NEGOTIATION AS A MEANS OF DEVELOPING AND IMPLEMENTING ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY POLICY[†]

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I. INTRODUCTION

Negotiation—as an alternative or an adjunct to the adversarial process—increasingly is touted as the wave of the future. It is argued that negotiation is a more efficient use of societal resources, because it is more likely to produce a result that all sides can accept. Moreover, negotiation is said to be more likely to produce creative solutions, because it forces the parties to focus on cooperation rather than confrontation. This Article provides an analysis of the use of negotiation in formulating and implementing environmental and occupational health and safety policy in the United States, and it attempts to assess the potential of negotiation to: (a) foster improved environmental and health and safety outcomes, and (b) stimulate technological change.

II. MODES OF NEGOTIATION

In a broad sense, there are three major instances in which negotiation is used to make or effectuate policy within the federal administrative system of the United States. First, there is *negotiated rulemaking*, whereby negotiation is used to help set regulatory standards. Once a particular statutory mandate is passed by Congress and signed by the President, it falls to the responsible agency to develop the particularized standards that will implement that mandate. As long as they act within the bounds defined by Congress in their statutory mandates, agencies are often given considerable latitude in such standard-setting. For the past twenty years or so, both the United States Environmental Protection

† The authors gratefully acknowledge the Fondazione Eni Enrico Mattei for its support of the research underlying this Article.

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Agency ("EPA") and the United States Occupational Safety and Health Administration ("OSHA") have made occasional use of negotiated rulemaking—a process whereby representatives of the various major constituencies expected to be affected by a contemplated regulation attempt to develop a proposed version of that regulation on which all (or most) of them can agree—to help set regulatory standards. As discussed below, Congress has generally encouraged use of this procedure.

Second, *negotiated implementation* is used to determine how regulatory standards, once set, are to be applied to a particular firm or other member of the regulated community. Under the law, such negotiation is appropriate only to the extent that it is consistent with the policy mandate set by Congress. For example, when the statute specifies that a particular standard is to be applied uniformly across the regulated industry by a given date, no such negotiation is proper. Under United States environmental statutes, negotiated implementation often occurs when a permit is being issued or revised, as is the case with EPA's recent *Project XL* initiative.[1] Such negotiation also occurs when the regulated firm seeks a waiver or variance from the regulatory standard at issue. Of particular interest here are the *innovation waivers* that have been made available by Congress in certain environmental statutes. When EPA grants such a waiver, the firm is given additional time to comply with the standard so that it may perfect a promising innovative compliance technology. Similarly, the Occupational Safety and Health Act ("OSHAct")[2] authorizes OSHA to grant waivers to selected firms that need additional time to perfect new and improved technologies to protect worker health or safety.

Third, *negotiated compliance* is used to determine the terms by which regulatory standards will be enforced against a particular firm or other regulated entity that is out of compliance with those standards. By its nature, of course, almost all enforcement involves some amount of negotiation between the enforcing agency (or, in the case of citizen enforcement suits, the enforcing citizen) and the alleged violator. Of interest here are those compliance negotiations that result in: (a) compliance through the use of innovative technology, and/or (b) environmental or public health or safety gains *beyond* compliance. Within the past decade, EPA has pioneered the use of what it terms "Supplemental Environmental Projects"[3] in an attempt to meet these goals within the compliance context.

Within the current administration, there is also what might be classified as a fourth type of policy-relevant negotiation known as *regulatory reinvention.*[4] The most prominent example of this is EPA's *Common Sense Initiative,*[5] wherein the agency has assembled groups of interested parties to focus on regulatory issues concerning a particular industry sector (*e.g.*, automobile manufacturing), with the goal of developing "cleaner, cheaper, smarter" ways of reducing or preventing pollution.[6]

1. *See infra* Part IV.A.2.
2. Occupational Safety & Health Act of 1970, 29 U.S.C. §§ 651–678 (1994).
3. *See infra* Part V.A.
4. *See infra* Part VI.

III. Negotiated Rulemaking

Since the mid-1970s, many commentators in the United States have advocated the use of negotiated rulemaking as a more efficient, sensible alternative to the traditional "notice and comment" procedure typically followed by federal agencies in the development of regulations.[7] Occasionally in the 1970s, and more often in the 1980s, EPA, OSHA, and other federal agencies used the negotiation process as an aid to the development of certain regulations. Often, such negotiations were held under the provisions of the Federal Advisory Committee Act ("FACA"), a 1972 statute governing the creation and operation of advisory committees convened to assist agency decisionmaking.[8] In 1990, Congress formally endorsed negotiated rulemaking with the passage of the federal Negotiated Rulemaking Act.[9] The Clinton Administration has been a strong supporter of its use.[10]

A. Negotiated Rulemaking Within the U.S. Administrative System

The Negotiated Rulemaking Act specifies a set of procedures to be followed by an agency wishing to use negotiated rulemaking, although the Act cautions that these procedures "should [not] be construed as an

5. *See infra* notes 269–297 and accompanying text.
6. Nat'l Academy of Pub. Admin., Setting Priorities, Getting Results: A New Direction for the Environmental Protection Agency 97 (1995).
7. *See, e.g.*, J. Dunlop, *The Limits of Legal Compulsion,* O.S.H. Rep. (BNA) 884, 886 (Nov. 12, 1975); Lawrence G. Bacow, Bargaining for Job Safety and Health (1980); Phillip J. Harter, *Negotiating Rules: A Cure for the Malaise,* 71 Geo. L.J. 1 (1982); Lawrence Susskind & Gerard McMahon, *The Theory and Practice of Negotiated Rulemaking,* 3 Yale J. on Reg. 133 (1985).
8. *See* 5 U.S.C. App. 2 §§ 1–15 (1994). FACA requires, inter alia, that: (1) with certain exceptions, all groups convened by a federal agency to provide advice on agency decisionmaking be treated as "advisory committees" under FACA, *id.* § 3(2) (1994); (2) the membership of advisory committees be "fairly balanced in terms of the points of view represented and the functions to be performed," *id.* § 5(b)(2), 5(c); (3) the meetings of advisory committees be open to the public, *see id.* § 10(a)(1); and (4) the records of advisory committee deliberations be open to the public, *see id.* § 10(b).
9. 5 U.S.C. §§ 561–570 (1994). Congress permanently reauthorized the 1990 Act in the Administrative Dispute Resolution Act of 1996, Pub. L. No. 104-320, 110 Stat. 3870, 3873.
10. *See, e.g.*, Exec. Order No. 12,866, 3 C.F.R. § 638 (1993). This order directed each agency "to explore, and where appropriate, use consensual mechanisms for developing regulations, including negotiated rulemaking." *Id.*

attempt to limit innovation and experimentation with the negotiated rulemaking process . . . ."[11] Under the Act, an agency may, but is not required to, use negotiated rulemaking to develop a proposed rule whenever the agency determines that it would be "in the public interest" to do so.[12] If the agency desires to use negotiated rulemaking, it must first identify the various interests that would be significantly affected by a proposed rule and determine whether those interests could be represented adequately by a group of persons brought together to serve as a negotiated rulemaking committee. If so, the agency may then establish such a committee, which is treated as an advisory committee under FACA.[13] The negotiated rulemaking committee is to be made up of persons representing the various affected interests, as well as at least one member of the agency, who is to serve on the committee "with the same rights and responsibilities as other members of the committee."[14] The committee's goal is to determine whether its members can reach a "consensus" (which may be defined by the committee as something less than unanimity) on the wording of a draft rule.[15]

If the committee reaches consensus, the draft rule is published for public notice and comment, as is any other proposed rule. The agency retains authority over the wording of any proposed or final rule, and the agency is empowered to modify the rule drafted by the committee if it believes the draft rule is inconsistent with the applicable congressional mandate. Moreover, a rule drafted through negotiated rulemaking is not to be "accorded any greater deference by a court than a rule which is a product of other rulemaking procedures."[16]

B. The Performance of Negotiated Rulemaking as a Means of Saving Time and Limiting Judicial Challenge

Those who advocate negotiated rulemaking, including Congress, tend to identify two primary benefits that are expected to flow from its use: (a) reduced rulemaking time, and (b) decreased litigation over the final rule.[17] Presumably, face-to-face meetings among the interested parties will avoid the various bureaucratic quagmires that can delay the drafting of a rule within an agency, and will produce a proposed rule more quickly on average. Further, since the interested parties have agreed on the wording of the proposed rule in advance, the notice and comment procedure presumably will be less contentious and time-consuming, and the incentive for anyone to file a judicial challenge to the final rule presumably will be slight.[18]

In practice, however, it is not at all clear that negotiated rulemaking delivers on either of these promises. Of all the federal agencies in the United States, EPA has used negotiated rulemaking most often.[19] A recent study of EPA negotiated rulemakings has concluded that: (a) on average, the promulgation of EPA rules through negotiated rulemaking took no less time than did the promulgation of a "control" group of similar EPA rules through traditional notice and comment rulemaking,[20] and (b) fifty percent of EPA's twelve finalized negotiated rulemakings were the subject of legal challenge, compared with a litigation rate of twenty-six percent for all EPA rules issued during the period from 1987 through 1991.[21] To date, then, it has not been established that negotiated rulemaking actually provides the primary benefits touted by its proponents.[22]

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11. 5 U.S.C. § 561 (1994).
12. *Id.* § 563(a).
13. *See id.* § 562(7). Even without the Negotiated Rulemaking Act, any negotiated rulemaking committee convened by an agency would presumably be treated as an advisory committee under FACA, and thus would be required to have "balanced" representation. 5 U.S.C. App. 2 § 5(b)(2)(c) (1994). *See also supra* note 8. For a discussion of FACA's fair balance requirement, see Nicholas A. Ashford, *Advisory Committees in OSHA and EPA: Their Use in Regulatory Decisionmaking*, 9 SCI. TECH. & HUM. VALUES 72, 76–77 (1984).
14. *Id.* § 566(b).
15. *See id.* §§ 566(f), 562(2).
16. *Id.* § 570.
17. The legislative history of the 1996 reauthorization of the Negotiated Rulemaking Act reflects almost unanimous support for negotiated rulemaking, and stresses these two presumed benefits of negotiated rulemaking. *See The Reauthorization of the Negotiated Rulemaking Act, 1996: Hearings Before the Subcomm. on Commercial and Admin. Law of the House Comm. on the Judiciary*, 104th Cong. 52–82 (1996), 142 CONG. REC. H12303–04 (daily ed. Oct. 19, 1996).
18. *See, e.g.*, Susskind & McMahon, *supra* note 7, at 136–37.
19. Cary Coglianese reports that, through 1996, a total of "seventeen federal agencies had initiated at least one negotiated rulemaking process," and that the average number of negotiated rulemakings initiated by these agencies was four. Cary Coglianese, *Assessing Consensus: The Promise and Performance of Negotiated Rulemaking*, 46 DUKE L.J. 1255, 1273 (1997). EPA had initiated the most, and actually had finalized twelve. *See id.* at 1273–74. When one considers the hundreds of rules issued by EPA through 1996, however, it is clear that negotiated rulemaking has been used in a very small percentage of EPA rulemakings. *See id.* at 1299 n.197 (citing data indicating that EPA issued over 2100 rules from 1987 through 1991).
20. *See id.* at 1284–86.
21. *See id.* at 1298, 1301. If one looks only at all of the more significant EPA rules issued during this period, the overall litigation rate is 35%. *See id.* at 1300. Conversely, if one uses the Office of Management and Budget's data on the total number of EPA rules issued during this period, the overall litigation rate is only 19%. *See id.* at 1299. In a less comprehensive study, Laura Langbein and Cornelius Kerwin found a litigation rate of 33% for "significant" EPA rules promulgated through the conventional rulemaking process, as compared to a litigation rate of 29% for EPA rules formulated through negotiated rulemaking. *See* Laura Langbein & Cornelius Kerwin, Regulatory Negotiation Versus Conventional Rulemaking: Claims, Counter-claims, and Empirical Evidence 19–20 (Nov. 20, 1997) (unpublished manuscript, on file with the *Harvard Environmental Law Review*).
22. Interviews conducted by Cornelius Kerwin and Laura Langbein with participants in negotiated rulemakings at EPA have found general satisfaction with the procedure and the results. However, "[i]n terms of satisfaction with the process and their experience with it, certain classes of participants, notably environmental interests, gave lower ratings than did the others. Their ratings were positive, but marginally so." Cornelius Kerwin & Laura Langbein, An Evaluation of Negotiated Rulemaking at the Environmental Protection Agency Phase I: Report for the Administrative Conference of the U.S. 47 (September 1995) (unpublished manuscript, on file with the *Harvard Environmental Law Review*).

C. The Performance of Negotiated Rulemaking as a Means of Securing a "Better" Rule

Despite an apparent failure to deliver its oft-cited benefits, negotiated rulemaking may offer other advantages. Significantly, because negotiated rulemaking facilitates face-to-face discussions among rulemaking "adversaries" that might not otherwise occur, there is the potential that creative solutions to difficult issues may be found as differences are understood and addressed, and that substantively *better* rules may emerge. Such a result might come, for example, through the identification of opportunities for innovative technological responses within the regulated community.

As an initial attempt to determine whether this potential is being realized, this Article examines three negotiated rulemakings used by EPA to set emission standards under the Clean Air Act ("CAA"),[23] and four instances in which negotiation was used in an attempt to develop an OSHAct standard governing occupational exposure to toxic chemicals.

In addition to the limitations imposed by the small number of examples examined, the problem with an analysis of this nature is that any attempt to identify a "better" result is a qualitative exercise: depending on the context, it can mean quite different things to different people. For the purposes of this Article, the quality of the final rule produced by negotiated rulemaking is evaluated according to whether it produced a rule that was more protective of environmental or occupational health than might have been expected had negotiated rulemaking not been used. Further, the Article gives particular attention to the extent to which opportunities to promote technological change were seized upon by the negotiating committee.

1. Negotiated Rulemaking and Clean Air Act Emission Standards

Of the twelve negotiated rulemakings completed by EPA through 1996, this Article focuses on three that resulted in the promulgation of air emission standards under the CAA: (a) the setting of new source performance standards for the woodstove industry, (b) the setting of hazardous air pollutant standards for coke oven emissions, and (c) the setting of hazardous air pollutant standards for the wood furniture coatings industry. These three are used because they share a common set of features: a full committee remained with the negotiations to the end;[24] the rule negotiated was the rule eventually proposed by the agency;[25] and the rule set an air emission standard designed to protect the environment and/or public health.[26]

23. 42 U.S.C. §§ 7401–7767 (1994 & Supp. 1996).

24. This distinguishes this group from the negotiations over EPA's worker protection standards for agricultural pesticides, where the farmworkers left the negotiating table early on and the rule was negotiated without their participation. *See* Worker Protection Standard, 57 Fed. Reg. 38,102 (1992) (codified at 40 C.F.R. pts. 156, 170).

a. The Woodstoves Rule

One of EPA's early forays into negotiated rulemaking was the development of a national New Source Performance Standard ("NSPS") for "residential wood combustion units" (woodstoves). EPA came to regulate woodstoves as a result of lawsuits brought against the agency by the Natural Resources Defense Council ("NRDC") and the State of New York.[27] These suits sought to force EPA to regulate polycyclic organic matter ("POM") as a hazardous air pollutant under section 112 of the CAA.[28] As part of its settlement of the POM litigation, EPA agreed to explore the possibility of regulating woodstoves, one of the primary contributors of POM,[29] as "stationary sources" of air pollution under section

25. This distinguishes this group from the negotiations over oxygenated and reformulated fuels under the CAA, where EPA chose to promulgate a rule different from the one negotiated by the negotiated rulemaking committee. *See* Regulation of Fuels and Fuel Additives: Standards for Reformulated and Conventional Gasoline, 59 Fed. Reg. 7716 (1994) (codified at 40 C.F.R. pt. 80).

26. Not only does this provide something of a common basis for comparison among the three negotiations, but it leads to a more straightforward analysis of the level of environmental and health protection delivered by the final rule than would an analysis of, for example, EPA's negotiated information collection rule for disinfectant byproducts in drinking water, *see* National Primary Drinking Water Regulations: Monitoring Requirements for Public Drinking Water Supplies: Cryptosporidium, Giardia, Viruses, Disinfection Byproducts, Water Treatment Plant Data and Other Information Requirements, 61 Fed. Reg. 24,354 (1996) (codified at 40 C.F.R. pt. 141), or EPA's negotiated rule on nonconformance penalties for motor vehicle compliance testing and certification, *see* Federal Motor Vehicle Safety Standards, Occupant Crash Protection, 50 Fed. Reg. 35,233 (1985) (codified at 49 C.F.R. pt. 571).

27. *See* Natural Resources Defense Council v. Alm, No. 84-1473 (D.C. Cir. filed Sept. 18, 1984); New York v. Thomas, No. 84-1472 (D.C. Cir. filed Sept. 18, 1984). The lawsuits were brought to enforce § 122(a) of the CAA, 42 U.S.C. § 7422(a) (1994), which was added to the Act in 1977. Under this provision EPA was required to evaluate four designated substances, including "polycyclic organic matter" (POM), and to determine whether emissions of such material "into the ambient air will cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health." *Id.* If EPA made an affirmative determination, it was then required under this section to list POM under § 7408(a)(1) as a "criteria" air pollutant or under § 7412(b)(1)(A) as a "hazardous air pollutant." Concluding that there was uncertainty about whether POM endangered public health within the meaning of § 7422, EPA stated that it could not make such a determination. *See* Final Decision, Regulation of Polycyclic Organic Matter Under the Clean Air Act, 49 Fed. Reg. 31,680 (1984) (codified at 40 C.F.R. ch. 1). The lawsuits followed.

28. *See* 42 U.S.C. § 7412 (1994). POM contains chemicals that are known or believed to be carcinogenic. *See Negotiated Agreement on Wood Stoves Would Cut Particulate Emissions by 70 Percent*, 17 Env't. Rep. (BNA) 821 (1986).

