cotton Dust Decision, the Court merely stated that cost-benefit analysis was not required. This does not mean that in an appropriate case cost-benefit analysis may not be conducted by the Secretary. Appreciation of this seemingly semantic distinction is significant where the Secretary promulgates standards for non-toxic substances. The Court explained:

We need not decide whether § 3(8), standing alone, would contemplate some form of

Despite the Supreme Court's apparent rejection of cost-benefit analysis in the Cotton Dust Decision, several factors suggest an assessment of costs and benefits remains a significant feature of the proper administration of the Act. These factors include the recent presidential directive for federal deregulation,[74] the multiple economic pressures of inflation, recession and high unemployment, the emergence of union benefit "give-backs,"[75] as well as the Cotton Dust Court's failure to rule on this issue.[76]

Cost-benefit analysis, like feasibility analysis and quantitative risk assessment, has unique characteristics of particular utility in administering various provisions of the Act. The selection of the proper analysis to be employed under a particular section of the statute is a policy decision which should be made initially by the Secretary.[77] If,

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cost-benefit analysis. For even if it does, Congress specifically chose in § 6(b)(5) to impose separate and additional requirements for issuance of a sub-category of occupational safety and health standards dealing with toxic materials and harmful physical agents: it required that those standards be issued to prevent material impairment of health *to the extent feasible.*

American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 512 (1981). Donovan v. Castle & Cooke Foods, Inc., 692 F.2d 641 (9th Cir. 1982), is a case which permitted the use of cost-benefit analysis with respect to the noise standard, a non-toxic health hazard. *Castle & Cooke Foods* thus applied cost-benefit analysis in the gap discussed by the Cotton Dust Court where § 3(8) of the Act sets the sole substantive limitation on the Secretary's authority. For a complete discussion of this decision, see *infra* notes 142-49 and accompanying text.

[74] Exec. Order No. 12291, 3 C.F.R. 127 (1982), *reprinted in* 5 U.S.C. § 601, at 124-26 (Supp. IV 1980). Among other things, the Order provides that, to the extent the law permits, "regulatory action shall not be undertaken unless the potential benefits to society from the regulation outweigh the potential costs to society." *Id.*

[75] In the first three months of 1982, there were three major collective bargaining contracts negotiated involving "concession bargaining," by the United Auto Workers with Ford Motor Company and General Motors Corporation, and by the Teamsters. In addition, there were nearly 90 other collective bargaining agreements concluded in which unions agreed to concessions in exchange for some type of employment security. *See* 110 LAB. REL. REP. (BNA) 169.

[76] *See* American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 513 n.32. It is arguable that the Court would permit the use of cost-benefit analysis regarding the means by which an employer may achieve compliance with a feasible standard. *Id. See infra* note 169.

[77] The choice of whether cost-benefit, quantitative risk assessment, or feasibility analysis is applied to the administration of any part of the Act will affect the ultimate regulatory decision as well as what data need be captured and analyzed in reaching this decision. For example, the Secretary determined that cost-benefit analysis was not required when formulating the benzene standard under §6(b)(5) of the Act. Industrial Union Dep't v. American Petroleum Inst., 448 U.S. at 639. Data concerning regulatory costs were gathered as the Secretary recognized that cost information is necessary to establish "economic feasibility." But *see id.* at 668-70 (Powell, J., concurring in part and in judgment) (regarding inadequacy of cost data). Benefit calculations were not required under "feasibility" analysis as viewed by the Secretary, thereby explaining the relative lack of data collected by the Secretary to support the risk reduction benefits of the benzene standard. *See* 43 Fed. Reg. 5941 (1978).

The policymaking authority vested in the Secretary was clearly described in Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974), where the court stated: "[I]n a

however, the Secretary selects an inappropriate construct, or makes no selection at all, the Occupational Safety and Health Review Commission (the Commission)[78] or the courts[79] must intercede as "partners"[80] in the overall administration of the Act to assure that "reasoned decision-making"[81] prevails. The Secretary, the Commission, and the circuit courts of appeals should be prepared to accept or require cost-benefit analysis in appropriate areas not covered by the Cotton Dust Decision.

II. Analytical Tools for Policymaking

The Supreme Court's reluctance to require the Secretary to conduct cost-benefit analysis prior to establishing permanent standards regulating occupational exposure to toxic substances can be best understood by recognizing the unique characteristics and properties of cost benefit analysis, feasibility analysis, and quantitative risk assessment. The unique features of each of these analyses warrant their selective application under particular provisions of the Act, thereby enhancing the goal of "reasoned decisionmaking" where properly used.

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statute like OSHA where the decisionmaking vested in the Secretary is legislative in character . . . the act of decision is essentially a prediction based upon pure legislative judgment, as when a Congressman decides to vote for or against a particular bill." *Id.* at 474.

[78] The Act established the Occupational Safety and Health Review Commission (the Commission) to provide independent review of the enforcement proceedings. 29 U.S.C. § 661 (1976).

[79] The circuit courts of appeals are charged with reviewing occupational health and safety standards based on the substantial evidence test. 29 U.S.C. § 660(a) (1976).

[80] During the 1970's, and the explosion of environmental and safety legislation on the federal level, Congress repeatedly placed the agencies and the courts in a partnership in furtherance of the public interest. *See* International Harvester Co. v. Ruckelshaus, 478 F.2d 615, 647 (D.C. Cir. 1973) (Leventhal, J.) ("courts' role on judicial review embraces that of a constructive cooperation with the agency involved in furtherance of the public interest"); Environmental Defense Fund, Inc. v. Ruckelshaus, 439 F.2d 584, 597 (D.C. Cir. 1971) ("We stand on the threshold of a new era in the history of the long and fruitful collaboration of administrative agencies and reviewing courts."); *see also* McGarity, *Substantive and Procedural Discretion in Administrative Resolution of Science Policy Questions: Regulating Carcinogens in EPA and OSHA*, 67 Geo. L.J. 729 (1979).

[81] Chief Justice Bazelon and Justice Leventhal are the leading proponents of the partnership nexus between federal agencies and reviewing courts. Both justices see "reasoned decisionmaking" as the goal to be achieved through this partnership, but advocate differing means to achieve this goal. *See supra* note 80. *See also* International Harvester Co. v. Ruckelshaus, 478 F.2d 615, 652 (D.C. Cir. 1973) (Bazelon, C.J., concurring) (reaching for reasoned decisionmaking through different means). *See generally* McGarity, *supra* note 80, at 796-808.

A. Quantitative Risk Assessment

The Court's holding in the Benzene Decision requires the Secretary to make a threshold finding of "significant risk" before promulgating standards to reduce exposure to toxic substances, thereby establishing quantitative risk assessment as part of OSHA's standard-setting procedure.[82] Quantitative risk assessment has features well adapted to standard-setting in a scientific, health policy context. Because the benefits identified in quantitative risk assessment are explicitly defined in terms of reducing health risks, they reflect the Act's preeminent purpose of preserving worker health.[83] This contrasts dramatically with the focus on efficiency found under cost-benefit analysis.[84] Moreover, by explicitly identifying its goals in relatively narrow health terms, quantitative risk assessment gives practitioners a clear picture of what factors are to be considered and the proper weight to be given each.[85] Additionally, quantitative risk assessment has evolved in public policy areas where factual data have been elusive, where comparable market valuations have been absent, and where decisionmaking has been forced to rely on assumptions and predictions.[86] Thus, while the application and goals of quantitative risk assessment are precise, the data used to conduct this analysis are inex-

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[82] *See supra* note 41 and accompanying text.

[83] Section 2(b) of the Act provides: "The Congress declares it to be its purpose and policy . . . to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources." 29 U.S.C. § 651(b) (1976).

[84] *See* Rodgers, *supra* note 5, at 193-94.

[85] Government regulators are often given the responsibility to establish a safe level for human exposure for a given health hazard, frequently a hazard presented by a carcinogen. The regulator may struggle to no avail to obtain data which establishes a "no effect" level; a level at which no negative health consequences are suffered. In this effort, the regulator may construct a dose response curve showing the relationship between different exposure levels and the risk of cancer associated with those exposure levels. A difficult task is presented for the regulator when he can not determine the shape of the dose exposure curve at low-dosage rates. This was the problem faced by OSHA in setting the benzene standard, where OSHA failed to document the health risk faced by exposure to benzene at low levels of exposure. *See generally* McGarity, *supra* note 80, at 734-35.

[86] Quantitative risk assessment has been used in cancer research for years. *See* Occupational Safety and Health Administration, Identification, Classification and Regulation of Potential Occupational Carginogens, 45 Fed. Reg. 5282 (1980) (codified in 29 C.F.R. §§ 1990.101-.152 (1982)). In this setting, these assessments take into account both carcinogenic potency and the extent of human exposure. Quantitative risk assessment then predicts, for each person exposed to the carcinogen, the probability that he or she will get cancer. *See* Leape, *supra* note 7, at 91. To obtain data necessary for such predictions, agencies normally rely on epidemiological studies that review histories of human reactions to carcinogens, laboratory experiments on animals (animal bioassays), and a variety of short-term tests done on isolated cells. Each of these study techniques requires numerous assumptions and estimates. *Id.* at 91-96.

act.[87] Decisionmakers familiar with quantitative risk assessment are likely to recognize the many built-in and incremental policy choices which attend the assessment process and are not likely to view its findings as containing an aura of precision.[88] In contrast, the economic origins of cost-benefit analysis frequently promote rigid adherence to the analysis' results.

Finally, quantitative risk assessment is not firmly anchored to specific cost constraints.[89] It is designed to identify risks and suggest alternate levels of risk reduction. Alternate risk reduction targets may be selected on the basis of the severity or incidence of risk, incremental and marginal differences in severity or incidence, funds available

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[87] Epidemiological studies are inexact for three reasons: scientists cannot control outside causation factors affecting those who are exposed to a particular carcinogen; latent manifestation of effects make studies that describe recent exposure inconclusive; and, because the evaluator cannot regulate exposure to carcinogens from the onset, relevant risk factors cannot be completely controlled. *See* Comment, *OSHA at the Threshold: Setting Permissible Exposure Levels for Known Carcinogens After* American Petroleum Institute, 18 SAN DIEGO L. REV. 633, 639 (1981).