29. POM is produced and released into the air by the partial combustion that is typical of the woodstove burning process. In 1987, EPA stated that "a growing number of areas [are] experiencing air quality problems because of particulate and polycyclic organic matter emissions from woodburning devices." *EPA Announces Proposed Air Act Limits to Cut Wood Stove Particulate Emissions*, 17 Env't. Rep. (BNA) 1740 (1987).

111 of the Act.[30] Interestingly, such regulation was desired not only by environmental groups but also by woodstove manufacturers, who hoped that the promulgation of a national standard by EPA would discourage states from setting their own (likely differing) standards.[31]

Section 111 of the CAA requires that a NSPS reflect the level of emission limitation achievable through the application of the "best system of emission reduction . . . [that] has been adequately demonstrated."[32] To devise such a national emission standard, EPA convened an advisory committee consisting of representatives from industry, environmental groups, certain states, a consumer group, and the agency itself.[33]

Agreement on a single national standard was complicated, however, by the fact that there were two major categories of woodstoves on the market—those that incorporated catalytic combusters and those that did not. It was clear that, at least in the short term, the stoves with catalytic combusters were capable of meeting a lower, more protective emission standard than those without catalytic combusters. Because catalytic combusters require a higher degree of maintenance, however, there was some question as to whether they would continue to deliver this greater level of emission reduction over the long term. Rather than resolve this technical issue, the negotiating committee agreed rather early on to adopt the industry position on the matter and to propose two standards—one for stoves with catalytic combusters and the other for those without.[34] Thus, the opportunity to diffuse what may well be a superior emission-reduction technology throughout the woodstove industry was lost, as was an opportunity for innovation through the development of new woodstove technology.

This does not necessarily mean, however, that the woodstove rule was a "failure" from an environmental and public health perspective. It is questionable whether section 111 actually empowers EPA to regulate residential woodstoves as "stationary sources" of air pollution, especially since the rule governs the manufacturers and retailers who *sell* the stoves rather than the individual homeowners who operate them.[35] Thus, it could be argued that the process of negotiated rulemaking—in which the various players were able to agree on a rule despite its legal infirmities—resulted in a giant step forward, in that it produced national emission standards which otherwise might not have been promulgated, or which might have been successfully challenged in court.

30. *See* 42 U.S.C. § 7411 (1994).

31. *See generally* William Funk, *When Smoke Gets in Your Eyes: Regulatory Negotiation and the Public Interest—EPA's Woodstove Standards*, 18 ENVTL. L.J. 55, 61–62, 80–81 (1987).

32. 42 U.S.C. § 7411(a)(1) (1994).

33. *See* Intent to Form an Advisory Committee to Negotiate New Source Performance Standards for Residential Wood Stove Combustion Units, 51 Fed. Reg. 4800 (1986).

34. *See* Standards of Performance for New Stationary Sources, New Residential Wood Heaters, 53 Fed. Reg. 5860 (1988) (codified at 40 C.F.R. pt. 60); Funk, *supra* note 31, at 88.

35. *See* Funk, *supra* note 31, at 66–74.

On the other hand, the CAA was not the only regulatory alternative available to address the woodstove issue. The Federal Consumer Products Safety Act ("CPSA"), which governs the design and sale of products "for use in or around" the home or school, clearly *does* cover woodstoves sold for residential use and contemplates regulation of both manufacturers and retailers. [36] It is not clear, however, that regulation under the CPSA would necessarily have produced a stricter emission standard for stoves without catalytic combusters. The CPSA requires that the benefits of a consumer products safety standard be justified by its costs,[37] and the members of the non-catalytic stove industry doubtless would have argued that a stricter standard would have driven them out of the market. Further, unlike EPA, the Consumer Product Safety Commission, a chronically underfunded agency that is often reluctant to take on new issues,[38] had no particular incentive to regulate woodstoves.

b. The Coke Oven Emissions Rule

Coke ovens are used to convert coal to coke, which is then used to produce steel. Air emissions from coke ovens come largely from leaking oven doors and lids. In 1992, EPA estimated that some 3.5 million pounds of toxic chemicals, including benzene, phenol, toluene, and polyaromatic hydrocarbons, were emitted to the air annually from coke ovens operating in the United States. Based on this estimate, EPA put the cancer risk to exposed individuals at one in one hundred.[39]

Many of the materials emitted by coke ovens are subject to regulation as hazardous air pollutants under section 112 of the CAA, and the 1990 amendments to the Act specifically required that section 112 standards for coke oven emissions be promulgated by December 31, 1992.[40] In early 1992, after meeting with representatives of the steel industry, relevant labor unions, states, and environmental groups "to discuss avail-

36. 15 U.S.C. §§ 2051–2084 (1994).

37. *See, e.g.*, Aqua Slide 'N' Dive Corp. v. Consumer Prod. Safety Comm'n, 569 F.2d 831, 839–40 (5th Cir. 1978) ("[T]he reasonableness of the risk is a function of the burden a standard would impose on a user of the product . . . . The Commission does not have to conduct an elaborate cost-benefit analysis. It does, however, have to shoulder the burden of examining the relevant factors and producing substantial evidence to support its conclusion that they weigh in favor of the standard." (citation omitted)).

38. *See, e.g.*, Tom Christoffel & Katherine K. Christoffel, *The Consumer Product Safety Commission's Opposition to Consumer Product Safety: Lessons for Public Health Advocates*, 79 AM. J. PUB. HEALTH 336 (1989) (discussing the Commission's relatively small budget and its reluctance to regulate).

39. *See Year-Long Coke Oven Negotiations Yield Pact Between Steel Industry, Environmentalists*, 23 Env't. Rep. (BNA) 1669 (1992) [hereinafter Year-Long Coke Oven Negotiations].

40. *See* 42 U.S.C. § 7412(d)(8)(A) (1994).

able data to be used as the basis of [a section 112 regulation]," EPA convened a negotiated rulemaking committee that drew from all of these constituencies.[41] After several negotiating sessions, the committee agreed on a draft rule that was proposed by the agency in December 1992,[42] and was published as a final rule in October 1993.[43]

In general, section 112 of the CAA as amended in 1990 takes a two-tiered approach to the regulation of hazardous air pollutants. EPA must first set technology-based emission standards, on an industry category-by-industry category basis. These standards must be set with reference to the application of the maximum achievable control technology ("MACT") that the industry category can afford.[44] Eight years later, the agency is to set a more stringent, health-based standard if further emission reductions are deemed necessary to provide "an ample margin of safety to protect public health."[45] A health-based standard for carcinogens *must* be set if the technology-based standard fails to "reduce lifetime excess cancer risks to the individual most exposed to [the] emissions . . . to less than one in one million."[46] For coke oven emissions in particular, however, section 112 offers an alternative whereby a source may delay compliance with the health-based standard until 2020 if it meets a different, more stringent technology-based standard in the interim.[47] The committee followed this framework in drafting its proposed rule, and steel industry representatives said afterward that, because they viewed any likely health-based standard as "essentially a shut-down standard," they expected all plants except those that planned to go out of business in the near future to choose this "extended compliance" option.[48]

At the conclusion of the negotiated rulemaking process, participants from environmental groups, labor, industry, and state governments all expressed satisfaction with the negotiated rule.[49] An EPA representative

41. EPA's description of the negotiated rulemaking committee and its work, and of the events leading up to the establishment of the committee, is found in the preamble to the proposed National Emission Standards for Hazardous Air Pollutants for Source Categories; Coke Oven Batteries, 57 Fed. Reg. 57,534, 57,536 (1992) (proposed Dec. 4, 1992) (codified at 40 C.F.R. pt. 63) [hereinafter Preamble].

42. *See id.*

43. *See* National Emission Standards for Coke Oven Batteries, 58 Fed. Reg. 57,911 (1993) (codified at 40 C.F.R. pt. 63(L)).

44. *See* 42 U.S.C. § 7412(d) (1994). We use the term "technology-based standard" to mean an emission limit that is determined by reference to the level of emission reduction deemed attainable through the application of a particular technology or set of technologies. It can, *but generally does not*, actually require the adoption of the particular reference technology.

45. *Id.* § 7412(f). The term "health-based standard" is used to mean an emission limit that is determined by reference to the level of emission reduction deemed necessary to attain a particular health goal (such as a particular level of risk).

46. *Id.* § 7412(f)(2)(A).

47. *See id.* § 7412(i)(8).

48. *Coke Oven NESHAP Includes Two Options Based on Year-Long Negotiated Rule-Making*, 23 Env't. Rep. (BNA) 1934 (1992).

49. *See* Year-Long Coke Oven Negotiations, *supra* note 39.

stated his belief that the negotiated rule would result in more emission reductions than would have been obtained through the conventional rulemaking process, and remarked that the agency had never before "been able to grapple with the economic and technological issues" addressed by the rule.[50] It is probably more accurate to say, however, that the rulemaking was made considerably easier because Congress had taken it upon itself to specify the dates by which, and the minimum amounts by which, the steel industry would be asked to reduce emissions. Indeed, the chief contribution of *negotiation* to the rulemaking process appears to have been to afford the industry the opportunity to negotiate a standard that actually is *less* stringent than that which was mandated by Congress.

For coke oven facilities choosing the "extended compliance" option, EPA was required to promulgate two sets of technology-based emission limits by December 31, 1992, to become effective in November 1993 and January 1998, respectively.[51] Emission limits for coke ovens had traditionally been expressed in terms of a maximum permissible percentage of leaking doors, lids, and offtakes, and Congress adopted this approach in section 112. For the 1993 limits, Congress specified the precise percentages EPA was to require.[52] For the 1998 limits, Congress directed the agency to set percentages "reflecting the lowest achievable emission rate" ("LAER"), and also specified a set of percentages representing the *least stringent* permissible 1998 standard that EPA could set, and a second set representing a more stringent default 1998 standard that was to take effect if the agency failed to promulgate the 1998 limits by December 31, 1992.[53]

The negotiated rulemaking committee began with the 1993 limits specified in the statute, and with the least stringent permissible 1998

50. *Id.* The EPA representative was William G. Rosenberg, Assistant Administrator for Air and Radiation. His comments were echoed by EPA Administrator William Reilly. In an EPA press release, Reilly stated that the negotiated rule "goes beyond the requirements of the Clean Air Act," and offered the rule as "another example . . . of where EPA has successfully used cooperative problem-solving to find an environmentally and economically sound solution to a complex pollution problem." U.S. EPA Environmental News Press Release: EPA Announces Agreement on Coke Oven Rules (Oct. 28, 1992) at 1–2.

51. *See* 42 U.S.C. § 7412(d)(8)(C),(i)(8)(B) (1994).

52. *See id.* § 7412(d)(8)(C).

53. *See id.* § 7412(i)(8)(B)(i) (least stringent permissible standard), *id.* § 7412(i)(8)(B)(ii) (default standard). The two are identical except that the default standard has no exclusion for "emissions during the period after the closing of self-sealing doors." *Id.* § 7412(i)(8)(B)(ii). The negotiated rulemaking committee calculated that the presence of this exclusion added about two percent to the allowable percentage of leaking doors specified in the least stringent permissible standard. *See* Telephone Interview with Marvin Branscome, Technical Consultant on Coke Oven Negotiations, Research Triangle Institute, Research Triangle Park, N.C. (Dec. 15, 1997). In practical terms, then, this means that the default standard for leaking doors was, as specified in the statute, "three per centum leaking doors (five per centum leaking doors for six meter batteries)," while the least stringent permissible standard, after allowance for the two percent exclusion, was five percent leaking doors (seven percent leaking doors for six meter batteries). *Id.*

limits specified in the statute; however, it converted these limits to "statistically equivalent" limits based on thirty days' average performance in the rule promulgated by EPA.[54] Thus, while the statute specified a *maximum* percentage that was not to be exceeded, the negotiated rule specified an *average* percentage that must be achieved over a thirty-day period. This allows a facility to exceed the percentage specified in the statute for certain periods, so long as it is sufficiently below that percentage for other periods to maintain the required thirty-day average.[55]

This change was made because the steel industry expressed concern that a straightforward application of the standards specified by Congress would necessitate the closure of most of the existing coke oven facilities throughout the country, as they would be unable to meet the specified maximum limits on a continual basis.[56] Union participants in the negotiations, who were interested both in preserving jobs and in reducing workplace emissions, apparently helped to persuade the environmental group participants that this concern of the steel industry was valid.[57] In addition, the statistical conversion to thirty-day averages allowed EPA and the environmental group representatives to point to regulatory limits expressed as numbers that were actually *below* the numbers specified by Congress in the statute. For example, the statute requires a maximum of eight percent leaking doors in the 1993 limits, while the regulation specifies seven percent leaking doors.[58] Even though this difference is simply an artifact

54. *See* Branscome Interview, *supra* note 53; *see also* Telephone Interview with Amanda Agnew, Office of Air Quality, Emission Standards Division, U.S. EPA, Research Triangle Park, N.C. (Dec. 1, 1997); Preamble, *supra* note 41.

55. As the statute itself does not specify any given period for which the limits must be maintained, the statutory limits appear on their face to be *daily maximum* requirements (i.e., numbers that may not be exceeded on any given day). According to EPA consultant Marvin Branscome, however, the negotiated rulemaking committee interpreted the legislative history of section 112's coke oven provisions as indicating that the intention was for the statutory numbers to apply as the average of three consecutive "runs" of the coke oven battery. A "run" is a period of time during which a visual observation of coke oven emissions is made according to EPA-prescribed methods. As there will typically be one run per day, a three-run average is effectively a three-day average, and a 30-run average is effectively a 30-day average. *See* Branscome Interview, *supra* note 53. The limits in EPA's negotiated rule are in terms of a 30-run average. *See* 40 C.F.R. § 63.309(d)(1) (1998) (specifying a "30-run rolling average of the percent leaking coke oven doors, topside port lids, and offtake systems . . ."); *see also id.* § 63.309(d)(2) (specifying a "logarithmic 30-day rolling average of the seconds of visible emissions per charge . . . ").

56. *See* Branscome Interview, *supra* note 53; Telephone Interview with Michael Wright, negotiation participant, United Steelworkers of America, Washington, D.C., (Dec. 8, 1997); Telephone Interview with Roy Huntley, negotiation participant and Staff Engineer, Office of Air Quality, Emission Standards Division, U.S. EPA, Research Triangle Park, N.C. (Dec. 17, 1997).

57. Due to the nature of coke oven technology, there is a clear link between environmental and occupational emissions. The participants in the negotiations formed two separate caucuses, the industry caucus and the environmental caucus. According to Michael Wright of the Steelworkers union, who participated in the negotiations, the union representatives joined the environmental caucus, but served as a "bridge" between the environmental caucus and the industry caucus. *See* Wright Interview, *supra* note 56.

58. *Compare* 42 U.S.C. § 7412(d)(8)(C) (1994) ("8 per centum leaking doors") *with* 40 C.F.R. § 63.304(b)(1)(i) (1998) ("7.0 percent leaking coke oven doors").

of the statistical conversion of the statutory number to a thirty-day average value, it lends the appearance of a more stringent standard.

From a health perspective, however, the regulation may well be less protective than the standards specified in the statute. There is evidence that short-term exposure to a certain amount of carcinogenic materials is more harmful than exposure to the same amount of those materials, in smaller daily increments, spread out over a longer term.[59] The increased damage done on the individual days of high exposure levels allowed under the thirty-day average approach, then, may not be offset by the reductions in damage experienced on those days when emissions are below the required average.

Moreover, it appears clear that the negotiated 1998 limits were *not* set according to LAER, which is defined in the CAA as "the most stringent emission limitation that is achieved in practice by [the] class or category of source," with no consideration of the cost of meeting that emission limitation.[60] That is, a LAER limit is to be based on the emission levels being attained by the best-performing existing plant within the particular industry class or category. The best-performing coke oven facility in operation in the United States at the time was the Jewell Smokeless plant, in Vansant, Virginia, owned by Sun Coal. This facility employs a nonrecovery coke oven technology, while all of the other coke oven plants in the country employ the older, and dirtier, by-product recovery technology.[61] A nonrecovery plant can achieve an emission limit of 0.0% leaking doors, and has no lids or offtakes.[62] Further, nonrecovery plants produce far less wastewater and hazardous waste than comparable by-product recovery plants, and also generate excess energy that can be utilized elsewhere in the facility.[63] From an environmental perspective, the nonrecovery technology is undeniably superior.

Although industry representatives reportedly were concerned that EPA would base the LAER limits on the performance of the Jewell Smokeless plant, the negotiated rulemaking committee decided instead to consider the performance of by-product recovery plants only.[64] The committee apparently focused on the performance of a USX (United

59. *See, e.g.*, Dale Hattis, *Pharmacokinetic Principles for Dose-Rate Extrapolation of Carcinogenic Risk from Genetically Active Agents*, 10 Risk Analysis 303 (1990).

60. 42 U.S.C. § 7501(3)(B) (1994). The 1998 limits were to "reflect the lowest achievable emission rate as defined in section 7501 of this title for a coke oven battery that is rebuilt or a replacement at a coke oven plant for an existing battery." 42 U.S.C. § 7412 (i)(8)(B)(i) (1994).

61. *See* Huntley Interview, *supra* note 56.

62. Accordingly, the MACT limit set by EPA for nonrecovery facilities specifies 0.0% leaking doors, lids, and offtakes. *See* 40 C.F.R. § 63.303(b) (1998).

63. *See* Branscome Interview, *supra* note 53.

64. *See* Huntley Interview, *supra* note 56. EPA does have discretion under section 112 to "distinguish among classes, types, and sources within a category or subcategory in establishing . . . standards . . . ." 42 U.S.C. § 7412(d)(1) (1994).

States Steel) plant in Clariton, Pennsylvania, which the committee appears to have deemed the best-performing by-product recovery facility.[65] Yet, as noted, the committee set the 1998 limits simply by specifying percentages that were calculated to be the "statistical equivalent" of the least stringent permissible limits specified in the statute. If the committee took this approach because it believed that this was the best that by-product recovery plants could do, this appears to have been a significant error in assessment.

The negotiated 1998 limits (expressed as thirty-day averages) are 4.3% leaking doors for tall doors and foundry doors, and 3.8% leaking doors for all other doors.[66] As LAER limits, these limits were required by statute to be representative of the very best performance within the industry. An EPA survey of by-product recovery plants done six months after these limits were promulgated in 1993, however, found that most plants were easily meeting the 1998 limits, and that some plants were averaging *one* to *two* percent leaking doors.[67] In other words, the best performance in the industry was considerably better than what the 1998 limits allow. Subsequent EPA surveys of the industry revealed that the performance of many of the plants worsened somewhat thereafter, but was still comfortably in compliance with the legally applicable 1993 limits.[68] This suggests that the plants may have initially been testing their technology to ensure that they could meet the 1998 limits.[69] In August 1997, with the 1998 limits due to become enforceable within a few months, most of the plants were again meeting the 1998 limits on a continuous basis, and roughly three out of every five of the plants had maximum (as opposed to thirty-day average) values of less than two percent leaking doors.[70]

The CAA also specifies that, by January 2007, EPA is to review the 1998 LAER limits for coke oven facilities, and "revise [them], as necessary . . . to reflect the lowest achievable emission rate as defined . . . at the time," with such revised limits to become effective on January 1, 2010.[71] Rather than waiting until later to set the revised LAER standard,

65. *See id.* (noting that "most of the data used" came from the Clariton plant); Wright Interview, *supra* note 56 (noting that the Clariton facility was deemed the best-performing plant). The preamble to the proposed standard does not explain how the 1998 LAER limits were set. *See* Preamble, *supra* note 41.

66. *See* 40 C.F.R. § 63.304(b)(2)(i) (1998).

67. *See* Huntley Interview, *supra* note 56.

68. *See id.*

69. This apparently was the opinion of many EPA field staff. *See id.*

70. *See id.*; Emission Factor & Inventory Group, U.S. EPA, Battery Performance Data Survey (August 1997) (unpublished data, on file with the *Harvard Environmental Law Review*). The survey included 23 of the 26 plants in operation, which represented 60 of the 66 operating coke oven batteries. Roy Huntley reported in the survey that 83% of the batteries surveyed were meeting the 1998 limits continuously, and that 62% had maximum values of two percent or less.

71. 42 U.S.C. § 7412(i)(8)(C) (1994).

so that it could assess technological improvements made in response to the 1993 and 1998 limits, EPA adopted the recommendation of the negotiated rulemaking committee to set the 2010 standard as part of the 1993 rule. Again based on performance data from the United States Steel plant in Clariton, the limits for 2010 are only slightly more stringent than their 1998 counterparts, and are considerably less stringent than what the current data indicate the best-performing by-product recovery plants could meet.[72] The statutory criteria for LAER, then, simply were not met.

EPA was also required to promulgate section 112 emission limits for new coke oven sources.[73] Once again, the negotiated rule appears to fall short of the statutory mark. The problem is one of scope as well as one of substance. Section 112 defines "new source" as "a stationary source the *construction or reconstruction* of which is commenced after the [EPA] first proposes regulations under this section establishing an emission standard applicable to such source."[74] By the terms of the statute, then, a "new" coke oven source includes both the construction of a wholly new coke oven plant and the reconstruction of an existing plant to install a new coke oven battery. Under the terms of the regulation, however, a reconstructed coke oven plant becomes a "new" source only if the new coke oven batteries "increase the design capacity" of the facility.[75] This removes an entire class of reconstructed facility from the ambit of the new source standard, and allows existing plants that do not expand their operations to replace coke oven batteries without making any improvements in technology.[76]

Moreover, new source limits under section 112 are to be "not less stringent than the emission control that is achieved in practice by the best controlled similar source," without regard to cost.[77] As the Jewell Smokeless nonrecovery plant in Virginia was the best-performing coke

72. The 2010 standard is 4.0% leaking doors for tall doors and foundry doors, and 3.3% leaking doors for all other doors. The 2010 standard does not impose new limits for the other parts of the standard (percentage leaking lids, percentage leaking offtakes, and number of seconds per charge). *See* 40 C.F.R. § 63.304(b)(3) (1998).

73. Like the limits for existing coke oven sources, the limits for new [coke oven] sources were to be promulgated by December 31, 1992. 42 U.S.C. §§ 7412(d)(8)(A) (requiring the setting of limits under "paragraph[ ] . . . 3) of this subsection for coke oven batteries"), 7412(d)(3) (requiring the setting of emission standards "for new sources") (1994).

74. *Id.* § 7412(a)(4) (emphasis added).

75. 40 C.F.R. § 63.300(b) (1998). Except for certain specified facilities which were under construction when the 1990 CAA amendments were passed, the date at which existing design capacity is deemed established under the regulation is November 15, 1990, the date of the 1990 amendments.

76. In contrast, EPA's general regulations for implementation of the pre-construction review requirements of section 112(i)(1) specify that "[u]pon reconstruction, an affected source is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source." 43 C.F.R. § 63.5(b)(1) (1997).

77. 42 U.S.C. § 7412(d)(3) (1994).

oven plant in the United States, one would have expected it to have been the model for EPA's new source standards.[78] Indeed, Congress specified that, in setting new source limits for coke oven facilities, the agency "shall evaluate . . . the Jewell design Thompson non-recovery coke oven batteries and other non-recovery coke oven technologies."[79] Nonetheless, the negotiated rulemaking committee chose to set two new source standards, one for nonrecovery batteries and one for by-product recovery batteries.[80] New sources choosing nonrecovery technology must meet a limit of 0.0% leaking doors, lids, and offtakes, while new sources choosing by-product recovery technology need only outperform the 2010 limits: 4.0% leaking doors for tall and foundry doors, 3.3% leaking doors for other doors, 0.4% leaking lids, and 2.5% leaking offtakes.[81]

A final noteworthy feature of the negotiated rule is its requirement that compliance monitoring be done on a daily basis, by "certified observers" who are independent of the coke oven facility but whose funding comes from the industry.[82] Although there have been problems in securing the true "independence" of the observers,[83] there appears to be little question that the rule has enhanced both the frequency and the accuracy of the compliance monitoring. By all accounts, these monitoring improvements are a direct result of the negotiated rulemaking process.[84]

78. The Jewell Smokeless plant certainly would seem to be a "similar source" within the meaning of section 112. Although the powerful by-product recovery faction of the industry argued to the negotiated rulemaking committee that the coke produced by the nonrecovery process was of inferior quality, they apparently did not convince the committee on this score. *See* Huntley Interview, *supra* note 56; Branscome Interview, *supra* note 53. And, while the two types of plants differ in the fact that one produces by-products while the other does not, the clear purpose of both is to produce coke.

79. 42 U.S.C. § 7412(d)(8)(A) (1994).

80. Although section 112(d)(1) gives EPA general authority to "distinguish among classes, types, and sizes of sources within a category or subcategory," *see* 42 U.S.C. § 7412 (d)(1) (1994), the specific references to nonrecovery technology in section 112(d)(8)(A) would appear to indicate a congressional intent to move beyond by-product recovery technology for new coke ovens.

81. *Compare* 40 C.F.R. § 63.303(b) (new source standards for nonrecovery batteries) *with* 40 C.F.R. § 63.302(b)–(d) (1998) (new source standards for new by-product recovery batteries). A new by-product recovery source must either meet the limits for a new nonrecovery source or utilize "a new recovery technology, including but not limited to larger size ovens, operation under negative pressure, and processes with emission points different from those regulated under this [regulation]," and meet emission limits that are "less than" the 2010 limits. 40 C.F.R. § 63.302(b)–(d) (1998).

82. 40 C.F.R. § 63.301 (defining "certified observer"), 63.309 (1998) (requiring observations to be done seven days a week when the plant is operating).

83. The rule calls for the observers to be employed by EPA, but the agency later concluded that it did not have the authority to act as an "employer" in this capacity. Reportedly, at least in some areas of the country, the "independent" observer thus is not only paid by the coke oven facility, but actually has an office at the plant, and effectively is a company employee. Apparently, there is a move afoot to have state and/or local government assume employment responsibility for the certified observers. *See* Huntley Interview, *supra* note 56.

84. EPA's Roy Huntley recalls that this was not an item that had been sought by EPA or environmental group representatives, but rather was something that the industry representatives simply offered to do at one negotiating session. *See id.* Presumably, industry representatives believed that this would help them achieve their broader goals at the negotiations. Michael Wright of the Steelworkers union recalls that this item was not viewed as a major concession by the industry. *See* Wright Interview, *supra* note 56.

Overall, however, the rule fashioned by the negotiators was not designed to secure optimal environmental performance from coke oven facilities. The rule provides a framework wherein facilities are assured that, at least until the 2020 statutory target date for health-based limits, emission limits will be attainable through the use of inferior, pre-1993 technology.[85] Indeed, an EPA official noted at the time that companies choosing the "extension track" would be assured that any improvements made to their plants when the rule went into effect in 1993 would be the last they would be required to make for almost thirty years.[86] Although this could change if the agency decides to tighten the 2010 limits before the 2007 deadline,[87] the regulation clearly is not designed to encourage diffusion of the cleaner nonrecovery technology within the industry, much less to spur any further wholesale improvements in coke oven technology. Further, while EPA touted the negotiated rule as a triumph for "environmental justice" (because coke oven plants tend to be located in heavily industrialized, lower-income areas),[88] the effect of the negotiated new source standards will be to discourage the use of the cleaner technology in those areas until at least 2020.

This is not to say that the result achieved by the negotiated rulemaking committee may not represent an appropriate balancing of environmental and economic concerns in its approach to a troubled industry. A major stumbling block to tying emission limits to the performance of nonrecovery technology, apparently, was the relatively high capital cost of replacing an existing by-product recovery battery with a new nonrecovery battery.[89] In addition, there was a concern about jobs. A nonrecovery facility typically employs fewer workers than a by-product recovery facility. Requiring improved performance at existing by-product recovery plants, however, actually created jobs.[90] Negotiated rulemaking appears to have been an ideal vehicle for the discussion of these issues, and for the sharing of information that appears to have been necessary to

85. Presumably, unless Congress relaxes the requirements of section 112 at the request of the steel industry, any meaningful health-based standard set by EPA (which, as noted, is required by section 112 to ensure that the cancer risk is no more than one in one million) would effectively require a move to nonrecovery technology.

86. This comment is attributed to William G. Rosenberg, Assistant Administrator for Air and Radiation. *See* Year-Long Coke Oven Negotiations, *supra* note 39.

87. The regulation leaves open this possibility. The specified limits for 2010 will apply "unless the Administrator [of EPA] promulgates more stringent limits." 40 C.F.R. § 63.304(b)(3) (1998).

88. *See, e.g.*, *Final Rule on Coke Ovens Means Victory for 'Environmental Justice,' Browner Says*, 24 Env't Rep. (BNA) 1169–70 (1993).

89. Replacing a by-product recovery battery with a nonrecovery battery requires reconstruction of the entire surrounding structure. *See* Branscome Interview, *supra* note 53.

90. *See* Wright Interview, *supra* note 56.

convince the environmental group representatives to accept the less stringent emission limitations favored by industry.[91]

However, had the goal instead been to "push" the industry toward markedly better technology, and thus to risk some short-term dislocation within the industry, it is not at all clear that negotiation would have been the best approach. The fact that EPA so grossly underestimated the performance capability of even the existing by-product recovery technology suggests that the agency's limited resources were directed more at ensuring a "successful" negotiation than at ensuring that its technological and economic database was a reliable one.[92] Had EPA instead used those resources to take a hard look at what the industry could do, now and in the future, it is likely that the agency could have crafted a rule that met the environmental goals of the Clean Air Act and created meaningful incentives for the use of better technology.[93]

c. The Wood Furniture Coatings Rule

Another section 112 regulation that was drafted largely through negotiated rulemaking was the hazardous air pollutant emission standard for the wood furniture industry. After a series of public meetings with representatives from industry, environmental groups, and state government in late 1992 and early 1993, EPA convened a negotiated rulemaking committee to attempt to formulate a rule governing wood furniture (surface coatings) nationwide. The committee held its first meeting in July 1993, and a proposed rule, largely drafted by the committee, was issued in December 1994. The timing of this promulgation likely was influenced by (if not wholly determined by) the fact that the Sierra Club, a private, nonprofit environmental group, had sued EPA in 1993 to compel the issuance of several rules under section 112. A consent decree entered in that case called for the promulgation of this proposed rule by November 21,

91. EPA also credits negotiated rulemaking for having kept the coke oven rule out of the courts. *See* Agnew Interview, *supra* note 54. Most of the credit for this properly goes to Congress, however, for having devised a statutory "default" standard for the extension track, which would have gone into effect had a standard not been negotiated by December 31, 1992, that was more stringent than what the steel industry was able to obtain through negotiation. *See supra* note 52 and accompanying text.

92. Reportedly, the negotiated rulemaking process took an "immense" amount of agency resources. Huntley Interview, *supra* note 56. Most of the performance and cost data used in the negotiations apparently came from the steel industry and from the union. Throughout the negotiations, steel industry representatives insisted that the emission reductions under consideration would be extremely expensive and extremely difficult to meet. *See id.*; Branscome Interview, *supra* note 53; Wright Interview, *supra* note 56.

93. The potential economic viability of the nonrecovery technology, even in retrofitted existing plants, is highlighted by the fact that Inland Steel currently is replacing by-product recovery batteries with nonrecovery batteries at one of its plants. *See* Huntley Interview, *supra* note 56; Branscome Interview, *supra* note 53; Wright Interview, *supra* note 56. The key economic factor appears to be the energy savings that are available through the use of the nonrecovery technology. *See* Branscome Interview, *supra* note 53.

1994.[94] The final rule—virtually unchanged from the proposed rule—was promulgated on December 7, 1995,[95] although portions of the rule were challenged in court by the chemical industry.[96]

Based on the committee's work, EPA determined that wood furniture manufacturers performed four basic operations in producing a finished product—finishing, gluing, cleaning, and washoff—and the proposed rule contained standards for each. All but the gluing operation standards were drafted by the committee. The standards for the gluing operations were developed "outside of the regulatory negotiation process, because adhesive suppliers were not represented on the Committee."[97] EPA estimated that more than 11,000 facilities were included within the wood furniture industrial source category, and that approximately 750 of these would be considered "major" (as defined by the rule), and thus subject to these regulations under section 112.[98]

As EPA noted in the preamble to the proposed regulation, "a regulatory negotiation process . . . often requires concessions from some parties in exchange for concessions from other parties . . . ."[99] Considered as a whole, the wood furniture rule might well be viewed as a compromise of the stringency of emission levels in exchange for a clear focus on pollution prevention (as opposed to simply "end-of-pipe" emission control).[100]

For example, section 112(d) specifies that EPA "may distinguish among classes, types, and sizes of sources within a category or subcategory in establishing [technology-based] standards" for the emission of

94. Sierra Club v. EPA, No. 93-0124 (D.D.C.) (consent decree entered Feb. 23, 1994).

95. *See* National Emission Standards for Hazardous Air Pollutants; Final Standards for Hazardous Air Pollutant Emissions from Wood Furniture Manufacturing Operations, 60 Fed. Reg. 62, 930, 62,936 (1995) (codified at 40 C.F.R. § 63.800–.808).

96. In three separate actions filed in the United States Court of Appeals for the District of Columbia, the Chemical Manufacturer's Association, the Society of the Plastics Industry, and the Halogenated Solvents Industry Alliance challenged that portion of the rule that lists certain chemicals as Volatile Hazardous Air Pollutants ("VHAPs") of Potential Concern. *See* Coglianese, *supra* note 19, at 1305. The rule requires facilities to monitor their use of these designated VHAPs and establish a "baseline" annual usage. Any increase above this baseline that does not meet one of four designated criteria is to result in efforts by the facility to decrease its use of these chemicals, so long as the facility and the state agree that such reduction would be practical.

97. National Emission Standards for Hazardous Air Pollutants; Proposed Standards for Hazardous Air Pollutant Emissions From Wood Furniture Mfg. Operations, 59 Fed. Reg. 62,652, 62,654 (1994) (to be codified at 40 C.F.R. pt. 63) (proposed Dec. 6, 1994) [hereinafter "NESHAP"].

98. *Id.* at 62,664.

99. *Id.* at 62,654.

100. Under the Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101–13109 (1994), EPA is charged to "develop and implement a strategy to promote source reduction" in preference to pollution control. *Id.* § 13103(b). The Act defines "source reduction" as including "equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control." *Id.* § 13103(5)(A).

hazardous air pollutants.[101] Rather than distinguish among the technological and economic capabilities of particular wood furniture industry segments, however, the committee proposed—and EPA accepted—an industry-wide standard. Accordingly, EPA dismissed the suggestion that it require the use of "finishing materials with a very low- or zero-HAP [hazardous air pollutant] content," on the basis that such materials "have not been demonstrated to be feasible *for all industry segments*."[102] Had EPA divided the industry into subcategories for regulatory purposes, however, it appears that lower emissions of hazardous air pollutants could have been achieved in certain sectors through the required use of these finishing materials where such use *would* be feasible.[103]

Further, in the part of the rule dealing with restrictions on certain work practices known to be associated with the release of hazardous air pollutants,[104] the committee specified a list of solvents to be forbidden from use in cleaning or "washoff" activities. Agency technical personnel believed that the committee's list of the chemicals to be so restricted was too narrow. As noted by EPA in the preamble:

> Some agency officials have expressed concern that the proposed rule only restricts the use of EPA type A and type B1/B2 carcinogens in cleaning and washoff solvents. They are concerned that restricting the use of only these chemicals implies that they are worse than other HAP.[105]

Despite the scientific arguments for including more chemicals on the list, however, EPA simply accepted the proposed rule as written by the negotiated rulemaking committee: "The Committee agreed to restrict the use

101. 42 U.S.C. § 7412(d)(1) (1994).

102. NESHAP, *supra* note 97, at 62,667 (emphasis added).

103. The preamble to the proposed rule indicates that the committee *had* divided the industry into several subcategories, such as kitchen cabinet manufacturers, residential furniture manufacturers, and upholstered furniture manufacturers, for other purposes. *See id.* at 62,666.