Although animal bioassays enable the evaluator to focus upon the isolated effects of a single carcinogen, such bioassays, like epidemiological studies, are inherently inexact. *Id.* at 639-40. If multiple causation theories, which hypothesize that cancer results from the cumulative effect of causative agents, are at all valid, the use of animal studies raises complex questions as to their accuracy when results are extrapolated to humans. *Id.* at 640. Further, because of the need to produce qualitative data quickly and cheaply, animal test-subjects are injected with extreme doses of the substance being studied making it difficult to predict effects at lower levels of exposure. *Id.* at 640-41. Finally, there is great uncertainty about the validity of analogies between different organisms. Test animals may differ from man concerning their ability to absorb chemicals, their rates of metabolism, their rates of excretion, and the quality of the cellular and inter-cellular membranes that interact with the carcinogen. *Id.* at 640. These factors, combined with environmental differences in exposure, the inbred aspects of most animal test populations, and the relatively small size of the test populations, create vast uncertainties. *Id.* at 639-40. The above limitations concerning the precision of quantititive risk assessment have been widely discussed. Most practioners who have had occasion to use this construct accept the assumptions inherent in the data gathering process.

[88] Risk assessment has also been used to establish policy in a wide variety of settings outside of cancer research. For a discussion of the use of risk assessment in EPA policymaking, see Rowe, *Governmental Regulation of Social Risks*, 45 GEO. WASH. L. REV. 944 (1977) where the author defines risk assessment in broad social policy terms:

> [T]he total process of risk analysis, . . . embraces both the determination of levels of risk and the social evaluation of risks. Risk determination consists of both identifying risks and estimating the likelihood of their occurrence. Risk evaluation measures both risk acceptance, or the acceptance levels of societal risks, and risk aversion, or methods of avoiding risk, as alternatives to involuntarily imposed risks.

Id. at 949.

[89] Costs are not relevant to quantitative risk assessment. Rather, "[q]uantitative risk assessment predicts human risk by taking available data on exposure and potency, accounting for the differences between the observed group of humans or animals and the general population, and predicting the response to low doses based on the observed responses to very high doses." Leape, *supra* note 7, at 97. Of course, the costs of methods of risk reduction often rely on conclusions arrived at through quantitative risk assessment. *Id.* at 87 n.6.

to address a given risk, the method of risk reduction, or any other considerations relevant to establishing sound public health policies. This feature allows quantitative risk assessment to be utilized in conjunction with feasibility analysis, where economic and technological feasibility serves to establish the proper level and means of risk reduction.

Given these features, it is not surprising that the Benzene Decision requires the Secretary to establish a permanent standard as "reasonably necessary or appropriate" to abate a significant health risk before it may be enforced.[90] This finding precedes the issue of whether the standard must be "feasible" or beneficial when compared with its cost. By so ruling, the Court was able to temper the speed with which OSHA regulations concerning toxic substances could be lawfully promulgated. This was arguably a response by the judiciary to a perceived danger that the protective policy,[91] which OSHA evinced in issuing the benzene standard, would lead to rampant regulation of suspected toxic health hazards at prohibitive costs.[92] Second, the Court was able to defer a decision on whether

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[90] The plurality discussed the impossibility of providing an absolutely risk-free workplace and concluded that only "significant risks" were targets of the Act. Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 641. The plurality went on to conclude that significant risks must first be identified and found abatable before the Secretary could act. *Id.* at 642.

[91] In 1980, OSHA issued its Generic Cancer Policy. *See* Occupational Safety and Health Administration, Identification, Classification and Regulation of Potential Occupational Carcinogens, 29 C.F.R. §§ 1990, 101-.152 (1982). The standard represents an attempt by OSHA to regulate exposure to potential occupational carcinogens by establishing categories of carcinogenic risk based on quantitative risk assessment. The Generic Cancer Policy is designed to permit more effective and less time-consuming regulation of cancer risks. To illustrate the problem that the Generic Cancer Policy hopes to address, the National Institute of Occupational Safety and Health has identified over 2,400 agents as "suspected carcinogens" and projected that 271 of those would meet the Generic Cancer Policy's criteria for regulation. *See* Comment, *supra* note 87, at 642 n.58. Yet since 1971 OSHA has completed regulatory action on only twenty agents. For a summary of the delays and time involved in completing regulations of selected agents, see 45 Fed. Reg. 5011-12 (1980). For an in-depth review of OSHA's Generic Cancer Policy after the Benzene Decision, see generally Note, *supra* note 87.

[92] The extent to which OSHA relied on its Generic Cancer Policy in formulating the benzene standard is open to dispute. The plurality in the Benzene Decision, however, appears to have found that OSHA relied upon it considerably. The opinion quotes OSHA's Deputy Director of Health Standards as having testified as follows:

> This airborne exposure limit is based on OSHA's established regulatory policy, that in absence of a demonstrated safe level, or a no effect level for a carcinogen, it will be assumed that none exist (sic), and that the agency will attempt to limit employee exposure to the lowest level feasible.

Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 624 n.18. *But see id.* at 695. (Marshall, J., dissenting) ("Contrary to the plurality's suggestion, the Secretary did not blindly rely on some draconian carcinogen 'policy.' ")

cost-benefit or feasibility analysis is the proper yardstick for measuring the limits of the Secretary's regulatory actions.[93] The decision to require quantitative risk assessment thereby helped to promote reasoned decisionmaking while avoiding the need to conduct cost-benefit analysis which normally requires the quantification of human life.[94]

B. Feasibility Analysis

Feasibility analysis permits no simple definition. Justice Rehnquist observed that it is merely a chimera that means whatever a given member of Congress or judge wishes it to mean.[95] Justice Powell concluded that whatever else feasibility analysis means, its parameters include cost-benefit analysis.[96] Likewise, it is arguable that the majority in the Cotton Dust Decision left open the possibility that "feasibility" in a given context may warrant application of cost-benefit analysis.[97] The divergence of these opinions is attributable to the fact

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[93] The plurality stated: "Because the Secretary did not make the required threshold finding in these cases, we have no occasion to determine whether costs must be weighed against benefits in an appropriate case." *Id.* at 640.

[94] The Secretary has refused to set a value for human lives. The Secretary has determined that Congress did not intend OSHA to reach an "economically efficient" level of risk reduction and thereby place a monetary value on human lives by setting marginal costs equal to marginal benefits. *See* Occupational Safety and Health Administration, Exposure to Coke Oven Omissions, 41 Fed. Reg. 46,742, 46,750-51 (1976) (giving the Secretary's detailed reasons for rejecting the cost-benefit approach to regulating toxic chemicals).

Public policy decisions, however, frequently require the valuation of human life. For example, valuations are made in the determination of awards in worker compensation and in assessing damages for wrongful death. Despite the difficulties faced when attempting to value health benefits, the Federal Aviation Administration (FAA) and the National Highway Traffic Safety Administration (NHTSA) have placed a monetary value on life. The FAA has placed the value at about $200,000; the NHTSA has placed it at about $240,000. *See* J. MENDELOFF, REGULATING SAFETY 124 (1979). In those instances, the evaluation is made at the second of two stages when life valuation can occur: before death and after death. At the second stage, valuation is easier to rationalize and accept since its only purpose is to determine a level of compensation for survivors of the deceased. Valuation before death, however, is the relevant determination to be made in the context of OSHA standard-setting. For a survey of various methods that can be used to value human life, see Acton, *Measuring the Monetary Value of Lifesaving Programs*, 40 LAW & CONTEMP. PROBS., Autumn 1976, at 46.

[95] American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 546 (Rehnquist, J., dissenting).

[96] Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 667 (Powell, concurring in part and in the judgment).

[97] There are two primary areas where this may pertain. First, where a standard is promulgated under § 6(b)(5) and calls for the introduction of engineering or administrative controls "to the extent feasible," "feasibility" in an enforcement action could be tested by cost-benefit analysis. *See infra* notes 146-49. Second, where the Secretary has identified a specific method of achieving compliance and the method is excessively costly as compared with other equally satisfactory methods of compliance, the specific standard may be shown to have a cost-benefit imbalance. *See infra* notes 150-65. In both cases, however, cost-effectiveness would be a more

that feasibility analysis evolved out of a legislative compromise.[98] As a result, it continues to be a point of contention between competing economic and health concerns.

The Act requires the Secretary, in promulgating standards to control toxic substances or harmful physical agents, to set a standard which "most adequately assures, to the extent *feasible*, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life."[99] Based on the legislative history of this section, and a line of circuit court decisions which adhere to the widely-accepted interpretation of feasibility announced in *Industrial Union Department AFL-CIO v. Hodgson*,[100] feasibility encompasses both technological and economic considerations. Under *Hodgson*, technological feasibility is interpreted to mean that OSHA may set standards which require employers to obtain hazard abatement technologies which lie on the "frontiers of scientific knowledge."[101] Economic feasibility permits OSHA to establish health and safety standards that may be financially burdensome to some employers, and which may result in the demise of those employers who have allowed health and safety precautions to lag behind the protective measures

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precise description of the proper analysis. On the effectiveness side of the equation would lie the reduction in severity of risk. Because of the frequency with which these terms are used interchangably, no attempt is made in this Note to differentiate between the two. In most cases, OSHA regulations would be better analyzed using cost-effectiveness instead of cost-benefit analysis. American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 513 n.32.

[98] Justice Rehnquist aptly described the essence of the compromise in the Benzene Decision:

> In drafting Section 6(b)(5), Congress was faced with a clear, if difficult, choice between balancing statistical lives and industrial resources or authorizing the Secretary to elevate human life above all concerns save massive dislocation in any affected industry. . . . That Congress chose, intentionally or unintentionally, to pass this difficult choice on to the Secretary is evident from the special quality of the standard it selected. . . .

Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 685 (Rehnquist, J. dissenting).

[99] 29 U.S.C. § 655(b)(5) (1976).

[100] 499 F.2d 467 (D.C. Cir. 1974).

[101] Society of Plastics Indus., Inc. v. OSHA, 509 F.2d 1301, 1308 (2d Cir. 1975), *cert. denied*, 421 U.S. 992 (1975). The court quoted *Hodgson* and analogized the issue at hand, the regulation of vinyl chloride, with the issue dealt with by the Fifth Circuit, the asbestos standard, and concluded that both involved factual disputes on the "frontiers of scientific knowledge." *Id.* With respect to technological feasibility, the court refused to define the boundaries of the technological frontier:

> In the area of safety, we wish to emphasize, the Secretary is not restricted by the status quo. He may raise standards which require improvements in existing technologies or which require the development of new technology, and he is not limited to issuing standards based solely on devices already fully developed.

Id. at 1309.

implemented by their associates in the industry.[102] It is the financial ability of the industry as a whole that sets the economic feasibility of a proposed standard, not the impact such a standard may have on a single employer.[103] The overall feasibility of a standard is determined, therefore, by both the industry's ability to obtain necessary technological innovations, and its capacity to absorb the economic costs of compliance. Feasibility analysis, in short, sets the overall cost and technological constraints within which significant threats to workers in a given industry may be abated. While this term may have lacked definitional clarity in 1970, the Cotton Dust and Benzene Decisions have helped to define its proper application.

C. *Cost-Benefit Analysis*

Cost-benefit analysis requires that all costs and benefits be measured according to their dollar value.[104] By comparing costs and benefits, decisionmakers are guided as to which actions or programs are worth the investment. Some commentators contend that the Benzene and Cotton Dust Decisions ruled cost-benefit analysis out of the Act.[105] Others argue that the plurality in the Benzene Decision itself engaged in cost-benefit analysis when it observed that the one-half billion dollar price tag was too much to pay for an unknown increment of health protection for a mere 35,000 workers.[106] An under-

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[102] Industrial Union Dep't v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974). The District of Columbia Circuit's pre-eminent statement on economic feasibility provides:

> Standards may be economically feasible even though, from the standpoint of employers, they are financially burdensome and affect profit margins adversely. Nor does the concept of economic feasibility necessarily guarantee the continued existence of individual employers. It would appear to be consistent with the purposes of the Act to envisage the economic demise of an employer who has lagged behind the rest of the industry in protecting the health and safety of employees and is consequently financially unable to comply with new standards as quickly as other employers.

Id. at 478.

[103] *See supra* note 102.

[104] *See* Rogers, *supra* note 5, at 193. *See also* Kasper, *Cost-Benefit Analysis in Environmental Decision-making*, 45 GEO. WASH. L. REV. 1013, 1023 (1977).

[105] Subsequent to the Cotton Dust decision, OSHA replaced its system for reviewing and issuing health and safety standards. The new system employs a four-step evaluative process, the first two of which are significant risk assessment and risk reduction, followed by economic feasibility and an evaluation of scientific and economic data. These final two steps replace cost-benefit analysis, which OSHA believes to be forbidden as an analytical tool following the Cotton Dust Decision. *See* 11 O.S.H. REP. (BNA) 131 (July 16, 1981).

[106] *See* Wheeler, *The Threshold Problem for Product Manufacturers, Lawyers who Advise Them, and Lawyers who Defend Them in Litigation: The Inevitability of Cost-Benefit Analysis, in* PRODUCT DESIGN LIABILITY, at 69-73 (1981) (discussing Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607 (1980)).

standing of the conceptual limitations of cost-benefit analysis will illustrate that neither view is entirely correct.

Cost-benefit analysis is of limited use in areas of social policy setting which require a valuation of benefits that do not have market comparisions.[107] Regulating occupational exposure to toxic substances is one such area. It is difficult to value the worth of unimpaired eyesight, the price one might pay to avoid premature death due to cancer or what one would pay to prevent the onset of a respiratory ailment, since such health benefits cannot be purchased in the open market.[108] It cannot be determined, for example, what price a textile worker suffering from brown lung disease would pay to be free of a debilitating cough he will suffer for the rest of his working life.[109]

A second deficiency inherent in the use of cost-benefit analysis is its failure to account for competing uses of funds, moral questions, or value judgments inconsistent with the valuations selected by the decisionmaker.[110] The decisionmaker who fails to accord health concerns a very high value may find a health or safety program too costly, while in the eyes of those who ascribe health matters a preeminent value, greater expenditures could be justified. Moreover, social

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[107] Cost-benefit analysis, however, may deliver an unintended benefit by identifying areas where more information is necessary. Additionally, where deficient data is utilized, such deficiencies should be made explicit. For an argument for the use of cost-benefit analysis as an aid to policy-making without requiring scientific precision in its application, see Green, *Cost-Risk-Benefit Assessment and the Law: Introduction and Perspective*, 45 GEO. WASH. L. REV. 901 (1977).

[108] For example, market comparisons are difficult or impossible in evaluating what an acceptable price might be for cleaner air or water, assurances that products are not marketed with inherently hazardous design, or even national security. For a discussion of a cost-benefit analysis performed by the National Academy of Sciences under the Clean Air Act amendments which require reduction of automobile emissions, see Kasper, *supra* note 104, at 1016.

[109] Byssinosis is a "continuum disease" that has been categorized into four grades. Each of the four grades describe increasingly severe symptoms of respiratory impairment, such impairment having been found causally linked to great exposure to ambient cotton dust. *See* Occupational Exposure to Cotton Dust, 41 Fed. Reg. 56,500-01 (1976). The Cotton Dust Court described the following scenario concerning the effects of byssinosis on an individual worker: "In the first few years of exposure [to cotton dust], symptoms occur on Monday, or other days after absence from the work environment; later, symptoms occur on other days of the week; and eventually, symptoms are continuous, even in the absence of dust exposure." American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 496-97.

[110] A clear example of this deficiency can be found in the Food and Drug Administration's (FDA) ban on saccharin. The FDA makes cost-benefit assessments with the statutory purpose of protecting the public against the hazards of chemical food additives; the FDA is not charged with assuring that the public enjoys the benefits of such additives. The FDA must, therefore, base its decision on the incidents of cancer that may result from continued use of saccharin rather than on assuring the public of its continued availability for the purposes of controlling weight and other health problems such as diabetes. *See generally* Green, *supra* note 107, at 906.

programs compete for finite resources. If certain segments of the population place a high value on national defense while others seek to find a cure for cancer, no matter what valuations are arrived at within each program goal, cost-benefit analysis cannot weigh dollar values among competing programs.

A third problem that arises when cost-benefit analysis is used to formulate public policy results from the fact that the decisionmaker is forced to anticipate values which future generations will place on goods, services, or programs currently under assessment. This is particularily problematic when the program under assessment mandates high costs today to produce incremental changes that yield few immediately recognizable benefits, but which over a number of years may result in benefits highly valued by future generations. Determining the present discount rate for evaluating the future dollar adds to this problem.[111]

On a more practical level, the decisionmaker can only estimate the probable effects of any planned action.[112] This estimate could be inaccurate at its inception or rendered erroneous by subsequent social, economic and technical events affecting those underlying assumptions.[113] The classification of effects as costs or benefits is itself problematic. For example, programs designed to increase longevity would normally be considered beneficial. Yet, with respect to retired workers and the non-working poor, some methods of valuing lives would treat the prolongation of non-productive workers as a cost.[114] Finally, upon identifying, quantifying, and classifying the effects of proposed

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[111] The discount rate is a formula for evaluating future dollar benefits or costs into present dollars. Arriving at a formula "is essentially a value judgment about equity between generations." Rogers, *supra* note 5, at 198.

[112] For example, byssinosis, the disease targeted under the cotton dust standard, illustrates the comparative difficulty in attempting to protect occupational health, as opposed to occupational safety. In the latter concern, cause and effect between hazard and injury is very clear and the exposure time is normally immediate. Occupational health problems, however, often develop after some years of exposure, perhaps even after an employee has worked for several firms and has been exposed to multiple, harmful substances. Complicating factors, such as cigarette smoking, add to the difficulty of determining a safe exposure level. *See* Occupational Exposure to Cotton Dust, 46 Fed. Reg. 56,500, 56,502 (1976).

[113] In September of 1979, the National Cancer Institute issued a pamphlet entitled "Everything Doesn't Cause Cancer." NATIONAL CANCER INSTITUTE, EVERYTHING DOESN'T CAUSE CANCER (1979). This pamphlet intended to allay fears that had been aroused as a result of 184 earlier reports which had concluded that many common substances are carcinogenic. Subsequent research concerning many of these substances revealed that many of the compounds which have been found to increase certain kinds of tumors actually *decreased* the incidence of other types of tumors. *See* Salburg & Health, *When Science Progresses and Bureaucracies Lag—The Case of Cancer Research*, 65 THE PUB. INTEREST 30 (1981).

[114] Rogers, *supra* note 5, at 198.

government action, the unwary decisionmaker may be lulled into a false sense that all relevant issues have been properly, and indisputably, considered and weighed. This is seldom the case.

In addition to the general limitations characteristic of cost-benefit analysis, three specific reasons can be identified which explain the Supreme Court's rejection of this analysis in formulating occupational health standards for toxic substances. First, the statute does not explicitly require cost-benefit analysis.[115] This contrasts with similar statutes in which Congress has expressly required the lead agency to conduct cost-benefit analysis prior to taking action.[116] As Justice

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[115] In the Cotton Dust Decision, the Court arrived at this conclusion upon reviewing the legislative history of § 6(b)(5), which, standing alone, requires no application of cost-benefit analysis. American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 512. *See also* Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 719 (Marshall, J., dissenting) (1980) (where Justice Marshall argued that "no cost-benefit analysis is referred to at any point in the statute or legislative history. . . . [T]he legislative history . . . demonstrates that Congress' sole concern was that standards be economically and technologically achievable.")

[116] The Cotton Dust Court pointed out that when Congress intends an agency to use cost-benefit analysis, the requirement is clearly indicated on the face of the statute. For example, the Flood Control Act of 1936, 33 U.S.C. § 701a (1976) provides:

> [T]he Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the *benefits to whomsoever they may accrue are in excess of the estimated costs*, and if the lives and social security of people are otherwise adversely affected.

Id. (emphasis added). Similarly, the Outer Continental Shelf Lands Act, 43 U.S.C. § 1347(b) (1976 & Supp. III 1978) provides:

> [T]he best available and safest technologies which the Secretary determines to be economically *feasible*, wherever failure of equipment would have a significant effect on safety, health, or the environment, except where the Secretary determines that the *incremental* benefits are clearly insufficient to justify the incremental costs of using such technologies."