104. 42 U.S.C. § 7412(h)(1) (1994) specifically allows EPA to promulgate work practice standards in lieu of emission standards for sources of hazardous air pollution for which an emission standard would not be feasible.

105. NESHAP, *supra* note 97, at 62,673. EPA further noted that these agency officials:

> are also concerned that the rule draws a clear line between type B and type C carcinogens, although the scientific evidence does not suggest such a clear distinction. For example, some pollutants on the HAP list are designated type B/C because the data cannot clearly support a designation of type B or C. The proposed rule does not address these pollutants. Finally, the Agency is planning to update [its] risk assessment guidelines. Under these revised guidelines, the terms type A and type B carcinogens are likely to be meaningless.

Id.

of type A and type B_1/B_2 carcinogens only, so the EPA is proposing the rule using this approach."[106]

Nonetheless, while the rule drafted by the committee is less stringent than it likely could have been, it *is* designed to encourage pollution prevention. Thus it could ultimately result in changes in technology and practices that reduce emissions below the levels required by the rule. Further, the emphasis on pollution prevention has the advantage of providing protection both to the environment and to workers, and is consistent with the goals of the Pollution Prevention Act.[107] Rather than focusing on the use of control technology to reduce emissions, the committee endeavored to select a format that would "accommodate multiple compliance techniques for the various industry segments."[108] For finishing operations, the committee chose to express the required emission limit in terms of kilograms (or pounds) of volatile hazardous air pollutants emitted per kilogram (or pound) of solids contained in the finishing materials used. EPA noted this method of expressing the limit was chosen because "sources are encouraged to reduce the quantity of HAP through reformulation measures."[109]

Significant attention was paid to pollution prevention in the drafting of work practice rules as well. As mentioned above, the use of certain solvents is banned in cleaning and washoff operations. In addition, the use of solvents in spray booth cleaning is prohibited except in limited circumstances, and sources are required to maintain a "solvent accounting system" to track the use of solvents in cleaning and washoff.[110] As noted by the agency, "although it cannot be assumed that it will actually result in . . . reduction, the cleaning and washoff solvent accounting system may prompt facilities to eliminate inefficient uses of solvent."[111]

The fact that this rule included a substantial emphasis on pollution prevention is not surprising. Both the decentralized industry profile, and the relatively straightforward and uncomplicated opportunities for chemical substitution and use reduction, made this industry an ideal candidate for pollution prevention.[112] Nonetheless, it does appear that the use of negotiated rulemaking facilitated the agency's focus on pollution prevention in the development of the rule. It seems likely that the active

106. *Id.*

107. *See* Pollution Prevention Act, *supra* note 100.

108. NESHAP, *supra* note 97, at 62,668.

109. *Id.* at 62,675.

110. *Id.*

111. *Id.*

112. For example, the fact that input substitutions (such as using paints or solvents that are less toxic) can be done without major modifications to the production process makes pollution prevention easier to achieve here than in industries with more inflexible processes. Further, the fact that the industry is comprised of hundreds of small shops, rather than a small number of large ones, makes it more difficult for the industry to exert collective economic pressure against change, and also means there will be considerably more opportunity for experimentation and variation.

participation of industry representatives (who are in the best position to identify productive opportunities for pollution prevention) helped to both deepen and legitimize the committee's efforts to build pollution prevention into the rule.

Moreover, the committee negotiations produced an agreement, *outside of the parameters of the rule*, under which the industry agreed to prepare a semiannual "trends report," beginning in 1994, which would contain "a brief discussion of technologies being used by the industry to reduce emissions, and a discussion of evolving technologies including new finishing materials, adhesives, and improved application equipment."[113] This agreement reflects the belief—apparently shared by many committee members—that "new, lower emitting (both VOC [volatile organic compound] and HAP) technologies . . . are . . . on the threshold of demonstration." [114] In addition, to help determine whether the rule actually results in the targeted reductions in hazardous air pollutant emissions, and to determine whether those emission reductions are being met through the substitution of other hazardous chemicals that are *not* regulated as hazardous air pollutants, the trends report is to include a chemical use and emission survey from a representative sample of the industry.[115]

d. Evaluation

The following table summarizes the results of these three negotiated rulemakings in terms of the substantive criteria suggested at the outset: environmental/public health protection and technological change.

TECHNOLOGICAL AND ENVIRONMENTAL IMPACT OF THREE NEGOTIATED AIR EMISSION STANDARDS

	Diffusion	Innovation	Short-Term Env't. Gain	Long-Term Env't. Gain
Woodstoves	+/-	-	+	-
Coke Ovens	+/-	-	+	-
Wood Furniture	+(PP)	+(PP)	+	+

113. NESHAP, *supra* note 97, at 62,680.

114. *Id.*

115. *See id.* at 62,679–80 (noting that "[b]ecause the emission limits for finishing materials can be met through substitution of non-HAP VOCs for HAP, and some non-HAP's can be as hazardous as the listed HAP's, [the committee] felt it was important to track emissions of other pollutants from the industry to ensure that materials of equal or greater toxicity were not being substituted for HAP . . .").

The first two columns focus on the particular rulemaking's potential to effect technological change within the regulated industry, where "diffusion" refers to the diffusion of an environmentally superior existing technology within the industry, and "innovation" refers to the development of a new technology that either produces greater environmental gains than existing technology or produces equal gains at a lower cost. The second two columns refer to the rulemaking's potential to effect improvements in public health or the environment, where "short-term" gains are those that are achieved before new and better technology is developed, and "long-term" gains are those that are achieved when new and better technology is developed and fully implemented.

The woodstoves rulemaking did not seek to push the envelope of woodstove technology, and focused instead on the diffusion of existing control technology. It is assigned a "+/-" rating in the Diffusion column because it set a different emission standard for each of the two types of woodstove technologies on the market, rather than seeking to devise a standard that would diffuse the superior technology throughout the industry. This resulted in short-term environmental gain, but did not create a strong, consistent signal designed to encourage the kind of innovation in woodstove technology that might produce greater environmental gain in the long-term.

The profile for the coke oven rule is quite similar. Rather than seeking to diffuse the cleaner existing (nonrecovery) technology, the coke oven rule focused on the use of readily available control techniques to improve the performance of the dominant existing (by-product recovery) technology, and has resulted in short-term environmental gain. Further, by setting a standard for new facilities that is not tied to the performance of the cleaner existing technology, and by setting a 2010 standard for existing facilities that many firms were meeting easily in 1993, the negotiated rule provides clear incentives for keeping the dirtier technology in operation longer, thus actually reducing long-term environmental gain.

The wood furniture coatings rule, in contrast, has both a focus on pollution prevention—denoted as "+(PP)"—and a focus on innovation. It can be expected to diffuse existing pollution prevention technologies and, especially given industry's agreement to prepare the semiannual trends report, has a real potential to produce innovation (and, concomitantly, to produce long-term environmental gain).

2. Negotiated Rulemaking and OSHA Toxic Substance Exposure Standards

Negotiation has also been used as a means of establishing standards for workplace exposure to toxic substances. Four instances of this type of negotiation are examined here. It should be noted, however, that these examples do not all represent formal, agency-sponsored negotiation.

OSHA has convened a formal "negotiated rulemaking committee" on only four occasions. Two of these committees dealt with toxic substance exposure standards (for benzene and 4,4'-Methylenedianiline, respectively), and analyses of the corresponding negotiations are presented here.[116] In addition, two instances in which the interested parties negotiated a proposed standard on their own, with no formal encouragement or assistance from OSHA, are examined. These negotiations were commenced in order to set standards for formaldehyde and butadiene exposures, respectively.[117]

Before discussing these four rulemakings, it is important to note that OSHA has occasionally used its authority under the OSHAct to establish advisory committees to "assist . . . in . . . standard-setting functions."[118] OSHA does not sit as a member of these committees, and it is not bound by their recommendations. In general, these advisory committees have been true to their name: committee members have served an *advisory* function on technical and policy issues but have not attempted to *negotiate* a proposed rule.[119] The advisory committee established by OSHA to address occupational exposure to coke oven emissions represents an exception. This committee did in fact negotiate a set of agreements that formed the basis for the coke oven emissions standard promulgated by the agency in 1976.[120] An analysis of the coke oven emissions standard has not been included here.

a. The Benzene Standard

In 1971, as required by the passage of the OSHAct in 1970, OSHA adopted several "national consensus standards" for occupational exposures to hazardous substances.[121] One such standard involved a requirement that occupational exposures to benzene not exceed a permissible exposure limit ("PEL") of ten parts per million ("ppm"), measured as a time-weighted eight-hour average concentration in workplace air.[122]

In 1974, however, the National Institute for Occupational Safety and Health ("NIOSH") issued a report implicating benzene as a possible cause of leukemia.[123] Revisions to this report, issued in 1976, concluded that "no safe level of exposure to benzene could be established" and recommended that the OSHA standard be reduced to one ppm, the lowest level at which benzene could be detected using practical and reliable monitoring technology.[124] Prompted by these findings, OSHA conducted a traditional notice and comment rulemaking and promulgated a new benzene standard which limited exposures to the recommended one ppm level.[125]

Industry challenged the new standard, and the United States Supreme Court remanded the standard to the agency in 1980.[126] In a plurality opinion, four justices concluded that OSHA could not promulgate a standard limiting exposure to a hazardous substance unless the agency demonstrated that the standard was necessary to reduce a significant risk of material health impairment.[127] Three justices found that OSHA had failed to produce sufficient evidence to demonstrate that benzene exposures below ten ppm posed a significant risk of harm.[128]

In 1983, under pressure from a public interest group for a revision to the standard,[129] OSHA attempted to formulate a new proposed standard through negotiated rulemaking.[130] The benzene rule was considered to be

116. OSHA has also convened formal negotiated rulemaking committees to devise safety standards for erection of steel structures, *see* Safety Standards for Steel Erection, 59 Fed. Reg. 24,389 (1994) (proposed May 5, 1994) (codified at 59 C.F.R. pt. 1926), and to devise fire protection standards for the maritime community, *see* Safety Standards Fire Protection in Shipyard Employment, 61 Fed. Reg. 28,824 (1994) (proposed May 30, 1994) (codified at 29 C.F.R. pt 1915). Both rulemakings are ongoing.

117. A third such situation, in which labor and industry met on their own to try to resolve certain issues involving OSHA's cotton dust standard, also is discussed briefly. *See infra* notes 208–211 and accompanying text.

118. This authorization is contained in section 7(b) of the OSHAct, 29 U.S.C. § 656(b) (1994), which deals specifically with the establishment of OSHAct advisory committees. In addition, section 6 of the OSHAct, which contains OSHA's standard-setting authority, specifies that OSHA may, in devising an occupational safety or health standard, "request the recommendations of an advisory committee appointed under section [7] . . . ." 29 U.S.C. § 655(b)(1) (1994).

119. *See generally* Ashford, *supra* note 13 (describing the operation of OSHA and EPA advisory committees).

120. *See* Henry A. Perritt, Jr., *Negotiated Rulemaking Before Federal Agencies: Evaluation of Recommendations by the Administrative Conference of the United States*, 74 GEO. L.J. 1625, 1682 (1986). The standard was promulgated at 41 Fed. Reg. 46,741 (1976) (codified at 29 C.F.R. pt. 1910).

121. This was mandated by section 6(a) of the OSHAct. 29 U.S.C. § 655(a) (1994).

122. *See* Part 1910—Occupational Safety and Health Standards; National Consensus Standards and Established Federal Standards, 36 Fed. Reg. 10,466 (1971) (codified at 29 C.F.R. pt. 1910).

123. *See* Perritt, *supra* note 120, at 1647–48.

124. *See* Emergency Temporary Standard for Occupational Exposure to Benzene; Notice of Hearing, 42 Fed. Reg. 22,516 (1977) (codified at 29 C.F.R. pt. 1910).

125. *See* Occupational Exposure to Benzene, 43 Fed. Reg. 5918 (1978), as amended, Occupational Exposure to Benzene; Liquid Mixtures, 43 Fed. Reg. 27,962 (1978) (codified at 29 C.F.R. pt. 1910).

126. *See* Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607 (1980).

127. *See id.* at 642–46.

128. *See id.* at 652–58. In the administrative record, OSHA had justified the one ppm standard with the argument that, since benzene is a carcinogen, and since there is no known safe level of exposure to a carcinogen, *any* exposure posed a risk of harm. Justice Stevens' plurality opinion (which was joined on this point only by Justice Burger and Justice Stewart) concluded that this was inadequate because the agency had not demonstrated that the risk was "significant." "OSHA," noted the plurality, "did not even attempt to carry its burden of proof" on this issue. *Id.* at 653.

129. Renewed activity on the benzene standard came after an April 14, 1983, petition to OSHA from Dr. Sidney Wolfe of the Public Citizen Health Research Group, requesting that OSHA issue an emergency temporary standard for benzene. *See* Perritt, *supra* note 120, at 1650.

130. *See* Occupational Exposure to Benzene, 48 Fed. Reg. 31,412–13 (1983)

a good candidate for negotiated rulemaking, since the parties and issues had been well-defined during the previous administrative and judicial proceedings. OSHA also recognized, however, that the very same proceedings had tended to polarize and solidify the viewpoints of opposing interests.[131]

Although the benzene negotiations did help to further identify and narrow the issues to be resolved, they did not result in a proposed rule. One explanation for this result is that the complexity of the issues together with the structure of the negotiations predisposed the process to failure.[132] The petroleum industry's concern about tort liability for benzene exposures, for example, has been cited as an especially difficult issue for the negotiators.[133] All of the participants, as well as OSHA, believed that any revised standard would have to meet the "significant risk" test articulated by the Supreme Court. As a result, the petroleum industry feared an official agency declaration that benzene posed a significant risk at a particular exposure level. Since a declaration of this type might lead to enhanced tort liability for exposures at or above the indicated level, industry representatives pushed for a proposed rule which de-emphasized the issue of risk. This, in turn, proved difficult for the negotiators to fit within the OSHAct framework. In the words of commentator Henry Perritt, "[the petroleum industry] hoped to frame a risk finding that would recognize a risk at . . . 10 ppm, but [that] would not say that a risk existed at the new [standard]. The participants, however, were unable to develop language that satisfied both the tort and statutory criteria."[134]

It has been suggested that substantive problems such as this were exacerbated by structural inadequacies. For example, although OSHA organized and provided part of the financial support for the negotiations, no OSHA representative was present at the meetings of the negotiating committee. Perritt has asserted that OSHA's absence from the negotiations was a significant impediment to success: "nonparticipation by . . . OSHA gave it less of a stake in successful negotiations, and therefore less motivation to use its ultimate power to create incentives for parties to

(codified at 29 C.F.R. pt. 1910).

131. For a detailed discussion of the "appropriateness" of the benzene issue for negotiated rulemaking, see Perritt, *supra* note 120, at 1653–54.

132. *See id.*

133. Benzene was present in the gasoline fumes to which many persons—consumers and employees both—were routinely exposed at filling stations.

134. Perritt, *supra* note 120, at 1654. Reportedly, there were differences of opinion among the affected industries as to what an appropriate standard would be. The rubber industry had been meeting an exposure level of one ppm since the late 1970s. The petroleum and chemical industries believed that they could meet the one ppm level only 85% to 90% of the time, and thus wanted a two ppm standard. The steel industry was having trouble meeting even the existing ten ppm standard, and opposed any reduction in the standard. Labor, on the other hand, did not wish to retreat from the one ppm standard originally proposed by OSHA. *See id.* at 1651.

negotiate meaningfully."[135] This argument is attenuated, however, by the subsequent success of the formaldehyde and butadiene negotiations. The final formaldehyde and butadiene rules were negotiated by labor and industry without the participation or the sponsorship of the agency, which would seem to diminish the significance of OSHA's absence from the benzene negotiations.

Moreover, it appears that another, less subtle force was at work in helping to scuttle the benzene negotiations. Michael Wright, who participated in the negotiations on behalf of the United Steelworkers of America, reports that, in his opinion, "good progress" was being made on crafting a final standard on which all sides could agree until attorney C. Boyden Gray, on behalf of Vice President George Bush, contacted both labor and industry and assured them that the Administration would not approve any benzene rule with which they were unhappy.[136] Industry representatives reportedly took this as an assurance from the Reagan Administration that no benzene rule need be promulgated, and their interest in pushing forward with the negotiations waned accordingly.[137]

After the negotiations stalled, the Steelworkers and others sued OSHA in an attempt to force the promulgation of a revised standard.[138] In response, OSHA submitted a rulemaking schedule to the court in which it committed to promulgating a revised benzene standard according to a specified schedule.[139] OSHA published the final standard in 1987.[140]

Significantly, the maximum permissible exposure limit was the same as it had been under the standard that had been invalidated seven years earlier by the Supreme Court: one ppm. The difference was that OSHA took pains in the administrative record to explain in detail its scientific basis for setting the exposure limit at this level and to perform a quantitative analysis supporting the agency's conclusion that lowering the benzene standard from ten ppm to one ppm would result in the reduction of a "significant" risk of cancer.[141] In so doing, the agency had the benefit of

135. *Id.* at 1662.

136. *See* Wright Interview, *supra* note 56.

137. *See id.* Henry Perritt suggests, albeit obliquely, that such forces were at work as well. Without explanation, he notes that, shortly before the negotiations stalled, "some industry constituents were becoming convinced that the OMB [the President's Office of Management and Budget] would block or delay a standard from the OSHA unacceptable to industry, which made it difficult to achieve unity behind a position." Perritt, *supra* note 120, at 1664.

138. *See* United Steelworkers of America, AFL-CIO-CLC v. Rubber Mfrs. Ass'n, 783 F.2d 1117, 1119 (D.C. Cir. 1986).

139. *See id.*

140. *See* Occupational Exposure to Benzene; Final Rule, 52 Fed. Reg. 34,460 (1987) (codified at 29 C.F.R. pt. 1910).

141. *See* Occupational Exposure to Benzene; Proposed Rule and Notice of Hearing, 50 Fed. Reg. 50,512 (1985) (to be codified at 29 C.F.R. pt. 1910) (proposed December 10, 1985). OSHA concluded that a reduction in the standard from ten ppm to one ppm "would result in a reduction in risk of death from leukemia ranging from 43 to 136 per 1000 workers exposed over an occupational lifetime." *Id.* at 50,533.

several additional scientific studies that had been completed since the time of the first benzene rulemaking, including epidemiologic studies that strongly suggested that benzene posed a higher cancer risk at ten ppm than at one ppm.[142]

Thus, in marked contrast to its first attempt to revise the standard, OSHA constructed a rulemaking record that would be virtually unassailable under any reasoned judicial analysis. This attention to scientific detail in the crafting of the administrative record, together with the filing of the lawsuit that prompted OSHA to engage the rulemaking process in earnest,[143] appear to be the factors most responsible for the ultimate success of the benzene rule.

b. The MDA Standard

OSHA's next attempt at negotiated rulemaking dealt with worker exposures to 4,4'-Methylenedianiline ("MDA"), a constituent of paints and other coating materials. In 1983, EPA issued a notice under the Toxic Substances Control Act ("TSCA")[144] indicating, on the basis of data from animal bioassays, that MDA may pose a significant risk of cancer to humans.[145] Thereafter, EPA began a formal process to gather additional data on MDA. Two years later, after having determined that MDA posed a likely cancer risk to workers, EPA issued a notice under section 9 of TSCA inviting OSHA to take regulatory action under the OSHAct, and indicating that EPA would take action under TSCA if OSHA declined.[146] In early 1986, OSHA responded by issuing a notice indicating that it had determined there was a reasonable basis to conclude that MDA posed a significant risk to the health of exposed workers and that it would proceed with appropriate regulatory action.[147] Thereafter, OSHA convened a negotiated rulemaking committee.[148]

142. *See id.* at 50,531–35 (summarizing epidemiologic data), 50,538 (noting that "[s]ince 1978, three major studies of high quality in experimental animals have confirmed the carcinogenicity of benzene").

143. The lawsuit was filed with the Circuit Court of Appeals for the District of Columbia on December 10, 1984. In the words of the subsequent opinion in the case issued by that court on February 25, 1986: "On December 5, 1985, virtually on the eve of oral argument, the agency filed with the court a copy of a just-issued NOPR [Notice of Proposed Rulemaking], which was subsequently published in the Federal Register on December 10, 1985." *United Steelworkers of America, AFL-CIO-CLC*, *supra* note 138, at 1119.

144. 15 U.S.C. §§ 2601–2629 (1994).

145. *See* 4,4'-Methylenedianiline; Initiation of Review, 48 Fed. Reg. 19,078 (1983). Under TSCA, EPA is required to issue a notice whenever it makes such a finding. *See* 15 U.S.C. § 2603 (1994). Once a notice has been issued, EPA is required either to take appropriate regulatory action to reduce exposure to the chemical in question, or to publish an explanation of why it believes no regulatory action is necessary.

146. *See* 4,4'-Methylenedianiline; Decision to Report to the Occupational Safety and Health Administration, 50 Fed. Reg. 27,674 (1985). Section 9(a)(1) of TSCA, 15 U.S.C. § 2608(a)(1) (1994), requires EPA to follow such a process if the agency determines that, although a chemical poses an "unreasonable risk of injury to health or the environment" (the basis for regulation under TSCA), "such risk may be prevented or reduced to a sufficient extent by action taken under a Federal law not administered by [EPA]" (such as the OSHAct).

The committee held seven meetings, culminating in the publication in July 1987 of recommendations for a proposed rule limiting occupational exposure to MDA.[149] These recommendations were then incorporated by OSHA into a proposed rule in May 1989, and were promulgated by OSHA as a final rule in August 1992.[150] The standard established an eight-hour average time-weighted PEL for workplace exposure to MDA of ten ppb; prior to the promulgation of the standard, average workplace exposures to MDA were estimated to be in the 250 ppb range.[151]

There were a number of differences between the MDA negotiations and the benzene negotiations, and many of these may have contributed to the comparative ease with which the MDA rule was negotiated.[152] It may have been important, for example, that the impetus for an MDA regulation came from EPA and that the participants knew that EPA would issue a regulation if OSHA did not. What likely was more important, however, was the much more limited number of industries and workers involved and the relatively modest financial consequences at stake. OSHA estimated that only 400 workers were exposed to MDA[153] and that the average cost of complying with the ten ppb standard would be only $5,450 per year per employer (for the purchase and maintenance of personal protective equipment).[154] In contrast to the benzene negotiations, then, the perceived costs to industry were inconsequential.

In its preamble to the final rule, OSHA expressed considerable support for the use of negotiated rulemaking as the means of developing the

147. *See* Health and Safety Standards; Occupational Exposure to 4,4'-Methylenedianiline (MDA), Notice, Response to EPA Under Section 9(a) of the Toxic Substances Control Act (TSCA), 51 Fed. Reg. 6748 (1986).

148. *See* Methylenedianiline Negotiated Rulemaking Advisory Committee, 51 Fed. Reg. 24,452 (1986).

149. *See* Methylenedianiline (MDA) Mediated Rulemaking Advisory Committee Recommendations, 52 Fed. Reg. 26,776 (1987).

150. *See* Occupational Exposure to 4,4'-Methylenedianilene (MDA), 57 Fed. Reg. 35,630 (1992) (codified at 29 C.F.R. pts. 1910 & 1926) [hereinafter "Occupational Exposure to 4,4'-Methylenedianilene"]. The history of the negotiations is set forth in the preamble to the final standard, at 35,632–34. OSHA referred to the negotiations as "Mediated Rulemaking," and noted that the committee was established "in accordance with the Federal Advisory Committee Act and section 7(b) of the Occupational Safety and Health Act." *Id.* at 35,633. OSHA stated that "the final standard, like the proposed rule, is based primarily on the recommendations made by the MDA Mediated Rulemaking Committee," and noted that there were only a "few instances" where the standard differed from those recommendations. *Id.* at 35,634.

151. *See id.* at 35,641.

152. *See* HENRY H. PERRITT, JR., USE OF NEGOTIATED RULEMAKING TO DEVELOP A PROPOSED OSHA HEALTH STANDARD FOR MDA, *reprinted in* NEGOTIATED RULEMAKING SOURCEBOOK, at 661–703 (David M. Pritzker & Deborah S. Dalton eds., 1995).

153. Occupational Exposure to 4,4'-Methylenedianilene, *supra* note 150, at 35,643.

154. *See id.* at 35,644.

MDA exposure standard.[155] Further, the preamble expressed the agency's belief that the use of negotiated rulemaking had not involved any sacrifice of principle for the sake of expediency. Although noting that "[s]trictly speaking, it appears inappropriate to suggest that human suffering and lives become the trade off items in a mediation attempt," OSHA stressed that negotiated rulemaking:

> differs from the typical labor-management negotiations[,] where a limited number of issues must be resolved and bargaining or trade-off become the method to form a compromise. The key difference involves the final product expected. On the one hand, a compromise is reached; on the other hand, a consensus is achieved.[156]

In practice, however, this "key difference" between traditional ~~rule-making~~ Negotiation and negotiated rulemaking appears to have been more conceptual than actual. "Consensus" was defined by the MDA negotiated rulemaking committee as 75% concurrence of those members of the negotiated rulemaking committee participating in a vote,[157] which envisions the potential for compromise by up to twenty-five percent of the members of the committee. Nonetheless, OSHA committed itself in the notice of negotiated rulemaking to using the results of the negotiations as the basis for its proposed rule.[158] Thus, although the committee voted unanimously on "approximately 90% of the issues,"[159] it does appear that the agency expressed a willingness to accept a compromise position on worker protection as the basis for its health standard.[160]

Moreover, OSHA demonstrated a willingness to truncate consideration of the relevant health issues in the interest of producing a rule through negotiation. Reportedly, OSHA resisted "active participation by health experts" in the negotiations, because it feared that "committee meetings would turn into a battle of the experts."[161] Although there were persons with toxicological backgrounds on the negotiating committee,

155. Negotiation clearly did not result in the *expeditious* promulgation of the MDA rule. The recommendations of the negotiated rulemaking committee were published on July 16, 1987, and the final rule (incorporating the bulk of those recommendations) was not published until August 12, 1992. *See id.* at 35,634. The preamble does not explain the reason for the five-year delay between the conclusion of the negotiations and the promulgation of the final standard.

156. *Id.* at 35,633.

157. *See* PERRITT, *supra* note 152, at 689. In the preamble to the final rule, OSHA acknowledged that the committee had agreed that unanimous agreement was not necessary. *See* Occupational Exposure to 4,4'-Methylenedianilene, *supra* note 150, at 35,633.

158. *See* PERRITT, *supra* note 152, at 676.

159. *Id.* at 690.

160. Perritt stresses that "[t]he value of a flexible consensus rule cannot be emphasized too strongly," and believes that the agreement to treat a 75% majority vote as a consensus was one of the reasons that the MDA committee was able to negotiate a proposed rule while the benzene committee was not. *Id.* at 690–91.

161. *Id.* at 688.

some committee members felt that additional access to health professionals, especially physicians, would have been helpful.[162]

This is not to say that nothing was gained through the MDA negotiations. The negotiated rule did ultimately result in a substantial decrease in worker exposure to the chemical. Further, even if the negotiations themselves did not focus on specific pollution prevention strategies, the promulgation of the reduced exposure limits tended to create an additional incentive for the manufacture of MDA-free coating materials. Also, committee members reported that the negotiations provided them access to unpublished MDA data in the possession of other committee members, and it is likely that the trust established among committee members during the negotiations was an important factor in these disclosures.[163]

c. The Formaldehyde Standard

Formaldehyde, one of the most widely used chemicals in modern industry, became a regulatory concern in 1979, when a two-year study conducted by the Chemical Industry Institute of Toxicology concluded that the chemical causes cancer in rats.[164] Concern subsequently increased with the development of epidemiologic data over the following decade.[165] On December 4, 1987, after traditional notice and comment rulemaking, OSHA issued a formaldehyde standard imposing an eight-hour time-weighted PEL of 1.0 ppm.[166] Although OSHA's findings indicated that a PEL of 0.5 ppm would be technologically and economically "feasible" within the meaning of the OSHAct,[167] the agency declined to

162. *See id.* at 688–89.

163. *See id.* at 696.

164. For a discussion of the uses of formaldehyde, the Chemical Industry Institute of Toxicology study, and the early regulatory history of formaldehyde, see Nicholas A. Ashford, et al., *A Hard Look at Federal Regulation of Formaldehyde: A Departure from Reasoned Decisionmaking*, 7 HARV. ENVTL. L. REV. 297 (1983).

165. *See* Occupational Exposure to Formaldehyde; Final Rule, 52 Fed. Reg. 46,168, 46,183–201 (1987) (codified at 29 C.F.R. pts. 1910 & 1926).

166. *See id.* at 46,168.

167. A toxic substance exposure standard is to be set at the level that "most adequately assures, *to the extent feasible* . . . that no employee will suffer material impairment of health . . . ." 29 U.S.C. § 655(b)(5) (1994) (emphasis added). Although OSHA did not make a specific feasibility finding for a PEL of 0.5 ppm, the agency's analysis showed that all affected industries could easily comply with a one ppm standard. *See* Occupational Exposure to Formaldehyde; Final Rule, *supra* note 165, at 46,237–42. Further, as noted in a subsequent study by the Office of Technology Assessment, "[t]he feasibility of engineering controls to achieve a PEL substantially below one ppm was discussed in the course of the rulemaking," and the technology for the development of low-formaldehyde resins "was commercially well-known at the time." OFFICE OF TECH. ASSESSMENT, U.S. CONGRESS, GAUGING CONTROL TECHNOLOGY AND REGULATORY IMPACTS IN OCCUPATIONAL SAFETY AND HEALTH 95 (1995) [hereinafter OTA Report]. Moreover, in a review of the one ppm standard before the D.C. Circuit Court of Appeals (discussed more fully below), OSHA appears to have conceded that a more stringent standard would be feasible. *See*

impose such a limit because it did not believe the attendant risk was "significant."[168] Based on its reading of the Supreme Court's benzene decision, in which a three-justice plurality observed that a risk of death of one in one thousand is one that a reasonable person might well consider significant,[169] OSHA had determined that any risk of less than one in one thousand would *not* be "significant" under the OSHAct.[170] Accordingly, because it had concluded that the risk of cancer posed by formaldehyde exposures of 1.0 ppm or lower would be less than one in one thousand, OSHA determined that any more stringent formaldehyde standard would not be authorized by the OSHAct.[171]

The 1.0 ppm standard was challenged in court by a coalition of labor unions, who sought a standard of 0.5 ppm or lower.[172] In 1989 the United States Court of Appeals for the District of Columbia Circuit remanded the standard to OSHA for further consideration.[173] Noting that OSHA's own factual analysis appeared to indicate that the cancer risk at formaldehyde levels below 1.0 ppm was greater than one in one thousand, the court directed the agency either to set a more stringent limit or to explain more fully why it had not done so.[174] Thereafter, the industry and labor representatives met to attempt to negotiate a modified standard, and on June 27, 1990, they presented OSHA with a recommendation

International Union, United Automobile, Aerospace and Agricultural Implement Workers of America v. Pendergrass, 878 F.2d 389, 390–91 (D.C. Cir. 1989) (several unions "assert that OSHA erred in finding that formaldehyde would present no significant risk at the one ppm level. *If they are right, OSHA would be required to tighten the standard*, to the point where there remains no significant risk or where further tightening is infeasible. (They propose 0.5 ppm, or possibly lower.)" (emphasis added)).

168. *See Pendergrass*, *supra* note 167, at 391–92.

169. *See Industrial Union Dep't, AFL-CIO*, *supra* note 126, at 655.

170. As noted by the D.C. Circuit Court of Appeals in its review of the formaldehyde standard:

> While observing in *Benzene* that determination of a level of significant risk must be "based largely on policy considerations," the [Supreme] Court also gave an example, saying that "if the odds are one in a thousand that regular inhalation of gasoline vapors that are 2% benzene will be fatal, a reasonable person might well consider the risk significant and take appropriate steps to decrease or eliminate it." In this proceeding and in earlier ones, OSHA appears to have incorporated that observation as a policy norm . . . .Counsel's acknowledgement of this standard at oral argument is confirmed by its practice.

Pendergrass, *supra* note 167, at 392 (citations omitted).

171. In the words of the D.C. Circuit Court of Appeals, OSHA's "refusal to impose a lower formaldehyde standard" was based on "its finding of insignificant risk at an exposure of 1 ppm." *Id.* at 391.

172. *See id.* at 390–91. Industry groups also challenged the formaldehyde standard, on grounds relating to the standard's labeling requirement, but deferred their challenge pending OSHA's reappraisal of those issues. *See id.* at 391.

173. *See id.* at 400–01.

174. The court's concern centered on the dose/response assumptions made by the agency in the models it used to predict the risk of cancer from formaldehyde exposure. OSHA had declined to assume that the dose/response curve is linear at low exposure levels (that is, to assume that there is a finite, albeit small, risk of cancer at any exposure level) even though many of the other factual assumptions made by OSHA, in this and other risk assessments, support the concept of linearity at low exposure levels. *See id.* at 396.

calling for a formaldehyde PEL of 0.75 ppm.[175] On May 27, 1992, OSHA promulgated a final standard setting the limit at the recommended level.[176]

Given the circumstances, it is not surprising that the negotiators were able to agree on a standard more protective than the one that OSHA had proposed. First, of course, the court's invalidation of the original 1.0 ppm standard had sent a strong signal to industry that a more stringent standard would likely be upheld, and the likelihood that OSHA would determine that a 0.5 ppm standard was feasible had created a reasonable presumption that the revised standard would be set at that level. Further, even before OSHA promulgated the 1.0 ppm standard in 1987, industry concerns over a possible 0.5 ppm standard had prompted the suppliers of formaldehyde-containing resins to develop new resins containing little or no formaldehyde. In part, the development of these new products made it possible for industry to reduce worker formaldehyde exposures at less than half the pre-promulgation cost estimates.[177] The negotiated 0.75 ppm standard, then, represented a relatively painless compromise. Indeed, it is fair to say that the very real threat that a more stringent (0.5 ppm) standard would be set by traditional rulemaking made possible the negotiation of a less stringent (0.75 ppm) standard.

d. The Butadiene Standard

1,3-Butadiene ("butadiene") is used in the production of synthetic rubber and in the production of a variety of other chemical products and intermediaries. As of 1996, an estimated 9700 U.S. workers at 255 facilities were exposed to this chemical in their workplace.[178] In 1971, OSHA had adopted a "national consensus" PEL[179] for butadiene of 1000 ppm as a time-weighted eight-hour average. In 1983, however, the National Toxicology Program released the results of a study indicating that butadiene causes cancer in rodents.[180] Thereafter, OSHA solicited comments and gathered data for a six-year period,[181] culminating in the issuance in 1990 of a proposal to lower the butadiene PEL to 2 ppm, with a

175. *See* Occupational Exposure to Formaldehyde; Response to Court Remand, 56 Fed. Reg. 32,302 (1991) (proposed July 15, 1991).

176. *See* Occupational Exposure to Formaldehyde, 57 Fed. Reg. 22,290 (1992) (codified at 29 C.F.R. pt. 1910).

177. *See* NICHOLAS A. ASHFORD & CHARLES C. CALDART, TECHNOLOGY, LAW, AND THE WORKING ENVIRONMENT 506 (1996); OTA Report, *supra* note 167, at 95.

178. *See* Occupational Exposure to 1,3-Butadiene; Final Rule, 61 Fed. Reg. 56,746, 56,795 (1996) (codified at 29 C.F.R. pts. 1910, 1915, 1926) [hereinafter 1,3-Butadiene Final Rule].

179. *See supra* note 121 and accompanying text (explaining promulgation of national consensus standards).

180. *See* 1,3-Butadiene Final Rule, *supra* note 178, at 56,748.