Id. (emphasis added). Other statutes also contain explicit language requiring cost-benefit analysis. *See, e.g.*, Energy Policy and Conservation Act of 1975, 42 U.S.C. § 6295(c), (d) (Supp. III 1979); Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. §§ 1312(b)(1), 1314(b)(1)(B) (1976); Clean Water Act of 1977, 33 U.S.C. § 1314(b)(4)(B) (Supp. III 1978); Clean Air Act Amendments of 1970, 42 U.S.C. § 7545(c)(2)(B) (Supp. III 1978). In the Federal Water Pollution Control Act Amendments of 1972, Congress directed the Administrator to consider "the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application." 33 U.S.C. § 1314(b)(1)(B) (1976). In other statutes, Congress has used the phrase "unreasonable risk," accompanied by an explanation in the legislative history, to signify a generalized balancing of costs and benefits. *See, e.g.*, Consumer Product Safety Act of 1972, 15 U.S.C. § 2056(a) (1976) ("unreasonable risk of injury"); H.R. Rep. No. 1153, 92d Cong., 2d Sess. 33 (1972). There the House stated:

> It should be noted that the Commission's authority to promulgate standards under this bill is limited to instances where the hazard associated with a consumer product presents an unreasonable risk of death, injury, or serious or frequent illness. . . . Protection against unreasonable risks is central to many Federal and State safety statutes and the courts have had broad experience in interpreting the term's meaning and application. It is generally expected that the determination of unreasonable hazard will invoke the Commission in balancing the probability that risk will result in harm and the gravity of

Rehnquist aptly noted in his Cotton Dust dissent, if Congress had been forced to choose between requiring or prohibiting cost-benefit analysis in the development of permanent standards for the control of toxic substances, it is likely that the Act would not have been enacted.[117] The feasibility language that eventually was written into the Act was the product of legislative debate and compromise.[118] The Court was understandably unwilling to go where Congress had feared to tread. Second, the statutory history of the Act fails to compel cost-benefit analysis.[119] Although the cost of compliance borne by the employer was not ignored, the legislative debates indicate that the protection of employee health was the overriding concern of the Act. Finally, the use of cost-benefit analysis is simply not appropriate for determining social and economic policy in areas where occupational exposure to toxic substances is at issue.[120] In light of these deficiences, the Benzene and Cotton Dust Courts fused together quantitative risk assessment and feasibility analysis to arrive at a construct more precisely tailored to the goals of the Act than would be possible by using cost-benefit analysis alone.

> such harm against the effect on the product's utility, cost, and availability to the consumer.

Id. See also Aqua Slide 'N' Dive Corp. v. Consumer Prod. Safety Comm'n, 569 F.2d 831, 839 (5th Cir. 1978).

[117] Justice Rehnquist views the feasibility standard as no standard at all and would hold § 6(b)(5) of the Act void as a result of Congress' over-broad delegation of legislative policymaking authority to an administrative agency. He states that

> Congress had at least three choices. It could have required the Secretary to engage in cost-benefit analysis prior to the setting of exposure levels, it could have prohibited cost-benefit analysis, or it could have permitted the use of such an analysis. Rather than make a choice and resolve the difficult policy issue, however, Congress passed.

American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 545 (1981) (Rehnquist, J., dissenting). For an in-depth discussion of Justice Rehnquist's dissent, see Note, *Administrative Law—Delegation of Powers*, 4 WHITTIER L. REV. 275 (1982).

[118] The Cotton Dust Court reviewed at length the amendment process to which the "feasibility" language of § 6(b)(5) was subjected. American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 514-522.

[119] The Cotton Dust Court stated that:

> [n]ot only does the legislative history confirm that Congress meant "feasible" rather than "cost-benefit" when it used the former term, but it also shows that Congress understood that the Act would create substantial costs for employers, yet intended to impose such costs when necessary to create a safe and healthful working environment.

Id. at 519-20.

[120] Cost-benefit analysis is particularly ill-suited in situations where judgments must be made based on factual uncertainty, and where it is necessary to value human life or other intangibles. Rogers, *supra* note 5, at 204. *See generally* McGarity, *supra* note 80. An additional problem is presented by two factors that are largely unavoidable in this area: the time-lag between regular exposure and the onset of health impairment, and the time-lag between investment in safer technology and the showing of ascertainable benefits.

The Secretary has emphatically rejected cost-benefit analysis as a basis for standard-setting.[121] As a result of the Cotton Dust Decision, it appears that the Secretary will not be compelled to fulfill a cost-benefit requirement with respect to regulating toxic substances. Health standards developed under the two-step process of quantitative risk assessment and feasibility analysis will be upheld in the absence of a cost-benefit determination. This is not to say, however, that cost-benefit analysis has been ruled out of the proper administration of the Act.[122]

III. Cost-Benefit Analysis Under the Act

A. OSHA's Organizational Structure

In his role as head of the OSHA,[123] the Secretary of Labor has broad policy and rulemaking authority.[124] Congress was wary, however, of concentrating too much authority in the Secretary.[125] As a result, Congress created the Occupational Safety and Health Review Commission as a separate and independent agency for the purpose of adjudicating challenges to health and safety standards.[126] In separat-

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[121] *See supra* note 94.

[122] This Note argues that cost-benefit analysis may still be used in the following contexts: where safety standards are at issue, *see* infra notes 171-76 and accompanying text; where a specific method of abatement required by regulation can be shown as cost ineffective, *see infra* notes 146-49 and accompanying text; and where the feasible introduction of engineering modification is challenged by an employer in an enforcement action and such employer can show compliance with the health standard through the use of personal protective equipment, *see infra* notes 150-58 and accompanying text.

[123] To assist with the administration of the Act, the Secretary of Labor established the Occupational Safety and Health Administration, 29 C.F.R. § 1901.7 (1982).

[124] In Industrial Union Dep't. v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974), the court noted that most of OSHA decisionmaking under § 6(b)(5) of the Act depends "to a greater extent upon policy judgments and less upon purely factual analysis." *Id.* at 474.

[125] Martucci, *The Defense of Economic Infeasibility in Enforcement Proceedings Under the Occupational Safety and Health Act: An Appraisal of the Decisions of the Occupational Safety and Health Review Commission*, 17 New England L. Rev. 1, 13-15 (1981).

[126] The Commission is established under 29 U.S.C. § 661 (1976). The Act also provides for hearing examiners to be appointed by the Commission to "hear, and make a determination upon, any proceeding instituted before the Commission . . . and shall make a report of any such determination which constitutes [the examiner's] final disposition of the proceeding." *Id.* § 661(i). The report of the hearing examiner becomes the final order of the Commission, unless any Commission member, within thirty days of submission of the determination, directs that the report be reviewed by the Commission. *Id.*

The Commission is "presumed" to have "expertise" in matters of employee safety. Marshall v. Cities Serv. Oil Co., 577 F.2d 126, 130 (10th Cir. 1978). Moreover, decisions by the Commission are reviewed under the relatively narrow arbitrary and capricious test set out in 5 U.S.C. §

ing the adjudicatory function from the rulemaking process, Congress intended to counterbalance the Secretary's broad powers. Conceptually, balance is frequently desirable and may help prevent radical and aberrant regulatory trends. As a means of directing uniform agency policy, however, such balancing can be dysfunctional.[127]

A comprehensive discussion of the respective roles of feasibility analysis and cost-benefit analysis under the Act is made more difficult by the bifurcated power structure created by the Act. This is due to the fact that the Secretary and the Commission view feasibility from functionally different perspectives. Generally, the Secretary considers feasibility in a rulemaking context and must consider its industry-wide application.[128] This is the context in which "feasibility analysis" was discussed by the Benzene and Cotton Dust Courts. The Commission, however, views feasibility only in adjudicative settings, such as where an employer has failed to introduce new technology

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706(2)(A) (1976). *See, e.g.*, Intercounty Constr. Co. v. OSHRC, 522 F.2d 777, 779 (4th Cir. 1975), *cert. denied*, 423 U.S. 1072 (1976). The courts, therefore, place great weight on Commission decisions. To illustrate the limited review to which Commission decisions are given, the Third Circuit in Brennan v. Occupational Safety & Health Review Comm'n, 502 F.2d 946 (3d Cir. 1974) noted:

> We may also distinguish the separate problem of a conflict between the Secretary and the Commission as to the proper interpretation of a safety standard, which may involve the statutory allocation of the rulemaking power (in the Secretary) and the adjudicatory function (in the Commission). Citations under § 10 for violation of the general duty clause involve administrative adjudications rather than rulemaking, and petitions for review in general duty clause cases involve more or less traditional standards for reviewing adjudications under a statute. Section 11(a), 29 U.S.C. § 660, states that we must afford to the Commission's fact-finding the same deference as to the fact-finding of such agencies as the National Labor Relations Board. But aside from findings of fact it seems clear that we can set aside Commission adjudicatory conclusions which we find to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."

Id. at 950-51 (citations omitted).

[127] The conflict that can develop between the Commission and the Secretary was recently described by the Ninth Circuit in Donovan v. Castle & Cooke Foods, Inc., 692 F.2d 641 (9th Cir. 1982) as follows:

> Generally we accord substantial weight to the Secretary's interpretation of his own regulation, when affirmed by the Commission . . . . However, in a case such as this, where the Secretary and the Commission disagree as to meaning and application of the regulation, we need not grant such deference to the Secretary's interpretations . . . . Instead, we defer to the Commission's expertise in exercising the independent adjudicatory function assigned it by the Act.

Id. at 646.

[128] This broad orientation is reflected in § 6(a) of the Act, which gives the Secretary the power to promulgate standards such as those governing exposure to cotton dust and benzene. Both standards were tested according to economic and technological feasibility applicable to the industry as a whole. For a discussion of "feasibility," see *supra* notes 100-03 and accompanying text.

required under a regulation.[129] In this setting, the term "feasibility" means applied feasibility—whether an individual employer is able to comply with the standard set by the Secretary. Because the Secretary's broad formulation of feasibility can have little meaning to an individual employer buckling under the weight of high compliance costs,[130] feasbility must be interpreted differently in an adjudicative proceeding than in the promulgation of permanent standards. Indeed, often an employer will challenge the applied feasibility of a standard only after the standard's overall economic and technological feasibility have been upheld.[131] In such a case, the standard is presumed feasible, but the Commission may weigh the "applied" costs and benefits of a particular case to justify a temporary[132] or permanent variance.[133]

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[129] "Feasibility," in this context, is frequently discussed with respect to the introduction of specific safety measures in a particular work setting. *See generally* Martucci, *supra* note 125. It is this application of feasibility that confronted the Ninth Circuit in Donovan v. Castle & Cooke Foods, Inc., 692 F.2d 641 (9th Cir. 1982). The controversy there involved how the term "feasible" was to be interpreted in OSHA's noise standard, which requires utilization of "feasible" engineering controls. *See* 29 C.F.R. § 1910.95(b)(1) (1982). Donovan v. Castle & Cooke Foods, Inc., at 647.