181. *See id.* at 56,749.

short-term exposure limit ("STEL") of 10 ppm over fifteen minutes.[182] In addition, the proposed standard specified an "action level" of 1.0 ppm, which triggered increased workplace monitoring requirements.[183]

During public hearings on the proposed standard in 1991, labor and industry representatives "began discussions on issues such as the quality and interpretation of scientific data, carcinogenic causality, permissible exposure limits, and economic and technological feasibility."[184] For some time thereafter, working outside the formal regulatory process, and without the participation of OSHA, the parties attempted to resolve their differences over the proposed standard.[185] Although a number of companies in the rubber industry reportedly were achieving average butadiene exposure levels of less than 1.0 ppm,[186] industry was seeking a PEL of 4 ppm.[187] The union, on the other hand, sought to bring the OSHA standard in line with the performance of these rubber companies, both to reduce exposures in other industries and to put "moral" pressure on the rubber industry to lower exposure world-wide.[188]

The break in the negotiations reportedly occurred in 1995, after the release of an epidemiologic study, funded by the International Institute of Synthetic Rubber Producers (IISRP), supporting the conclusion that butadiene exposure was causing cancer among workers at approximately the rate predicted by extrapolations from the animal data.[189] Spurred by this new confirmation of the seriousness of the butadiene risk, [190] labor and industry representatives were able to reach agreement on a set of recommendations which were presented to OSHA on January 29, 1996.[191] OSHA then reopened its rulemaking process to solicit comments on the recommendations, and the parties to the labor/industry agreement submitted draft regulatory language that translated their regulations into

182. *See* Occupational Exposure to 1,3-Butadiene; Proposed Rule and Notice of Hearing, 55 Fed. Reg. 32,736, 32,804 (1990) (to be codified at 29 C.F.R. pts. 1910, 1915, 1926) (proposed Aug. 10, 1990) [hereinafter 1,3-Butadiene Proposed Rule].

183. *Id.*

184. Chuck Gordon et al., *Union-Industry Recommendations Give a Big Bounce to OSHA's Butadiene Standard*, 8 JOB SAFETY & HEALTH Q. 27 (1997).

185. In the preamble to the final butadiene rule, OSHA noted that it "was neither a party to nor present at the negotiations." 1,3-Butadiene Final Rule, *supra* note 178, at 56,750.

186. *See* Wright Interview, *supra* note 56; *see also* 1,3-Butadiene Final Rule, *supra* note 178, at 56,795 (observing that "many facilities in the affected industries have already achieved the reductions in employee exposures required by the final rule").

187. *See* Wright Interview, *supra* note 56.

188. *See id.*

189. The results and methodology of this study, conducted by Delzell et al., are discussed in 1,3-Butadiene Final Rule, *supra* note 178, at 56,759–61.

190. *See* Gordon et al., *supra* note 184, at 27 ("It wasn't until after new data confirmed the risk of butadiene, in 1995 . . . that these groups began negotiating joint recommendations on the issues"). This was confirmed with the Steelworkers' Michael Wright. *See* Wright Interview, *supra* note 56.

191. *See* 1,3-Butadiene Final Rule, *supra* note 178, at 56,749.

specific requirements.[192] On November 4, 1996, OSHA issued a final butadiene standard based largely on the language drafted by the labor/industry negotiators.[193]

As recommended by the negotiators, the revised butadiene standard sets an eight-hour PEL of 1.0 ppm, an STEL of 5.0 ppm over fifteen minutes, and an "action level" of 0.5 ppm. If monitoring reveals that the 0.5 ppm action level is being exceeded, the employer must implement an "exposure goal program" designed to "limit employee exposures to below the action level during normal operations."[194] Such a program is to consist of specified engineering controls (when feasible), worker training, medical surveillance, and additional monitoring.[195]

OSHA was enthusiastic about the butadiene standard, and about the role played by the negotiations in developing the standard.

> At the signing of the butadiene standard . . . [then OSHA Administrator] Joe Dear remarked how the groundwork laid by the labor-management agreement gives both a more protective standard and a strong scientific underpinning for [the] regulation. 'Because the standard is based on the agreement and supported by both workers and their employers, we are confident the provisions are practical, and the protections will be put in place.'[196]

Without a doubt, negotiation facilitated OSHA's adoption of the butadiene standard. It is apparent that the agency deferred both to the trade-offs and to the timetable of the labor/industry negotiators, and it is not clear what timetable OSHA would have followed in the absence of these negotiations. Certainly it is conceivable that, absent some other form of outside pressure (such as a union lawsuit seeking to force promulgation), OSHA would not have issued the final standard by 1996.

It is less clear, however, that the negotiated standard is "more protective" than what OSHA could have produced on its own. After the industry-funded epidemiologic study confirmed the carcinogenic risk of butadiene, OSHA was in a strong position to impose a PEL more stringent than the 2.0 ppm standard it had proposed in 1990. OSHA had concluded that a significant risk of cancer existed even at a 0.5 ppm exposure

192. *See id.* at 56,749–50.

193. *See id.* at 56,746. In the preamble to the final standard, OSHA stated that the provisions of the standard "are, in large part, similar to the requirements recommended by the labor/industry group . . . ." *Id.* at 56,798. Indeed, a comparison of the standard with the language drafted by the labor/industry negotiators demonstrates that, both in substance and in form, the standard is based largely on the recommendations.

194. *See* 29 C.F.R. § 1910.1051(g) (1997).

195. *See id.* § 1910.1051(h). The specified engineering controls include, among other efforts, leak prevention, detection, and repair, and the use of pump exposure control technology.

196. Gordon et al., *supra* note 184, at 29.

level,[197] and industry representatives reportedly were concerned that OSHA would set the PEL at 0.5 ppm.[198] The negotiated compromise, a PEL of 1.0 ppm and a 0.5 ppm action level, thus appeared palatable in comparison. Moreover, in return for their agreement to accept these lower levels, industry representatives were able to secure a compromise on the use of respirators. The 1990 proposed standard had specified, consistent with OSHA policy, that the exposure limits were to be met largely through the use of engineering controls and work practices, and it permitted compliance through the use of personal respirators only for those situations in which the employer could establish that compliance was not otherwise technologically feasible.[199] The negotiated compromise, however, allows compliance through the use of personal respirators during intermittent non-routine peak exposures. In deference to the negotiators, OSHA retained these provisions in the final rule.[200]

Instead of producing a standard that is clearly stronger than the one originally proposed by OSHA, then, the negotiations produced a result that arguably *reduces* the incentive for meaningful technological change by industry. For, although a 1.0 ppm PEL is more protective than a 2.0 ppm PEL, the workplace technology that is capable of meeting 2.0 ppm during routine operation likely will be capable of meeting 1.0 ppm as well.[201] It is achieving these levels during periods of *non-routine* operation that poses the greater technological challenge.[202] That is why, in the

197. *See* 1,3-Butadiene Final Rule, *supra* note 178, at 56,814 ("OSHA has estimated the lifetime cancer risk from exposure to [butadiene] to be about 4 per 1,000 workers at . . . .0.5ppm . . . .").

198. *See* Wright Interview, *supra* note 56.

199. *See* 1,3-Butadiene Proposed Rule, *supra* note 182, at 32,736, 32,740. OSHA's standard policy is to require that compliance be achieved through the use of engineering controls and/or changes in work practices unless the employer can demonstrate that this would be infeasible. *See, e.g.*, BENJAMIN W. MINTZ, OSHA HISTORY, LAW, AND POLICY 91 (1984). *See also* 1,3-Butadiene Final Rule, *supra* note 178, at 56,809 (noting OSHA's "traditional adherence to [a] hierarchy of controls" that specifies that "engineering controls and work practices are to be used in preference to respiratory protective equipment").

200. *See* 29 C.F.R. § 1910.1051(h)(ii) (1997).

201. The rulemaking record does not suggest that different engineering controls will be necessary to achieve compliance at 1.0 ppm during routine operation. Rather, the comments submitted to OSHA by the synthetic rubber industry cited "non-routine intermittent peak exposures" as "the major reason" that industry would find it difficult to meet even a 2.0 ppm standard. *In re* Proposed Standard for Occupational Exposure to 1,3-Butadiene, Supplemental Comments for the Reopened Record Submitted by the Int'l Inst. for Synthetic Rubber Producers, Inc., OSHA Docket No. HS-041, at 5 (Apr. 26, 1996) [hereinafter IISRP Comments]. With the assurance that compliance through the use of respirators would be permitted during such non-routine exposures, industry representatives were willing to agree to a 1.0 ppm standard. *See id.*; *see also* 1,3-Butadiene Final Rule, *supra* note 178 at 56,803 (citing IISRP comments as indicating that the negotiated standard will be feasible).

202. *See* IISRP Comments, *supra* note 201, at 5. According to the IISRP, the exposures for which respirators are allowed "are caused by process equipment leaks, sampling, and maintenance activities that are extremely difficult to anticipate or to prevent through traditional engineering controls or work practices." *Id.* at 2.

words of the IISRP in its comments urging OSHA to adopt the compromise language drafted by the negotiators, "industry needed respirator flexibility to accept . . . lower [exposure limits]."[203] By giving industry the flexibility it wanted on this point, the negotiated standard secured a short-term goal: it hastened the implementation of stricter butadiene exposure limits by assuring that industry would not challenge those limits in court. In the long term, however, the inclusion of such flexibility may also have removed much of the pressure for further technological improvement.[204]

e. Evaluation

There is perhaps no other regulatory agency whose capacity to spur technological change is as well-documented as OSHA's. Particularly in the agency's early years, OSHA's promulgation of toxic substance exposure standards—through the use of traditional rulemaking procedures—produced technological changes within regulated industries that have markedly improved the health of U.S. workers.[205] The four rulemakings studied here indicate that, measured against the goal of securing a more health-protective standard, negotiated rulemaking has not been an improvement on the traditional rulemaking process. Indeed, negotiated rulemaking appears to have served, at least in part, as a means for OSHA to abdicate its stewardship role under the law.

The formaldehyde and butadiene negotiations, for example, are noteworthy for the lack of involvement by, or direction from, OSHA. In both cases, interested parties began the negotiations *of their own volition*, some time *after* the agency had promulgated a proposed standard. The fact that the parties chose to take these matters into their own hands should not be particularly surprising. In contrast to the environmental arena, the key players in the OSHA negotiated rulemakings, industry and organized labor, have a long history of resolving disputes through negotiation. In a very real sense, negotiation is an important part of their "culture." Moreover, beginning with the installation of an anti-regulatory administration in Washington after the election of President Reagan in 1980, OSHA has generally been less aggressive in promoting the cause

203. *Id.* at 5. The IISRP comments also characterized the respirator provisions as "[c]rucial to the feasibility of the very low [exposure limits]" and "essential to a workable standard." *Id.*

204. The negotiated standard's exposure goal program could provide some incentive for innovation, however. Because this program could require the installation of specified control technology if the 0.5 ppm action level is being exceeded, *see supra* notes 194–195 and accompanying text, it may encourage some employers to look for cheaper, alternative methods of keeping routine exposures below 0.5 ppm.

205. *See, e.g.*, OTA Report, *supra* note 167, at 89–95 (summarizing the promulgation and effects of OSHA's vinyl chloride, cotton dust, lead, ethylene oxide, and formaldehyde standards).

of worker health and safety than it was during the first decade of its existence.[206] In the absence of an aggressive regulatory body, the unions have turned both to negotiation and to litigation in an attempt to prod the regulatory process forward.[207]

Although the standards that emerged from the formaldehyde and butadiene negotiations did secure improvements in worker protection, neither case supports the proposition that private negotiations are more likely to protect worker health than traditional rulemaking. Rather, these negotiations illustrate that private negotiations can produce results when conditions are right, especially when the regulatory agency fails to seize the opportunities before it. In both cases, a significant event occurring *outside* the negotiation process (for formaldehyde, the court decision remanding the 1.0 ppm standard, and for butadiene, the industry-funded epidemiologic study confirming a meaningful risk of cancer) gave the

206. For example, from 1972 through 1980, a period of nine years, OSHA promulgated 11 toxic substance exposure standards. *See* 29 C.F.R. § 1910 subpt. Z (1997); *see also* DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH, AFL-CIO, PROMISES KEPT, PROMISES BROKEN: 25 YEARS OF WORKER SAFETY AND HEALTH IN THE UNITED STATES 69 (1996) (showing dates of promulgation through early 1996) [hereinafter AFL-CIO]. From 1981 through 1998, a period of eighteen years, OSHA has promulgated ten new toxic substance exposure standards, has repromulgated its benzene standard, has extended its lead standard to the construction industry, and has updated its asbestos standard. *See* 29 C.F.R. § 1910 subpt. Z (1997); AFL-CIO at 69. Four of the ten new standards were promulgated during the Reagan administration, and six were promulgated during the Bush and Clinton administrations. *See* 29 C.F.R. § 1910 subpt. Z (1997); AFL-CIO at 69. Of these ten new standards, one (the hazard communication standard) was begun in the Carter administration, one (the ethylene oxide standard) was promulgated only after OSHA was given a court order to issue a final rule, *see* Public Citizen Health Research Group v. Auchter, 702 F.2d 1150 (D.C. Cir. 1983) (*per curiam*), Public Citizen Health Research Group v. Brock, 823 F.2d 626 (D.C. Cir. 1987), two (the formaldehyde and MDA standards) were referred to OSHA by EPA under section 9 of TSCA, and, as discussed above, two (the final formaldehyde and butadiene standards) were negotiated by industry and labor without the participation of OSHA. For a discussion of OSHA standard-setting that compares the agency's technology-forcing approach in the early years with its more tentative approach in the later years, see ASHFORD & CALDART, *supra* note 177, at 103–83. *See also* DAVID P. MCCAFFREY, OSHA AND THE POLITICS OF HEALTH REGULATION (1982) (discussing the development of OSHA toxic substance standards from 1971 to 1981). McCaffrey notes "the Reagan administration's extraordinary efforts to reduce occupational health regulation," *id.* at xiii, and recounts, as an example, the Reagan OSHA's unsuccessful attempt to undo a decision of the U.S. Court of Appeals for the District of Columbia which had *upheld* the Carter administration's position that OSHA is not required to perform a cost-benefit analysis before setting occupational health standards. *See id.* at 173. For a discussion of OSHA at the end of the Reagan era, see William Glaberson, *Is OSHA Falling Down on the Job?*, N.Y. TIMES, Aug. 2, 1987, at § 3, at 1 (discussing studies critical of OSHA's record of preventing occupational injury and disease). For an overview and critique of OSHA's more recent performance, see AFL-CIO, *supra* (charting trends in occupational illness and disease, OSHA standard-setting and enforcement, OSHA budget and staffing, and other indicators of OSHA activities from 1970-71 through 1995-96).

207. The formaldehyde and butadiene standards both are examples of labor seizing the initiative through negotiation. In both cases, the negotiations determined the timetable for the issuance of the final standard. Examples of labor's use of litigation to compel the issuance of a rule include the benzene standard, *see United Steelworkers of America, AFL-CIO-CLC*, *supra* note 138, and the ethylene oxide standard, *see Auchter*, *supra* note 206.

unions a strong bargaining position from which to achieve consensus on the negotiated rules. But these same events had also put OSHA in a strong position to promulgate an equally or more protective standard through the traditional rulemaking process. Rather than taking advantage of these opportunities, however, OSHA accepted the policy choices made by labor and industry negotiators.

This is nothing new. In 1983, several years before the formaldehyde negotiations, labor and industry representatives met informally to resolve outstanding issues regarding OSHA's cotton dust standard.[208] As with the formaldehyde and butadiene standards, the negotiations began at the instigation of the parties themselves, without the involvement of OSHA, and after OSHA had issued a proposed standard.[209] Further, as with the formaldehyde standard, the negotiations began following a court ruling on the OSHA standard. The agency's exposure limit for cotton dust had been upheld by the Supreme Court, leaving only certain ancillary issues needing resolution.[210] Before it sat down to negotiate with labor, then, the industry knew that a standard incorporating a particular exposure level would be implemented, and it thus was highly motivated to negotiate the process of that implementation. As noted by author Henry Perritt, the fact that the parties were able to reach an agreement that was adopted by the agency "illustrates the possibility of negotiated agreement on controversial rules, without agency participation, when the incentives of the private parties are strong."[211]

As analysis of the benzene negotiations indicates, however, meaningful results are much less likely when incentives are weak. In contrast to the formaldehyde, butadiene, and cotton dust negotiations, the benzene negotiations came at the invitation of OSHA and after industry had mounted a successful court challenge to the exposure level originally set by OSHA. The pressure on industry to agree to a protective standard, then, was far from heavy, and negotiations eventually stalled. It ultimately took the rigors of the rulemaking process, prompted into action by a union lawsuit, to successfully re-impose the 1.0 ppm standard.

The MDA negotiations, which were initiated by OSHA and which featured OSHA as a key participant, did produce a final rule, even though there was no strong incentive driving the parties to reach agreement. This likely is explained, however, by the minimal stakes involved for industry—relatively few employees were affected and the cost of compliance was low.

208. *See* 29 C.F.R. § 1910.1043 (1997).
209. *See* Perritt, *supra* note 120, at 1682–83.
210. *See* American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490 (1980).
211. Perritt, *supra* note 120, at 1683 (citation omitted).

IV. Negotiated Implementation

In contrast to its role in *enforcing* a regulatory standard, discussed in Part V, an agency's role in *implementing* the standard is circumscribed. Nonetheless, there are circumstances in which the agency may be able to use negotiation during implementation to encourage innovation and/or incidental health, safety, or environmental gains.

A. The Environmental Protection Agency

Over its history, EPA has made some use of negotiated implementation, both within its explicit statutory mandates (using innovation waivers available under certain environmental statutes) and outside of them (using its Project XL program).[212]

1. Innovation Waivers

Various U.S. environmental statutes, such as the CAA and the Clean Water Act ("CWA"),[213] have had provisions allowing EPA to issue innovation waivers to qualifying firms, thus allowing them additional time to develop innovative approaches to compliance. Under these provisions, EPA is authorized to extend the deadline by which a firm must meet emission or effluent limitations, so long as the agency is persuaded that the firm is actively pursuing an innovative approach to compliance that shows real promise of coming to fruition. Innovation waivers are meant to focus squarely on the innovation of new technology, and are not designed to promote diffusion of an existing technology.[214]

212. *See infra* Part IV.A.2.