[130] For an example of the employer's perspective on high compliance costs mandated by OSHA, see Zeckhauser & Nichol, *The Occupational Safety and Health Administration—An Overview, in* 6 SENATE COMM. ON GOV. AFFAIRS, STUDY ON FEDERAL REGULATION, FRAMEWORK FOR REGULATION, S. DOC. No. 14, 96th Cong., 1st Sess. 161, 203-04 app. (1978) (urging OSHA consideration of protective earplugs on the basis of a report estimating that an 85 decible standard for hearing protection could be achieved at an annual cost of $43 million, as opposed to $18.5 billion in capital costs alone, if engineering controls are required).

[131] A challenge to a standard in the enforcement stage is made defensively before the Commission after a citation has been issued. It can also be made to the circuit court pursuant to 29 U.S.C. § 660 (1976). *See generally* Rothstein, *Judicial Review of Decisions of the Occupational Safety and Health Review Commission—1973-1978: An Empirical Study*, 56 CHI.-KENT L. REV. 607 (1980). For example, the employer in Donovan v. Castle & Cooke Foods, Inc., 692 F.2d 641 (9th Cir. 1982) did not challenge the validity of the noise standard under which he had been cited for a violation; rather, he contested the feasibility of applying the standard to his workplace. The noise standard was promulgated under 29 U.S.C. § 652(10) (1976) as an "established Federal standard." *Id.* It is noteworthy that feasibility of the standard itself was never tested since it is not governed by the special criteria of "feasibility" that pertains to toxic substances. *See* Donovan v. Castle & Cooke Foods, Inc., 692 F.2d at 648. ("[C]ritical differences distinguish § 6(b)(5) and § 6(a) from which 29 C.F.R. § 1910.95 [(1982)] is derived.")

[132] 29 U.S.C. § 655 (b)(6)(A) (1976). This section allows the Secretary to grant a temporary variance if the employer establishes that: (1) he is unable to comply due to the "unavailability of professional or technical personnel or of materials and equipment, . . . or because necessary construction or an alteration of facilities cannot be completed by the effective date;" (2) "he is taking all available steps to safeguard his employees;" and (3) "he has an effective program for coming into compliance. . . ." *Id.*

[133] 29 U.S.C. § 655(d) (1976). This section permits an employer to apply to the Secretary for a permanent variance from a standard provided the employer gives notice of his application to employees and allows them to participate in a hearing, and demonstrates by a preponderance of the evidence that the conditions, practices, means, methods, operations or processes used will

The burden of employer compliance must be considered in light of The Act's overall purpose and structure.[134] While Congress viewed the employers' expense in assuring employee health and safety as a cost of doing business,[135] it was not insensitive to the genuine hardships of compliance.[136] Indeed, the Act itself contains three provisions designed to respond to such hardships.[137] Where an employer is faced with legitimate compliance problems, it must seek relief before the Commission. In this situation, the more individualized concept of applied feasibility is applicable. It is here that cost-benefit analysis can serve, and has served, as a useful analytical tool to resolve the feasibility issue.

B. "Economic Feasibility" in Enforcement: Cost-Benefit Analysis

Section 10 of the Act[138] establishes an appeal procedure for employers who have been issued a citation for non-compliance with a health and safety standard. Under this section, the employer may contest the citation and obtain a review by the Commission.[139] After affording the employer an administrative hearing, the Commission may modify the order which accompanied the citation or direct other relief.[140] Subsequently, if an employer shows that despite its "good

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provide the same level of safety as would inure to employees under the standard. *Id.*

[134] Congress enacted the Act in 1970 "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions." 29 U.S.C. § 651(b) (1976). Structurally, the bifurcation of authority between the Secretary and the Commission is evidence of Congress' concern for balanced administration of the Act. *See* Martucci, *supra* note 125, at 13.

[135] The Cotton Dust Court quotes Senator Eagleton as having commented during debate on the Act's passage: " '[T]he costs that will be incurred by employers in meeting the standards of health and safety . . . are, . . . *reasonable and necessary costs of doing business.*' " American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 521 (quoting 116 Cong. Rec. 41764 (1970) (statement by Sen. Eagleton)).

[136] For example, because compliance costs would be particularly burdensome for small business, Congress made such businesses eligible for economic assistance by adding § 28 to the Small Business Act, 15 U.S.C. § 636 (1976); Occupational Safety and Health Act, Pub. L. No. 91-596, § 28, 84 Stat. 1618.

[137] In addition to temporary and permanent variances, *see supra* notes 132-33, § 10(c) of the Act establishes abatement procedures. 29 U.S.C. § 659 (c) (1976). This section can be utilized by an employer who has been cited for violation of a standard, and who alleges that the time fixed in the citation for abatement of the violation is unreasonable. *Id.* The procedures set forth allow for a hearing and determination by the Commission. *Id.* If the Commission finds that the employer has made a good faith effort to comply with the abatement requirements in the citation, but cannot comply due to factors beyond his reasonable control, the Commission may modify the abatement requirement. *Id.*

[138] 29 U.S.C. § 659 (1976).

[139] *Id.* at § 659(c).

[140] *Id.*

faith effort" it cannot meet the abatement requirements of a final order "because of factors beyond [its] reasonable control," the Commission may again modify the requirements.[141]

Historically, the Commission has been sensitive to employers' compliance burdens and has adapted versions of both feasibility analysis and cost-benefit analysis to grant employers relief. For example, in *Castle & Cooke Foods*,[142] the Commission held that compliance with a rule setting noise standards[143] was not economically feasible because the relatively minor risk of hearing loss did not justify compliance costs of $697,000.[144] The Commission did not assign a specific monetary value to the danger faced by the employees. Instead, by electing not to label the health risk as serious, the Commission was able to conclude that the value of hearing protection was less than the estimated cost of compliance.[145]

The Commission's *Castle & Cooke Foods* decision was recently upheld by the Ninth Circuit.[146] The Secretary argued on appeal that the Cotton Dust Court's treatment of feasibility precluded the Commission from applying cost-benefit analysis in deciding whether the employer had "feasibly" introduced administrative and engineering controls as required by the standard.[147] The Ninth Circuit upheld the Commission's consideration of cost based on several factors, two of which are noteworthy: the Commission's expertise in adjudicative

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[141] *Id.*

[142] 5 O.S.H. Cas. (BNA) 1435 (1977).

[143] The noise standard is codified at 20 C.F.R. 1910.95 (1982). Because the noise standard is outside the scope of § 6(b)(5), where the regulation of toxic substances must be tested using the concept of "feasibility," the standard has, for the most part, largely escaped vigorous "economic feasibility" analysis prior to enforcement actions.

[144] Castle & Cooke Foods, 5 O.S.H. Cas. (BNA), at 1437 n.9.

[145] *Id.* at 1438.

[146] Donovan v. Castel & Cooke Foods, 692 F.2d 641 (9th Cir. 1982).

[147] The noise standard is typical of health and safety standards that require use of "feasible" administrative or engineering controls rather than "personal protective" safeguards. The standard is set forth in 29 C.F.R. § 1910.95(b)(1) (1982) as follows:

> When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the level of the table.

Id. The regulation contemplates three means of noise control. Engineering controls reduce the noise level at the source of emission. This is frequently achieved by insulation of the machine, by substituting quieter machines and processes, or by isolating the machine or its operator. Donovan v. Castle & Cooke Foods, Inc., 692 F.2d 641, 643 n.2 (9th Cir. 1982). Administrative controls attempt to reduce workers' exposure to excess noise through use of variable work schedules, rotating assignments, or limiting machine use. *Id.* Personal protective equipment includes such devices as ear plugs and ear muffs provided by the employer which are fitted to individual workers. *Id.*

matters was deemed to be superior to that of the Secretary;[148] "feasibility," as discussed in the Cotton Dust Decision was confined to the special provisions of the Act pertaining to toxic substances.[149] This holding directly supports the use of cost-benefit analysis under the Act and illustrates the judiciary's continuing role in guiding OSHA policymaking.

Continental Can Company[150] offers a particularly clear example of the Commission's examination of the noise standard and its requirement that noise levels be reduced by "feasible administrative or engineering controls." In this case, compliance with the standard required the employer to build enclosures around its machines to absorb noise. Despite $400,000 in compliance expenditures, the Secretary cited Continental for failing to institute "feasible" engineering controls.[151] Continental contested the economic feasibility of the standard before the Commission, claiming that compliance costs would exceed $32 million. The Commission reviewed the Act's legislative history and commented:

> Accordingly, we conclude that the standard be interpreted to require those engineering and administrative controls which are economically feasible. Controls may be economically feasible even though they are expensive. . . . But they will not be required without regard to the costs which must be incurred and the benefits they will achieve. In determining whether controls are economically feasible, all relevant cost and benefit factors must be weighed.[152]

Upon adopting this standard, the Commission simply held that compliance with the standard was not economically feasible.[153]

The Sixth Circuit explicitly adopted cost-benefit analysis as a relevant test of the noise standard's feasibility in *RMI Co. v. Secretary of Labor*.[154] The case was on appeal from the Commission[155] because only technological feasibility had been considered below.[156] The Commission had found the mandated engineering controls technologically feasible and ordered employer compliance. In remanding the case to

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[148] Donovan v. Castle & Cooke Foods, Inc., 692 F.2d. 641, 646 (9th Cir. 1982).

[149] *Id.* at 648-49.

[150] 4 O.S.H. Cas. (BNA), at 1548.

[151] *Id.* at 1543-44.

[152] *Id.* at 1547 (citations omitted).

[153] *Id.* at 1547-48.

[154] 594 F.2d 566 (6th Cir. 1979).

[155] 6 O.S.H. Cas. (BNA) 1523 (1978).