213. 33 U.S.C. §§ 1251–1387 (1994).

214. The CAA authorizes a waiver of new source performance standards, for up to four years after the source begins operation, "to encourage the use of an innovative technological system or systems of continuous emission reduction." 42 U.S.C. § 411(j)(1)(A), (j)(1)(E)(ii) (1994). The CWA authorizes a waiver of certain effluent standards for up to two years, to allow the development of "an innovative production process . . . or . . . innovative control technique" that results in a "significantly greater effluent reduction" than presently required, or to allow the development of an innovative system that achieves the effluent limitation presently required and "has the potential for significantly lower costs" than currently available technology. 33 U.S.C. § 1311(k) (1994). Although the statutory compliance date for these standards has long since passed, *see* 33 U.S.C. § 1311(b)(2)(C), (D), (E), & (F) (1994) (specifying a compliance date "in no case later than March 31, 1989"), the CWA requires EPA to periodically review and revise these standards, *see id.* § 1311(d), and the agency presumably is authorized to grant innovation waivers for the revised standards as well. The CWA also authorizes a waiver of pretreatment standards (governing discharges into a publicly owned treatment works) for up to two years to allow application of "an innovative system that meets the requirements of section 1311(k)." 33 U.S.C. § 1317(e) (1994). The Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §§ 6901–6986. (1994), the major federal statute governing the generation, transport, and disposal of hazardous waste, also has a provision authorizing a form of innovation waiver, but it focuses only on remediation technologies. RCRA authorizes EPA to "issue a research, development, and demonstration permit" for the use of "an innovative and experimental hazardous waste treatment technology or process . . . ." 42 U.S.C. § 6925(g)(1) (1994). Such a permit may be issued for up to three years, in one-year intervals. *See id.* § 6925(g)(4). This allows the permittee (either the generator of the waste or a waste treatment facility) to utilize the technology or process to treat specified types and quantities of hazardous waste, in order to determine the viability and effectiveness of the technology or process, even though EPA waste treatment standards might not otherwise be attained. *See id.* § 6825(g)(2). EPA may cancel the permit at any time it determines that such action is "necessary to protect human health and the environment." *Id.* § 6925(g)(3).

Conceptually, the innovation waiver makes a great deal of sense. Translation of an innovative idea into an operational reality, which often requires several iterations of trial and error, can take substantial time, during which a firm might otherwise find itself liable for penalties for violations of emission or effluent standards. The innovation waiver exempts the firm from such penalties during a designated trial period and offers it the prospect of the cost savings that may be derived from the development of a superior technology. Because of the long time generally required to develop technological innovations, it may be unrealistic to expect EPA to use innovation waivers to promote radical process innovation. Nonetheless, the agency might well use such waivers to encourage both incremental process innovation and the acceleration of radical innovation already underway.

In practice, however, innovation waivers have been used sparingly by EPA, both because industry has been unsure of their application (and thus has been wary of risking non-compliance), and because the agency has not encouraged their use.[215] Success will require EPA to give early, clear, and certain signals to the firm, thus minimizing the risk that the firm's technology may be found unacceptable later. Furthermore, good faith efforts resulting in significant, though not complete, achievement of the pollution reduction goal may need to be rewarded by "fail-soft" enforcement strategies, such as a reduction of otherwise applicable penalties. In this way, industry might be persuaded to take the technological and legal risk that the innovation waiver often poses. In this context, one can make a case for "risk sharing" between government and industry in the interest of fostering innovative solutions.[216]

215. For a detailed review of the early EPA experience with innovation waivers that discusses these points, see Nicholas A. Ashford et al., *Using Regulation to Change the Market for Innovation*, 9 Harv. Envtl. L. Rev. 419, 443–62 (1985). For a more recent evaluation of the use of innovation waivers under CWA, see Office of Water, U.S. EPA, Providing Waivers from NPDES Permit Compliance for Industrial Pollution Prevention Technology, The Industrial Pollution Prevention Project (IP3) Analysis of Sections 301(k) and 307(e) of the Clean Water Act (1994).

216. For an indication that EPA has not always taken a flexible approach in similar situations, see Monsanto Co. v. EPA, 19 F.3d 1201 (7th Cir. 1994). Monsanto had been granted a nine-month extension to comply with the applicable CAA emission standard for benzene under section 112(c)(1)(B)(ii) of the act, which at that time (prior to the 1990 CAA Amendments) allowed EPA to grant a waiver for up to two years if it found that "such period is necessary for the installation of controls and that steps will be taken during

2. Extra-Statutory Efforts: Project XL

In an effort to add to those opportunities for flexibility that are specifically authorized by statute, such as innovation waivers, EPA sometimes endeavors to incorporate flexibility into its regulatory implementation by agency fiat. A recent example is the Clinton EPA's Excellence in Leadership Project, popularly known as Project XL. The White House announced this program, with considerable fanfare, in a 1995 policy statement,[217] and EPA published a set of guidelines for approving Project XL proposals in 1996.[218]

The basic idea of Project XL is to allow regulatory flexibility in return for superior environmental performance at selected facilities on a facility-by-facility basis. As conceived, the cornerstone on which Project XL was to rest is negotiation among the regulators, the facility owners, and the affected community, resulting in a Final Project Agreement ("FPA") governing environmental performance at the facility. The underlying rationale for Project XL is the belief that, for appropriately selected (new and existing) facilities, such negotiations can produce a plan for limiting pollutant discharge from the facility that will both cost less and reduce environmental and public health risks more than would have been the case under existing regulations.[219] Although the program is still

the period of the waiver to assure that the health of persons will be protected from imminent endangerment." 42 U.S.C. § 7412(c)(1)(B)(ii) (1994). Although this was not an innovation waiver provision, Monsanto had planned to comply with the emission standard using a method that allowed recovery and reuse of benzene and other organic chemicals, and it used the waiver period to install and test that system. *See Monsanto*, *supra*, at 1203–05. Monsanto found, however, that the new system was not fully effective in meeting the standard, and it requested an additional waiver to allow installation of a carbon adsorption system to capture the residual benzene. *See id.* at 1203. EPA denied the request, noting that Monsanto could simply have chosen, at the outset, to fully comply through the installation a larger carbon adsorption system. *See id.* at 1205. Monsanto sought review, and the Seventh Circuit Court of Appeals held that EPA's refusal to grant the additional waiver time was arbitrary and capricious. In reaching this conclusion, the court noted that EPA's implicit preference for the carbon adsorption system (an end-of-the-pipe approach) was inconsistent with the agency's own pollution prevention policy, *see id.* at 1206, that the total waiver time requested by Monsanto was within the two-year time frame contemplated by the statutory waiver provision, *see id.* at 1207, and that Monsanto had acted in good faith, *see id.* at 1207. The court also stressed that EPA had the discretion under the statute to adopt a flexible approach that favors pollution prevention: "[I]f a company like Monsanto has a choice between two control strategies, the EPA has the authority to grant a waiver for a pollution prevention strategy even if that strategy would take slightly longer to implement than the less desirable strategy." *Id.* at 1207.

217. *See* BILL CLINTON & AL GORE, REINVENTING ENVIRONMENTAL REGULATION, CLINTON ADMINISTRATION REGULATORY REFORM INITIATIVES (1995).

218. *See* OFFICE OF POLICY, PLANNING AND EVALUATION, U.S. EPA, PRINCIPLES FOR DEVELOPMENT OF PROJECT XL FINAL PROJECT AGREEMENTS (1996).

219. Negotiation between the agency and the facility owner (sometimes also involving environmental groups and/or local community groups) is commonplace in the permitting process. Project XL negotiations are different, however, in that they purport to *replace* current standards with an alternative approach, while traditional permit negotiations generally regard the proper way to *apply* current standards to the facility in question. Thus, XL purports to be the negotiation of environmental *policy*, albeit on a facility-by-facility basis.

in its infancy, it is probably fair to say that it has been far from a clear success.[220] Few FPAs have been negotiated, and some of those that have are the subject of considerable debate and opposition.[221]

A fundamental problem with Project XL is that it envisions a kind of regulatory flexibility that has not been authorized by Congress.[222] Because it is not authorized by statute, the regulatory plan set forth in the negotiated FPA does not supersede existing regulations.[223] Thus, to the extent that the regulatory "flexibility" negotiated by the participants involves a failure to comply with certain regulations (even if it also involves outperforming certain other regulations), the facility will be operating in violation of the law. Additionally, since relief from existing regulations is precisely what makes this program attractive to the business community, most FPAs can be expected to involve violations of applicable environmental regulations. Indeed, one source reports that a current expression among EPA staff familiar with Project XL is that "if it ain't illegal, it ain't XL."[224] This makes Project XL an unsafe bet for the participating firm. Even if EPA and the state give informal assurances that they will not take enforcement action that is inconsistent with the FPA, the agencies cannot guarantee that such enforcement action will not be taken under the "citizen suit" provision of the applicable federal statute.[225]

In theory, the threat of a citizen enforcement suit was to be eradicated (or at least greatly minimized) by the inclusion of the affected community in the negotiation process. Yet this points to a second funda-

220. *See generally* Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103 (1998).

221. EPA Administrator Carol Browner announced on March 30, 1998, that seven FPAs had been negotiated as of that date, but she committed the agency to having a total of 50 XL projects underway by the end of 1999. *See* Susan Bruninga, *Browner Touts Reinvention Progress, Says 50 XL Projects Expected by Late 1999*, 28 Env't Rep. (BNA) 2529 (1998).

222. There has been some interest in Congress in passing legislation that would provide statutory authorization for Project XL agreements. *See Bill Would Give EPA More Authority Over Project XL* 28 Env't. Rep. (BNA) 1355 (1997).

223. Absent statutory authority to do so, an agency cannot insulate a regulated entity from the need to comply with relevant legal requirements. *See, e.g.*, Delaney v. EPA, 898 F.2d 687, 691 (9th Cir. 1990), *cert. denied* 498 U.S. 998 (1990) (holding that EPA may not extend the statutory deadline by which a state must meet ambient air quality standards under the CAA).

224. JAN MAZUREK, MAKING MICROCHIPS: POLICY, GLOBALIZATION, AND ECONOMIC RESTRUCTURING IN THE SEMICONDUCTOR INDUSTRY 171 (forthcoming 1999) (on file with authors).

225. Most federal environmental statutes, including CAA, CWA, and RCRA, have provisions that afford persons who are harmed by violations of the statute a right to enforce the law against the violator in federal court, and to seek injunctive relief (to secure compliance), civil penalties, and attorneys' fees, in situations where the agencies have failed to diligently enforce the law. *See* 42 U.S.C. § 7604 (1994) (CAA); 33 U.S.C. § 1365 (1994) (CWA); 42 U.S.C. § 6972 (1994) (RCRA).

mental problem with XL: the difficulty of defining the relevant "community." Is it limited to those living near the plant, or does it include national and regional environmental groups with an interest in the issue? Does it include labor? Does it include those who speak on behalf of the protection of sensitive populations, or on behalf of disadvantaged neighborhoods? These are high-stakes issues for two reasons.

First, any interested party who is excluded from the negotiation process is less likely to be satisfied with the result, and thus is more likely to challenge it, through a citizen enforcement suit, a public organizing and publicity campaign, or both. Probably the best-known Project XL agreement to date, for example, pertains to Intel Corporation's newest semiconductor production site in Chandler, Arizona. The five-year project agreement, which covers operations at a 720-acre site, was negotiated among the company, federal and state regulators, and five Chandler residents.[226] Although the participants presumably are satisfied with the FPA negotiated through this process, many non-participants are not. Two vociferous critics have been the Silicon Valley Toxics Coalition, a California-based group that addresses pollution problems in the semiconductor industry, and the Natural Resources Defense Council ("NRDC"), a national environmental group. These two groups, which are concerned about the national and industry-wide implications of this agreement as much as, if not more than, its local environmental impacts, have mounted a high-profile campaign against the Intel agreement, and against Project XL itself.[227] This level of opposition clearly indicates that the negotiating committee that devised the regulatory plan for the Intel facility was *not* representative of the "relevant" community.

Second, the composition of the negotiating committee is of obvious substantive importance as well. If important constituencies are inadequately represented, the agreement negotiated is much less likely to be the "right" result. The five community representatives who helped negotiate the Intel agreement were also members of a pre-existing Intel Community Advisory Panel, and were generally representative of a community sentiment that values the important role that Intel has played over the past sixteen years in helping transform Chandler from a small agrarian town into the third fastest-growing city in the United States.[228] While this obviously is a legitimate perspective, it may well not be the one that places environmental and public health protection (much less the

226. *See* MAZUREK, *supra* note 224, at 176.

227. An undated flyer circulated by the Silicon Valley Toxics Coalition to environmental activists throughout the country in 1996 states that "'Project XL' translates to 'EXtra Lenient' De-regulation." Silicon Valley Toxics Coalition, Coalition of Community, Environmental/Justice, and Labor Organizations Blast Clinton Administration "Sweetheart Deal" with Intel 1 (Nov. 1996) (unpublished pamphlet, on file with the *Harvard Environmental Law Review*).

228. *See* MAZUREK, *supra* note 224, at 167, 188.

health concerns of particularly sensitive populations) at the forefront. Indeed, the tendency of local groups to sacrifice long-term environmental and public health interests in favor of short-term economic gain was one of the factors that drove Congress to begin setting national pollution standards in the 1970s.[229]

One of the beliefs underlying Project XL is that sufficient public involvement and scrutiny at a site can greatly diminish the need for a national regulatory presence. This is unlikely to be the case, however, unless the "public" is broadly and fairly represented, and unless its "involvement" is truly meaningful. At the Intel site, it is not at all clear that the regulatory flexibility negotiated by Intel, such as relaxed permitting requirements for new product lines, is offset by "superior" environmental performance. While EPA concluded that the Intel plant will outperform certain regulatory requirements,[230] there appears to have been no showing that the facility will attain, much less outperform, the current state of the art for the semiconductor industry. For example, based on a comparison of projected hazardous air emissions from the new Intel facility to reported emissions from similarly sized semiconductor facilities from 1992 through 1994, EPA concluded that "Intel is well within, if not exceeding, the standard for the industry . . . ."[231]

> Had groups such as the Silicon Valley Toxics Coalition and the NRDC been involved as full-fledged negotiating participants at the Intel site, it is likely that any resultant FPA would have been substantively different from the one actually negotiated. It is questionable, however, whether Intel would have agreed to negotiate a FPA with such groups participating. Indeed, when these and other environmental groups requested that the Intel agreement be augmented with legally enforceable pollution prevention requirements, Intel was not receptive. "In a column in the 28 June 1996 *Washington Post*, Timothy Mohin, Intel's government affairs manager, asked in-

229. *See, e.g.*, RICHARD B. STEWART & JAMES E. KRIER, ENVIRONMENTAL LAW AND POLICY 336–40 (1978) (discussing the rationale for setting national air quality standards). *But see* Richard L. Revesz, *Rehabilitating Interstate Commerce: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992).

230. *See* OFFICE OF POLICY, PLANNING AND EVALUATION, U.S. EPA, RESPONSE TO COMMENTS ON INTEL'S FINAL PROJECT AGREEMENT 9–11 (1996).

231. *Id.* at 14. EPA went on to note, however, that Intel's commitment to comply with the Arizona Ambient Quality Guidelines for hazardous air pollutants, and to use conservative modeling assumptions in assessing compliance with these guidelines, "certainly provides a superior benefit." *Id.* at 14. This commitment appears to have been a tradeoff for Intel's having an aggregate emissions limit for hazardous air pollutants, instead of a specific emission limit for each such pollutant. *See id.* at 12.

credulously: 'Citizens are going to make decisions . . . that are binding on Fortune 500 Companies?'"[232]

Although this clearly does not represent the sentiments of all companies regarding all situations, the hesitancy that many firms would feel about participating in site-specific negotiations in which environmental groups were accorded equal status is another factor that would tend to limit the success of an initiative such as Project XL. In addition, meaningful involvement of the public, even where it is acceptable to the company, likely would extend considerably the time necessary to develop the FPA.

EPA's more recent statements indicate that the agency's enthusiasm for Project XL has been tempered.[233] Although it is not abandoning the XL initiative, EPA appears to have recognized that the site-specific negotiated solution is fraught with potential problems, and that, like negotiated rulemaking, it cannot be expected to be successful without a substantial commitment of time and resources.[234] A Project XL success story makes the point. In 1997, the agency completed negotiations on what has been characterized as a "small, focused" FPA involving an OSi Specialties organo-silicone plant on the Ohio River.[235] According to James A. Nortz, Senior Attorney for Witco Corporation (parent company of OSi Specialties), who participated in the process, the negotiations were "enormously burdensome" for the agency.[236] "Unless they can think of a more efficient way to do it," he opined, "I'd be surprised if the program survives."[237] To some degree, of course, the amount of time and resources that the agency currently devotes to a Project XL negotiation is a function of the relative novelty of the XL concept within EPA, the level of mistrust of the XL process within the environmental community, and the pressure on the agency to "make good" on its promise to deliver increased regulatory flexibility without sacrificing environmental goals. Even if Project XL were to one day become a routinized part of EPA's activities, however, one would expect the resource demand to continue to be substantial. Real negotiation of environmental policy, even if it is only the policy for a single facility, requires considerable effort.

232. Mazurek *supra* note 224, at 187 (quoting Cindy Skrzycki, *Some State Environmental Chiefs Want EPA Off the Stage*, WASH. POST, June 20, 1997, at G1).

233. *See* U.S. EPA, NEW DIRECTIONS: A REPORT ON REGULATORY REINVENTION 1–2 (1997).

234. *See id.*, at 1–2. However, EPA hopes to have 50 FPAs in place by late 1999. *See* Bruninga, *supra* note 221, at 2529.