[156] The failure to consider economic feasibility resulted from the fact that *Continental Can Co.* was not decided by the Commission until after the initial decision in *RMI Co.* RMI Co. v. Secretary of Labor, 594 F.2d at 574.

the Commission for a finding on economic feasibility, the court cautioned that the Act required that "benefits to employees should weigh heavier on the scale than the costs to employers."[157] The court, however, refused to announce an explicit balancing formula, stating only that the Secretary and the Commission must "weigh the cost of compliance against the benefits expected to be achieved thereby in order to determine whether the proposed benefit is economically feasible."[158]

The noise standard[159] has not been the only regulation for which the Commission and the courts have acknowledged that an assessment of costs and benefits may be relevant to determining the validity of an enforcement action. In *Atlantic and Gulf Stevedores, Inc. v. OSHRC,*[160] the Third Circuit upheld a Commission decision[161] validating an OSHA citation issued to an employer for its failure to force employees to wear required hard hats. The employer claimed that the hard hat standard was economically infeasible as applied because efforts to enforce the standard would result in wildcat strikes.[162] Although the citation was upheld due to the employer's failure to pursue other remedies against intransigent employees, the court recognized the employer's right to contest the feasibility of the standard "as applied."[163] Moreover, the court held that the Secretary is empowered to require employers to utilize the collective bargaining process to enforce safety measures. If employee safety requires the cooperation of workers, employers can be compelled to utilize collective bargaining to provide for discipline and discharge of intransigent

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[157] *Id.* at 572.

[158] *Id.* at 573.

[159] Samson Paper Bag Co., 8 O.S.H. Cas. (BNA) 1515 (1981), is the Commission's most recent decision under the noise standard. As in *Continental Can Co.*, the employer was cited for permitting noise levels in excess of the standard. At the time of the citation, employees were wearing ear plugs capable of reducing sound to within permissible limits. Because the Secretary had established the technological feasibility of the standard, only economic feasibility was at issue. *Id.* at 1522. The Commission held to its earlier views expressed in Continental Can Co., 4 O.S.H. Cas. (BNA) 1541, and Castle & Cooke Foods, 5 O.S.H. Cas. (BNA) 1435 (1977), and rejected the Secretary's contention that engineering controls are only economically infeasible if the employer can show that they threaten financial viability. The Commission remanded the case for further evidence on the cost and benefits of the mandated controls. Sampson Paper Bag Co., 8 O.S.H. Cas. (BNA) at 1522.

[160] 534 F.2d 541 (3d Cir. 1976).

[161] 4 O.S.H. Cas. (BNA) 1061 (1976).

[162] Atlantic & Gulf Stevedores, Inc. v. OSHRC, 534 F.2d at 554.

[163] *Id.* at 552. The employer's argument was that the standard was economically infeasible as applied, and was invalid because attempts at enforcement would provoke a wildcat strike by employees. *Id.*

employees.[164]

Both the Commission and the courts have found cost-benefit analysis an appropriate means of balancing the employer's obligation to protect its workers against the need to achieve this protection in a way that is not financially debilitating.[165] Occasionally this balance has been struck under the rubric of economic feasibility; at other times the term "cost-benefit analysis" has been used. In either case, the more technical and theoretically pure elements of cost-benefit analysis have been severely strained. Rough justice seems to result, however, where the Commission, acting as a court of equity, balances the relative severity and extent of possible harm with the costs imposed. Enforcement actions under the Act are likely to provide fertile ground for the continued application of cost-benefit analysis as employers and employees begin to share more equally in the burden of assuring occupational safety.

C. *Beyond Enforcement: Cost-Benefit Analysis After the Cotton Dust Decision*

The previous section on enforcement discussed cases where the term "feasible" was used as a regulatory instruction to describe the circumstances under which engineering and administrative controls were to be substituted for personal protection devices.[166] Personal protective measures are deemed by OSHA to be a less satisfactory means of reducing employee health and safety risks than measures which improve the physical conditions of the workplace.[167] It is in

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[164] *Id.* at 555.

[165] For example, in United Parcel Service of Ohio, Inc. v. OSHA, 570 F.2d 1806 (8th Cir. 1978), the Eighth Circuit upheld a Commission validation of an OSHA citation given to an employer for its failure to require employees to wear safety shoes when assigned to duties exposing them to foot injuries. The court, however, remanded the case to the Commission for consideration of a less costly but adequate means of hazard abatement. *Id.* at 1830.

[166] Many OSHA standards require the introduction of "feasible" engineering controls to replace temporary personal protective devices. For example, under the cotton dust standard, the employer must utilize engineering controls and work practice modifications to meet permissible exposure limits "except to the extent that the employer establishes that such controls are not feasible." 29 C.F.R. § 1910.1043(e)(1) (1982). *See also id.* § 1910.1017(f)(2) (1982) (vinyl chloride standard states "as soon as feasible"); *id.* § 1910.1001(d)(1)(ii) (1982) (asbestos standard states except where "technologically not feasible").

[167] OSHA's preference for engineering or source controls is founded on the fact that personal protective devices can be avoided by employees, may be hazardous due to restricted mobility or other physical impairment, cannot be worn or tolerated by all employees, and shifts the burden for assuring health protection to employees. *See* American Fed'n of Labor v. Marshall, 617 F.2d at 653 n.80, for a summary of OSHA's views on the inadequacy of respirators for assuring against the health hazards posed by cotton dust.

making the transition from reliance on personal protective devices to the introduction of hazard-reducing technology that cost-benefit analysis may have vast application in the future.

The use of cost-benefit analysis by the circuit courts and the Commission in testing the validity of enforcement actions is not curtailed by the Cotton Dust Decision.[168] More significantly, a footnote to that decision suggests the Court's acceptance of cost-benefit analysis in the context of enforcing or implementing an otherwise feasible standard.[169] This footnote may be only an oblique reference to cost-benefit considerations in enforcement. Considered in connection with a contemporaneous executive order,[170] however, which requires agencies to lawfully apply cost-effectiveness analysis in all regulatory actions, it may be a significant caveat to the Court's holding that cost-benefit analysis is not required under the Act.

A second possible area of application for cost-benefit analysis can be illustrated by *American Federation of Labor v. Brennan*,[171] in which the unions challenged OSHA's revision of the mechanical press safety standard.[172] The mechanical press safety standard, like other safety regulations outside the realm of toxic substances, is governed only by the "reasonably necessary or appropriate" requirement applicable to all standards.[173] The Secretary had proposed a "no hands in

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[168] For confirmation of this view by the Ninth Circuit, see Donovan v. Castle & Cooke Foods, Inc., 692 F.2d 641 (9th Cir. 1982).

[169] American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 513-14 n.32. The court explained:

> This is not to say that § 3(8) might not require the balancing of costs and benefits for standards promulgated under provisions other than § 6(b)(5) of the Act. As a plurality of this Court noted in *Industrial Union Dept.*, if § 3(8) had no substantive content, "there would be no statutory criteria at all to guide the Secretary in promulgating national concensus standards or permanent standards other than those dealing with toxic materials and harmful physical agents. . . ." [A]ll § 6(b)(5) standards must be addressed to "significant risks" of material health impairment. In addition, if the use of one respirator would achieve the same reduction in health risk as use of five, the use of five respirators was "technologically and economically feasible," and OSHA thus insisted on the use of five, then the "reasonably necessary or appropriate" limitation might come into play as an additional restriction on OSHA to choose the one-respirator standard.

Id. (citations omitted).

[170] President Reagan announced that all government regulations would be subject to cost-benefit analysis "to the extent permitted by law." Exec. Order No. 12291, 3 C.F.R. 127 (1982), *reprinted in* 5 U.S.C. § 601, at 124-26 (Supp. IV 1980).

[171] 530 F.2d 109 (3d Cir. 1975).

[172] The standard at issue was the "no hands in dies" standard for mechanical power presses adopted in 1971. American Fed'n of Labor & Congress of Indus. Orgs. v. Brennan, 530 F.2d 109, 112 n.4 (citing 29 C.F.R. § 1910.217(d)(1)-(2) (1974)). The current standard now employs a guard system for protection. 29 C.F.R. § 1910.212 (1982). For two cases in which the Commission has upheld compliance with the current standard, see Zee Mfg. Co., 6 O.S.H. Cas. (BNA) 2178 (1978); Diebold, Inc., 6 O.S.H. Cas. (BNA) 2002 (1978).

[173] This conclusion finds support in the Ninth Circuit's holding in Donovan v. Castle &

dies" regulation to protect workers on mechanical power presses from accidentally losing hands or fingers.[174] The Secretary later retracted the new standard after finding it economically and technologically infeasible and that the additional costs would not result in substantially greater safety.[175] The unions viewed this retraction as lessening employee safety and claimed that the Secretary should not consider costs when promulgating safety standards.[176]

The Third Circuit held that the Secretary could consider economic and technological feasibility in retracting the standard, but that the retraction should not be made across-the-board.[177] Presuming that the new standard may offer some safety improvements over the old, the court required the Secretary to explain why the new standard should not be applied to those segments of industry that could reasonably comply.[178] The court remanded the case to the Secretary for a more complete statement of reasons explaining how the old standard would adequately carry out the purpose of the Act and for particular details of economic and technological infeasibility.[179]

By combining the Secretary's rationale[180] in support of the retraction of the mechanical press standard with the Third Circuit's disposition,[181] and by recognizing the newly found emphasis on the Act's authorization for only those standards that are "reasonably necessary or appropriate," a case can be made for the use of cost-benefit analy-

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Cooke Foods, 692 F.2d at 649.

[174] American Fed'n of Labor v. Brennan, 530 F.2d at 112.

[175] *Id.* at 124.

[176] The Unions maintained that the Secretary's consideration of economic and technical feasibility in retracting the safety standard was impermissible. *Id.* at 120.

[177] *Id.* at 124.

[178] *Id.*

[179] *Id.*

[180] OSHA's position was that the new standard would provide adequate protection, *id.* at 113, that the technology required by the national consensus standard was not "universally possible in the near future," and that the cost of modifying machinery was prohibitive. *Id.* at 117-18 n.26.

[181] In rejecting the union's contentions, the court acknowledged OSHA's authority to consider economic and technological feasibility in promulgating standards to control non-toxic health risks. *Id.* at 121. Regarding technological feasibility, the court recognized that OSHA was permitted to force technological innovation but observed that it was not required to do so if the imposition of such innovations would cause massive economic dislocation. The court stated that "[a]n economically impossible standard would in all likelihood prove unenforceable." *Id.* at 123. The court concluded that OSHA had supported, in the record, its reasons for proposing the new standard but that it had failed to adequately explain why the new standard would be more effective in carrying out the purposes of the Act. The court stated: "Granted that *universal* application of the no hands in dies standard is not technologically or economically feasible, it does not follow that a *universal* departure from the national consensus standard would better effectuate the purposes of the [OSH Act]." *Id.* at 124 (emphasis in original).

sis in formulating and administering safety standards.[182] Essentially, it could be argued that the Secretary's consideration of economic and technical "feasibility" in safety standard proceedings such as *American Federation,* is inappropriate since toxic substances are not at issue. The substance of the Secretary's argument in *American Federation* did not differ from one that could be made using quantitative risk assessment followed by cost-benefit analysis.

Finally, cost-benefit analysis has been recognized by OSHA in the past as relevant to prioritizing health hazards.[183] That is, given limited resources and multiple health and safety hazards, cost-benefit analysis is to be utilized by the Secretary in deciding which hazards to address. While the Cotton Dust Court alluded to the use of cost-benefit analysis in this context, it did not decide the issue.[184] It is suggested that quantitative risk assessment would serve as a better decisionmaking aid for prioritizing risks. Once probable risk targets are assessed and the possibilities of abatement quantified, feasibility estimates could be made. The Secretary would then have to make a policy choice by weighing the nature and gravity of the risk, achievable levels of risk reduction, and the economic and technological means of the regulated community.

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[182] The arguments offered by OSHA, supporting revision of the power press standard, and the Third Circuit's holding in *Brennan,* suggest that cost-benefit may be properly applied in the analysis of safety standards. Although the Third Circuit accepted OSHA's consideration of technological and economic feasibility in revising the "no hand in dies" standard, the application of the "feasibility" language germane to the regulation of toxic substances to safety standards, is, at best, strained. The "feasible" limitation for toxic substances literally pertains only to the regulation of toxic materials and harmful physical agents. Other standards are limited by the "reasonable or necessary" language emanating from the Act's definitional section. The position taken by OSHA, however, in its retraction of the mechanical power press standard was that feasibility considerations were applicable to safety regulations. Through this argument, the Secretary sought to reduce regulatory costs, while providing the same level of protection afforded by the previous standard. In essence, the Secretary made a feasibility-cost-effectiveness argument not unlike arguments made by employers advocating personal protective devices to achieve compliance with the noise standard. *See supra* notes 142-59 and accompanying text.

[183] OSHA explicitly acknowledged this proposition in the Benzene Decision. Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. at 644. The government's brief acknowledged: "First, 29 U.S.C. § 655(g) requires the Secretary to establish priorities in setting occupational health and safety standards so that the more serious hazards are addressed first. In setting such priorities, the Secretary must, of course, consider the relative costs, benefits and risks." Reply Brief for Federal Parties at 13, Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607 (1980).

[184] *See* American Textile Mfrs. Inst. v. Donovan, 452 U.S. at 509 n.29.

V. Judicial Review: The Substantial Evidence Test

Judicial review of OSHA standards has been largely guided by the goal of assuring that "reasoned decisionmaking" has prevailed in the Secretary's formulation of standards. Upon challenge, circuit courts are required to sustain OSHA standards which are supported by substantial evidence in the record as a whole.[185] The substantial evidence test is the review standard which typically governs formal rulemaking where agencies will, in most cases, have compiled a record against which courts can analyze administrative decisions.[186] In contrast, courts reviewing OSHA standards have the difficult task of applying substantial evidence review[187] to a record compiled through informal rulemaking.[188]

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[185] 29 U.S.C. § 655(f) (1976).

[186] Under the Administrative Procedures Act, the substantial evidence test applies only to rules "required by statute to be determined on the record after opportunity for an agency hearing." 5 U.S.C. §§ 553(c), 706(2)(e) (1976).

[187] The substantial evidence standard falls between intrusive "de novo review" and the deferential "arbitrary and capricious" test. *See* K. Davis, *supra* note 37, § 29.00. *But see* Note, *Judicial Review under the Occupational Safety and Health Act: The Substantial Evidence Test as Applied to Informal Rulemaking*, 1974 Duke L.J. 459, 463 nn.26-29 (1974). There are essentially two qualities to the substantial evidence standard. First, the evidentiary quality of the standard requires that the reviewing court find that the agency record contain "more than merely a scintilla" of factual data to support the proposed action. Consolidated Edison Co. v. NLRB, 305 U.S. 197, 229 (1938). Additionally, the reviewing court must assure that the agency considered the record "as a whole," including contrary, as well as supporting data. Universal Camera Corp. v. NLRB, 340 U.S. 474, 481-82 (1951). Moreover, the evidentiary record must contain factual data as would permit a reasonable mind to accept the conclusion reached. Consolidated Edison Co. v. NLRB, 305 U.S. at 229. A second quality of the substantial evidence standard requires the court to address the agency's handling of matters of law, such as statutory construction and interpretation, procedural adequacy, and the scope of the agency's statutory authority. K. Davis, *supra* note 37, § 29.00 (1976) (these are matters of law which the court must always review independently).

[188] The promulgation of permanent standards by OSHA is subject to informal notice-and-comment rulemaking procedures, with the additional requirement that a fact-finding hearing be held upon the written request of any interested person. The procedural provisions of OSHA establish the following steps for rulemaking: (1) the Secretary determines that a rule should be promulgated and publishes a proposed rule; (2) interested parties are allowed to submit written data or comments within thirty days after publication of the proposed rule; (3) if requested within thirty days after publication of the proposed rule, a public hearing is to be held; (4) within sixty days after the expiration of the period or written comment or after the completion of a hearing, the Secretary is required to issue a rule or make the determination not to issue a rule. 29 U.S.C. §§ 655(b)(1)-(4) (1976). In addition to the publication of the final rule, the Secretary is also required to make a statement outlining the reasons for his actions. *Id.* § 655(e).

Although the Act does not specify the precise format of the hearing, it has been recognized that the Act provides for notice-and-comment rulemaking rather than "on the record" proceedings. *See* Associated Indus. v. Department of Labor, 487 F.2d 342, 345 (2d Cir. 1973); H.R. Rep. No. 1765, 91st Cong., 2d Sess. 34 (1970), *reprinted in* 1970 U.S. Code Cong. & Ad. News,

The motivating consideration which prompted Congress to establish the anomoly of substantial evidence review and informal rulemaking is open to debate.[189] It is arguable that Congress intended that courts play an active role in overseeing the Secretary's rulemaking activities.[190] Viewed from this perspective, the Fifth Circuit's activism[191] in voiding the benzene standard appears to have been within the role that Congress prescribed for the circuit courts.[192] The

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5228, 5330. Consistent with this interpretation of OSHA, the Secretary has issued regulations which provide for informal rulemaking procedures. 29 C.F.R. § 1911.15 (1982).

[189] The "substantial evidence" standard was inserted into the Act at the last minute as a *quid pro quo* for deleting a formal rulemaking requirement. H.R. REP. No. 1765, 91st Cong., 2d Sess. 36, *reprinted in* 1970 U.S. CODE CONG. & AD. NEWS 5228, 5232. *See* Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 473 (D.C. Cir. 1974) (hybrid nature of OSHA reflects legislative compromise); Associated Indus. v. United States Dep't of Labor, 487 F.2d 343, 348-49 (2d Cir. 1973) (adoption of substantial evidence test as a trade-off for House abandonment of formal rulemaking procedures). Although very little legislative history is available to explain the purpose of this legislative bargain, it is possible that the conferees were willing to exchange the factual certainty ensured by formal procedures for the certainty ensured by a more stringent judicial review. A problem with this argument, however, is the conferees' apparent opinion that "arbitrary and capricious" was more stringent than "substantial evidence." *See id.* Where courts are charged with review of informal rulemaking by substantial evidence, the nature and extent of their reviewing authority becomes indefinite. In Citizens to Preserve Overton Part, Inc. v. Volpe, 401 U.S. 402 (1971), the Court established the nature of the judiciary's inquiry where informal agency rulemaking was the subject of review. As *Overton Park* required application of the "arbitrary and capricious" test, judicial analysis of informal rulemaking under the prescription established in this decision can be viewed as the minimum standard of review; closer scrutiny is arguably required where review by substantial evidence attends informal rulemaking. *Overton Park* requires the court to conduct a "thorough, probing, in-depth review" of the agency's proposed regulation. *Id.* at 415. First, the proposed rule must be within the scope of the agency's statutory authority. *Id.* Next, the agency's decision may not be arbitrary, capricious, or evidence an abuse of discretion. *Id.* at 416. Critical to this inquiry is the court's assessment of whether the agency's decision has given adequate consideration and proper weight to all relevant factors essential to carry out Congressional intent. Finally, the court must assure that the agency followed necessary procedural requirements. *Id.* at 416.

[190] Commentators have argued that the true distinction between the "arbitrary and capricious" standard and the "substantial evidence" standard lies in the procedures utilized in compiling the administrative record. *See* Scalia & Goodman, *Procedural Aspects of the Consumer Products Safety Act*, 20 U.S.C.A. L. REV. 899, 934-35 (1973). Although it is arguable that Congress intended to mandate particular hearing procedures in specifying a particular scope of review, such a mandate does not necessarily follow given the broad range of procedures possible and the fact that Congress could directly specify the intended procedures. *See* Verkuil, *Judicial Review of Informal Rulemaking*, 60 VA. L. REV. 185, 218-22 (1974) (Congress recently explicitly provided for both substantial evidence review and informal rulemaking procedures within the same statute). Therefore, when Congress specifies a scope of review, the level of scrutiny established should apply only to the agencies' factual determinations. This is due to the fact that courts review questions of law de novo regardless of the statutory standard of review. 5 U.S.C. § 706(2)(A), (C) (1976). Consequently, a stringent standard of review is arguably an instruction to the agency to establish facts with greater certainty. McGarity, *supra* note 80, at 791-92.

[191] *See supra* note 37.

[192] Apart from the substantive differences separating the District of Columbia and Fifth Circuits in their respective reviews of the Secretary's scope of authority in setting the cotton dust

Secretary must anticipate further judicial activism under the sub-

and benzene standards, the two courts differed as to the extent to which the judiciary may properly reject policy decisions made by the Secretary under the broad discretion afforded by informal rulemaking. This divergence stems from three sources: no precise formulation of the scope of judicial review is possible where, as in OSHA, Congress has matched substantial evidence review with informal rulemaking; the language employed in the Act mandating "feasible" standards for the control of toxic substances based on "best available evidence" is subject to diverse interpretations; and the available data concerning toxic substances and other "silent killers" is readily subject to scientific dispute, factual voids, and assumptions. Given these variables, it is not surprising that the District of Columbia Circuit and Fifth Circuit adopted different degrees of deference to the Secretary's policy decisions. This Note suggests that both courts properly exercised oversight powers, such powers being sufficiently broad to support the Fifth Circuit's activism. The Fifth Circuit was obligated to act to curb the Secretary's costly benzene standard, especially since approval of the standard would establish a precedent that OSHA could rely on broad policy guides instead of individual risk assessments of known carcinogens. The District of Columbia Circuit properly refused to follow the Fifth Circuit's cost-benefit requirement in a context outlined by the "feasibility" parameters which pertain to toxic substances.

The circuit courts have largely deferred to the Secretary's judgment when reviewing challenged OSHA standards. Such deference has been founded on judicial recognition of the policy nature of OSHA decisionmaking. The pattern of judicial deference was first set in Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974), where the District of Columbia Circuit upheld OSHA's asbestos standard. The court acknowledged that OSHA's regulatory charge required the Secretary to make policy choices which could not be verified by hard, factual data. *Id.* at 474.

Many cases seeking judicial review of OSHA policy decisions stem from OSHA regulations based on tests made on laboratory animals and experiments using high doses of the substances under study, the results of which are extrapolated to estimate their effects on humans. Synthetic Organic Chemical Mfrs. Ass'n v. Brennan, 503 F.2d 1155 (3d Cir. 1974), *cert. denied*, 420 U.S. 973 (1975), is typical of judicial deference where a court must apply the substantial evidence test to an OSHA standard founded largly on policy considerations. Here, the chemical ethyleneimine had been shown to cause cancer in rats and mice, but the consequences of human exposure were unknown. The court held that the Secretary could properly evaluate the carcinogenic effect on animals and that such an evaluation could lead to one of two alternatives until contrary evidence were produced: either find the chemical carcinogenic to man, or find it non-carcinogenic to man. *Id.* at 1158. The Secretary's application of animal studies to humans in reaching a legal conclusion that ethyleneimine was carcinogenic was termed by the court to be "a recommendation for prudent legislative action." *Id.* at 1159. Similarly, judicial deference was shown by the Second Circuit with respect to the Secretary's standard for controlling worker exposure to vinyl chloride, a carcinogen for which no safe exposure limit had been shown. Society of the Plastics Indus. v. OSHA, 509 F.2d 1301 (2d Cir. 1975). Based on animal studies, and bounded only by the limits of economic and technological feasibility, the Secretary ultimately established a one parts per million average exposure limit. This compliance level was to be achieved to "the extent feasible" through introduction of engineering and work practice controls. The Secretary defended the final standard as supported by "the best available evidence" despite considerable and admitted conjecture. *Id.* at 1309. The Second Circuit upheld the standard based on its reading of the Act and its view of the judiciary's proper function in such cases. *Id.* at 1303-04. The court observed that the Secretary's decisionmaking is essentially legislative in character, and that the court's reviewing authority is limited. Its paramount objective is to assure that the agency, given this essentially legislative responsibility, has executed this task in a manner designed to negate the dangers of arbitrariness and irrationality. *Id.* at 1304. Moreover, the Second Circuit approved standard-setting by the Secretary where "though the factual finger points, it does not conclude." *Id.* at 1308.

stantial evidence standard if he fails to consider regulatory costs and benefits where these factors are relevant to achieving the goals of the Act. Such anticipation is particularly warranted in light of the Ninth Circuit's willingness to accept the Commission's consideration of costs and benefits in enforcement despite the Secretary's claim that the Cotton Dust Decision precluded the weighing of such factors. *Castle & Cooke Foods*[193] illustrates that in a dispute between the Commission and the Secretary as to the applied feasibility of a standard, the use of the imprecise meaning which substantial evidence review obtains under the Act permits a court to choose between the analytical methods propounded by the two administrative bodies.

VI. Conclusion

The various analyses discussed in this Note are merely aids to ensure that the purposes of the Act are being carried out in accordance with congressional intent. Where congressional intent is unclear, arguments can be made that by utilizing one analysis or another, the Secretary will be better able to discern the proper means of achieving occupational health and safety. The choice of analysis used itself involves a policy decision; the body making this selection has primary input in determining how safe the workplace is, the costs that must be incurred in assuring such safety, and the means by which safety is to be achieved.

In the field of occupational health and safety, particularly where toxic materials and harmful physical agents are at issue, the analysis chosen cannot be applied with the precision an economist would advocate. This does not, however, render such analyses useless. The proper use of these analyses is essential to assuring that reasoned policy decisions are made based on factors Congress considered appropriate, and that they are reviewable when challenged. Each analysis requires that particular data be collected, that certain extrapolations from this data be projected, and that specific assumptions be made with regard to incomplete record evidence. At each point in this process, policy decisions are made. The imposition of cost-benefit analysis, quantitative risk assessment, or feasibility analysis does not unduly restrict such policy choices. The use of a specific construct merely frames the most relevant factors to the policy question

[193] Donvan v. Castle & Cooke Foods, Inc., 692 F.2d 641 (9th Cir. 1982). *See supra* notes 146-49 and accompanying text.

at hand. The construct may narrow or broaden the scope of analysis to best achieve a just balancing of the relevant issues.

Each of the analyses described offers features or characteristics that make it more or less suited to decisionmaking under various provisions of the Act. Cost-benefit analysis is best suited to narrow applications where specific costs may be identified and where there is agreement on the benefits to be achieved. It has been properly utilized, therefore, where the Commission has been petitioned by an overburdened employer.

The labor-management bargaining process, infused with feasible health and safety standards, also provides a situation where cost-benefit analysis can be gainfully employed.[194] Once an occupational risk

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[194] Employee safety has been an element of collective bargaining for years. *See* Newcom, *Employee Health and Safety Rights Under the LMRA and Federal Safety Laws*, 32 LABOR L.J. 395 (1981). Even so, any interface between OSHA safety and collective bargaining with respect to the infusion of cost-benefit analysis will require a coordinated approach vis-a-vis other pertinent acts.

The Occupational Safety and Health Act stands in potential conflict with four aspects of the Labor-Management Relations Act of 1947 (LMRA), 29 U.S.C. § 141 (1976). The first area of potential conflict arises from the § 7 right of workers to engage in protective concerted activity. 29 U.S.C. § 157 (1976). This section prohibits an employer or labor organization from taking adverse action against, or conferring a benefit upon, employees who are acting together, or refusing to act together, in pursuit of some proper employment objective. A critical finding for Section 7 protection is that "concerted" activity is involved in the disputed matter. The NLRB has taken the position for a number of years that complaints regarding job safety are protected Section 7 rights. *See, e.g.*, Modern Carpet Indus., 1978 NLRB Dec. (CCH) ¶ 19,379, *enforced* 611 F.2d 811 (10th Cir. 1979).

A second area of potential overlap stems from Section 502 of the LMRA which provides "the quitting of labor by an employee or employees in good faith because of abnormally dangerous conditions for work at the place of employment of such employee or employees [shall not] be deemed a strike." 29 U.S.C. § 143 (1976). In Gateway Coal v. United Mine Workers of Am., 414 U.S. 368 (1974), the Court held that it would be improper for a court to issue a no-strike injunction if a work stoppage were based on objective, ascertainable evidence of an abnormally dangerous working condition. *Id.* at 386-87. The Occupational Safety and Health Act has established similar protection by regulation, founded on § 11(c)(1) of the Act, which prohibits an employer from discharging or discriminating against any employee who exercises "any right afforded by [the Act]." 29 U.S.C. § 660(c)(1) (1976). The regulation, found at 29 C.F.R. § 1977.12 (1982), provides that "as a general matter, there is no right afforded by the Act which would entitle employees to walk off the job because of potential unsafe conditions at the work place," *id.* § 1977.12(b)(1), but "[i]f the employee, with no reasonable alternative, refuses in good faith to expose himself to the dangerous condition, he would be protected against subsequent discrimination," *id.* This regulation has been recently upheld by the Supreme Court in Whirlpool Corp. v. Marshall, 445 U.S. 1 (1980), where the Court found that an employee may refuse to work where he has a "good faith belief" that continuing to work will subject him "to serious injury or death." *Id.* at 11.

The third area of potential conflict results from NLRB holdings that health and safety issues are mandatory subjects for collective bargaining and that health and safety laws establish "minimum requirements" for operation. *See, e.g.*, Gulf Power Co., 1966 NLRB Dec. (CCH) ¶ 20,122, *enforced*, 384 F.2d 822 (5th Cir. 1967). Implicit in this "minimum requirement" stan-

has been identified, and the Secretary has determined achievable levels of safety, the risk level should be firmly set by the Secretary within the parameters established by quantitative risk assessment. The employer's burden to achieve compliance should not be displaced once the standard has been found feasible with respect to the industry. The bargaining process should then be opened to a discussion of the costs and benefits of various means by which compliance with the standard may be obtained. Upon petition to the Commission, the employer should be permitted to document, through its labor contract, employee willingness to achieve reduced exposure levels through the use of personal protective equipment as an alternative to more costly engineering modifications.[195] Employees' willingness to shoulder the burden for their own safety, of course, would be founded on employer cost-saving information and the application of some portion of those savings to job retention, health, wages or other benefits. The Commission's obligation would be to assure that no coercion occurred, that the employer assumed necessary expenses for protective equipment, and the risk reduction plan was "feasible."

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dard is the fact that a bargaining agent may significantly expand the health and safety rights of represented employees. Finally, if a union representative fails to pursue an employee's health or safety grievance, or agrees to some collective bargaining provision which exposed employees to an obvious occupational hazard, the affected employee(s) would have a cause of action for breach of duty of fair representation. *Cf.* Vaca v. Sipes, 386 U.S. 171 (1967). With respect to the recommendation in this Note, no undue exposure to occupational health risks would necessarily result as the collective bargaining process would merely address the means by which compliance would be reached. Application of the standard to a particular group of employees would otherwise leave the standard intact, thereby safeguarding the bargaining agent from a claim alleging a breach of the duty of fair representation. Moreover, enforcement of any health and safety provision in collective bargaining would be sound in federal court under section 301 of the Act, 29 U.S.C. § 185 (1976); thus the federal courts would be the body to decide whatever conflict might arise.

[195] *Cf. supra* note 164 and accompanying text.