235. *See* David J. Hanson, *An XL Project Goes Smoothly*, CHEM. & ENGINEERING NEWS, Dec. 8, 1997, at 18. The parties signed the FPA in October 1997, and EPA published a draft final rule implementing the agreement in March 1998. *See Project XL Accord Gives Regulatory Relief to Specialty Chemicals Plant in West Virginia*, 12 Toxics L. Rep. (BNA) 1194–95 (1998).

236. Hanson, *supra* note 235, at 19.

237. *Id.*

B. The Occupational Safety and Health Administration

Although the OSHAct gives OSHA a certain amount of discretion as to the manner in which it implements an occupational safety and health standard once the standard has been promulgated, the agency has been slow to use this discretion as a means of encouraging innovative technological change. Under specified circumstances, OSHA is authorized to grant either a temporary or permanent variance from an OSHAct standard.[238] Requests for variances, which are to be submitted and evaluated on an employer-by-employer basis, necessarily provide an opportunity for negotiations between the agency, the individual employers, and the affected employees.[239] Negotiations may cover the length, extent, and conditions of the variance.

Of particular interest is OSHA's authority under section 6 of the OSHAct to grant a variance from an occupational safety and health standard "whenever [the agency] determines that such variance is necessary to permit an employer to participate in an experiment approved by [OSHA] . . . designed to demonstrate or validate new and improved techniques to safeguard the health or safety of workers."[240] This broadly worded provision would appear to give the agency considerable discretion to give extended compliance time to employers who are endeavoring in good faith to perfect promising innovative technologies. Properly utilized and promoted by OSHA, this "experimental" variance provision could be a means of encouraging employers to commit resources to the development of cleaner, safer, and cost-effective workplace technology. It could also be used to promote industry-labor cooperation on technological change in the workplace. To date, however, the agency has largely ignored the opportunities that this provision of the Act affords.

238. *See* 29 U.S.C. § 655(b)(6)(A) (authorizing the grant of a temporary variance because of short-term unavailability of personnel or technology necessary to comply with the standard), 655(b)(6)(C) (authorizing the grant of an "experimental" variance to allow use of new and improved techniques), and 655(d) (1994) (authorizing the grant of a permanent variance as long as the employer adopts alternative means that "will provide employment and places of employment . . . which are as safe and healthful as those which would prevail if [the employer] complied with the standard").

239. The OSHAct mandates that employees be given an opportunity to participate when the employer requests a temporary or permanent variance. *See* 29 U.S.C. §§ 655(b)(6)(a) (specifying that a temporary variance "may be granted only after notice to employees and an opportunity for a hearing") & 655(d) (provindg that, after a request for permanent variance is received, "[a]ffected employees shall be given notice of such application and an opportunity to participate in a hearing") (1994). However, the process for granting an "experimental variance" is less formalized. OSHA is not required to provide an opportunity for a hearing, *see* 29 U.S.C. § 655(b)(6)(c) (1994), and more discretion is given to the agency. As a practical matter, however, it is unlikely that OSHA could make a meaningful determination about the health and safety potential of a new worksplace technology without involving workers in the process, and it would certainly appear to be within the agency's discretion to require that they be involved in the discussion regarding a requested variance.

240. 29 U.S.C. § 655(b)(6)(C) (1994).

V. NEGOTIATED COMPLIANCE

Roughly ninety percent of firms cited with noncriminal violations of federal environmental statutes in the United States resolve the matter through a negotiated settlement (rather than through an administrative hearing or court trial),[241] and the majority of OSHAct citations are resolved through settlement as well.[242] The settlement of an enforcement action often offers an agency an excellent opportunity to promote pollution prevention, rather than conventional end-of-pipe control technology. The firm's attention has been commanded, and a need for creative (and less costly) approaches to compliance may well have become apparent. Outside of the enforcement process, an agency has little statutory or regulatory authority to require firms to implement pollution prevention; the regulated community generally can choose the means by which it will comply with federal requirements. But once an enforcement action is initiated, a window of opportunity for pollution prevention opens, because the means of achieving compliance likely will be subject to negotiation between the agency and the violator.

A. The Environmental Protection Agency's Supplemental Environmental Project ("SEP") Program

EPA has sought to capitalize on this opportunity by encouraging the use of Supplemental Environmental Projects ("SEP"s) to promote pollution prevention. SEPs are environmentally beneficial activities that the violator agrees to perform and/or fund as part of its settlement with EPA, and that the violator is not otherwise legally required to perform.[243] In the settlement process, EPA and company attorneys typically agree both on a penalty and on a set of activities designed to achieve and maintain compliance. In 1991, EPA adopted a SEP policy authorizing agency enforcement personnel to reduce the amount of the penalty in exchange for the execution of a SEP.[244] Encouraged by initial results from this approach,

241. *See* OFFICE OF ENFORCEMENT AND COMPLIANCE, U.S. EPA, NATIONAL PENALTY REPORT, OVERVIEW OF EPA FEDERAL PENALTY PRACTICES, FY 1992 (1993).

242. In 1984, former OSHA lawyer Benjamin Mintz reported that approximately 90% of the cases taken to the Occupational Safety and Health Review Commission (an adjudicatory body that reviews appeals of OSHA citations) were settled. *See* MINTZ, *supra* note 199, at 484 n.10; *see also* GARY Z. NOTHSTEIN, THE LAW OF OCCUPATIONAL SAFETY AND HEALTH 496 (1981) ("The large majority of the cases in which a notice of contest is filed by an employer are settled."); MARK A. ROTHSTEIN, OCCUPATIONAL SAFETY AND HEALTH LAW 378 (1978) ("[A]bout 60 percent of all contested cases are disposed of without a hearing . . . ").

243. *See EPA Supplemental Environmental Projects Policy,* 29 Env't Rep. (BNA) 78–79 (1998) [hereinafter 1998 SEP Policy].

244. *See Policy on the Use of Supplemental Environmental Projects in EPA Settlements*, 25 Envtl. L. Rep. (Envtl. L. Inst.) 35,607 (1991).

the agency has revised and expanded its SEP policy since that time.[245]

The key to the SEP policy is the tradeoff between penalties and SEPs. Current EPA penalty policy anticipates that, unless the SEP policy is invoked, the penalty assessed in any enforcement action will be the sum of (a) the amount of the *economic benefit* gained by the violator as a result of non-compliance (typically, the investment earnings from delayed capital expenditures, together with any avoided operation and maintenance costs), and (b) a *gravity* component (calculated according to agency guidelines) that is meant to reflect the relative seriousness of the violations.[246] Under the present SEP policy, SEPs may be used to reduce this amount, so long as the final penalty paid is at least as large as what EPA characterizes as the *minimum penalty*: the greater of "(a) the economic benefit of non-compliance plus 10 percent of the gravity component or (b) 25 percent of the gravity component."[247]

Currently, there are seven categories of acceptable SEPs: public health, pollution prevention, pollution reduction, environmental restoration and protection, assessments and audits, environmental compliance promotion, and emergency planning and preparedness.[248] The key feature linking these various categories is the expectation that the project will result in some benefit to the environment or public health. Some SEPs, such as an off-site stream restoration project, offer direct, predictable public benefits while returning no direct benefit to the violator. Others, such as an agreement by the violator to conduct a comprehensive environmental audit of its facility, offer potential (and far less predictable) benefits both to the public and to the violator. In general, pollution prevention SEPs, which involve expenditures by the violator to implement technology or practices that reduce its generation of pollution, offer the greatest potential for the development of innovative production technologies and practices with widespread application.

245. The most recent version became effective on May 1, 1998. *See supra* note 243.

246. The calculation process is explained in Peter Rosenberg et al., *EPA's Revised SEP Policy and the Negotiation of P2 SEPs*, POLLUTION PREVENTION REV., Autumn 1995, at 1, 4–5, which is a discussion of the workings of the SEP policy (with an emphasis on pollution prevention) written by EPA personnel. *See also* 1998 SEP Policy, *supra* note 243, at 83–85. It should be noted, however, that it is the experience of the authors of this Article that, in practice, even when no SEP is involved, the actual penalty number negotiated between EPA and the violator often is less than the sum of these two factors.

247. 1998 SEP Policy, *supra* note 243, at 83. A smaller minimum amount may be allowed for a municipality. *See id.* at n.13.

248. These seven categories were articulated in the 1995 revisions to the SEP Policy, *see* Rosenberg et al., *supra* note 246, at 2–3, and were retained in the 1998 version, *see* 1998 SEP Policy, *supra* note 243, at 80–82. In addition, the 1998 version adds a nonspecific eighth category entitled "Other Types of Projects," which is meant to encompass those projects which may not fit under any one of the seven specified categories but which nonetheless may be acceptable as SEPs. *See* 1998 SEP Policy, *supra* note 243, at 82. Any such project "may be accepted with the advance approval of the [EPA's] Office of Enforcement and Compliance Assurance." *Id.*

So long as the penalty does not fall below the acceptable minimum, EPA will (depending on the assessed merits of the project) credit up to eighty percent of the after-tax cost of most approved SEPs (net of any savings, such as reduced operations costs, that the SEP may offer to the violator) against the amount of the penalty.[249] In order to encourage certain types of projects, however, the agency revised its policy in 1995 to offer a credit of up to 100% for SEPs judged to be "of outstanding quality" according to a set of specified criteria.[250] Two of the six criteria specified in the most recent version of the SEP policy are: (a) the extent to which the project develops or implements pollution prevention techniques or practices; and (b) the extent to which the project develops or implements innovative technological approaches.[251]

EPA reports that, between Fiscal Years 1992 and 1994, it negotiated more than 700 SEPs.[252] Of these, approximately fourteen percent were pollution prevention SEPs, with an estimated total value of approximately $57 million.[253] EPA estimates that these pollution prevention SEPs will reduce the discharge of toxic chemicals and the production of hazardous waste by a total of some 65 million pounds.[254]

A case study analysis of ten pollution prevention SEPs negotiated by EPA through Fiscal Year 1992, selected because they reflect a range of noteworthy technological responses in several EPA regions, found that the technologies utilized included chemical substitution, process change, and closed-loop recycling.[255] Representatives from nine of the ten firms

249. *See* 1998 SEP Policy, *supra* note 243, at 84; *see also* Rosenberg et al., *supra* note 246, at 4–5.

250. Five criteria were specified in the 1995 policy: (1) benefits to the public or environment at large; (2) pollution prevention; (3) innovativeness; (4) environmental justice; and (5) multimedia impacts. *See* Rosenberg et al., *supra* note 246, at 5. In 1998, a sixth criterion, community input, was added. *See* 1998 SEP Policy, *supra* note 243, at 84.

251. *See* 1998 SEP Policy, *supra* note 243, at 84.

252. *See* Rosenberg et al., *supra* note 246, at 2.

253. *See id.* Although the percentage of pollution prevention SEPs may seem small, that percentage probably (at least) doubles if one excludes the SEPs negotiated by EPA's Office of Mobile Sources, which, because of the nature of the regulated community, are not likely to involve pollution prevention SEPs. In Fiscal Year 1992, for example, EPA negotiated 409 SEPs, and 187 of these were negotiated by EPA's Office of Mobile Sources. If one looks only at the 222 SEPs that were not mobile sources SEPs, the percentage of pollution prevention SEPs for that year was 28%. *See* Monica Becker & Nicholas Ashford, *Exploiting Opportunities for Pollution Prevention in EPA Enforcement Agreements*, ENVTL. SCI. & TECH., May 1995, 220A, 221A.

254. *See* Rosenberg et al., *supra* note 246, at 8 n.3.

255. *See* Becker & Ashford, *supra* note 253, at 222A. One of the settlements did not involve a SEP per se, but rather was an enforcement settlement that used pollution prevention as the compliance method. *See id.* at 221A. Of the 10 settlements studied, 5 involved reporting violations under section 313 of the Emergency Planning and Community Right-to-Know Act ("EPCRA") (Form R, Toxics Release Inventory data reporting), 2 stemmed from CWA violations, 1 from a CAA violation, and 1 from a RCRA violation. The predominance in the study sample of EPCRA cases involving failure to report toxic emissions on a Form R reflects the relatively large number of EPCRA 313 settlements in the larger sample population. *See id.* at 222A.

involved expressed support for the SEP policy.[256] They indicated that they were glad to have had the option to implement a pollution prevention project in exchange for some penalty reduction, and noted their belief that the SEPs took some of the "sting" out of the enforcement process without eliminating the significant economic and psychological impacts of the enforcement action.[257] Several company representatives also stated that the SEP process helped their firm to recognize other opportunities for environmentally beneficial improvements.[258]

The technological changes undertaken by firms through pollution prevention projects can be categorized according to the locus of the change and according to the degree of innovation. The majority of technological changes made by the SEP case study firms were diffusion-driven.[259] There were also some incremental innovations, but only one case involved a major innovation.[260] Technological changes were quite evenly distributed across the spectrum of primary, secondary, and ancillary processes.[261] If a random case-study selection process had been used, the sample would have been more heavily weighted toward diffusion-driven changes to ancillary production processes.[262] The larger universe of EPA settlements containing pollution prevention consisted mainly of the adoption of off-the-shelf technologies.[263] This suggests there are unexploited opportunities in enforcement for stimulating innovative technological change. Realization of this potential likely would require changes in attitudes and knowledge levels, both within industry and within EPA. One move in this direction has been the agency's more recent willingness to allow up to two years for the completion of selected

256. *See id.* at 226A.

257. *See id.*

258. *See* U.S. EPA, RECENT EXPERIENCES IN ENCOURAGING THE USE OF POLLUTION PREVENTION IN ENFORCEMENT SETTLEMENTS, FINAL REPORT IV-37 to IV-39 (1995).

259. *See* Becker & Ashford, *supra* note 253, at 224A.

260. *See id.*

261. *See id.* The distinction between primary, secondary, and ancillary manufacturing and production processes is an important one for innovation. An example in the context of casting and plating metal screws makes the point. The primary process is the casting of the screw. The secondary process is electroplating. The ancillary process is cleaning or degreasing the screw using organic solvents. If the latter activity creates the environmental problems facing the firm, it might be relatively easy for the firm to search for and find an alternative, non-polluting cleaning process, and no innovation would be required. If it is the electroplating process that needs to be modified, the firm may have to adapt a new process, such as an alternative plating technology that has been used successfully at other facilities. There may be resistance to this change, as the firm might well be uncomfortable about discarding a proven method, and taking a chance on altering the appearance of its product. The most resistance could be expected to be generated in response to a need to change the primary process. Here innovation might be necessary, and the firm would not be likely to invest in developing an entirely new casting process merely to reduce a penalty.

262. *See* Becker & Ashford, *supra* note 253, at 224A.

263. *See id.*

pollution prevention SEPs,[264] as a longer-term time window is essential if more significant innovation is to take place.

B. The Occupational Safety and Health Administration

Although OSHA has made a programmatic effort to encourage a cooperative approach to enforcement at certain worksites,[265] it has not taken full creative advantage of the opportunities for negotiation that naturally occur in enforcement situations. As with negotiated implementation, there is much that the agency could do here to encourage advances in workplace practices and technology. For example, rather than simply issuing a citation and imposing a fine for a violation, OSHA could use the enforcement process to create incentives for employers to design and implement both pollution prevention programs and "inherent safety" programs to reduce the potential for chemical accidents.[266] While the development of any such initiatives by OSHA must maintain a disincentive to violate, there is no reason why flexibility in enforcement need be incompatible with the integrity of enforcement. OSHA's existing cooperative compliance programs might provide a framework on which initiatives of this nature could be built. Moreover, OSHA could draw from, and perhaps improve on, EPA's extensive experience with SEPs.[267]

264. *See* Rosenberg et al., *supra* note 246, at 9 n.13 (noting that "[a]s a general rule, both sides prefer SEPs that can be completed within two years"). In contrast, it is the understanding of the authors of this Article that, at the time the case study was conducted, it was the general policy within the agency that SEPs were to be completed within one year.

265. *See, e.g.*, OSHA Primary Inspection Targeting and Cooperative Compliance Programs (CCPs), OSHA CCP Concept Paper (June 24, 1997) (unpublished manuscript, on file with the *Harvard Environmental Law Review*). Under these cooperative compliance programs, OSHA selects certain employers and offers them "a choice between a cooperative interaction with OSHA or traditional enforcement." *Id.* at 1. If the employers choosing the cooperative approach "work cooperatively with OSHA to identify and correct workplace hazards, reduce their illness and injury rates, and implement a safety and health program," they are given compliance assistance and reduced inspections. *Id. See also* John Mendeloff, A Preliminary Evaluation of the "Top 200" Program in Maine, Report to the Office of Statistics, OSHA, U.S. Dept. of Labor 1 (Mar. 1996) (unpublished manuscript, on file with the *Harvard Environmental Law Review*) (describing an OSHA program in the State of Maine that "tries to enlist firms in a collaborative effort to introduce or improve comprehensive safety and health programs").

266. *See, e.g.*, ASHFORD & CALDART, supra note 177, at 522–24 (discussing the primary accident prevention—"inherent safety"—approach and comparing it with pollution prevention).

267. It should be noted that, while EPA has been specifically directed to place a programmatic emphasis on pollution prevention, *see* Pollution Prevention Act, *supra* note 100, OSHA has been given no similarly specific congressional mandate. Without question, however, a programmatic emphasis on pollution prevention, emphasizing those approaches (such as chemical input substitution and good housekeeping practices) that help to reduce worker exposures, would be consistent with the OSHAct's general mandate "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions . . . ." 29 U.S.C. § 51(b) (1994). Further, OSHA, like EPA, has been given a specific directive to place a programmatic emphasis on chemical accident prevention. *See* 42 U.S.C. § 7412(r) (1994) (CAA provision governing accidental releases of hazardous chemicals); *see also* ASHFORD & CALDART, *supra* note 177, at 524–28 (discussing responsibilities and authorities of OSHA and EPA under this CAA provision).

VI. REGULATORY REINVENTION: EPA'S "COMMON SENSE" INITIATIVE

Under the Clinton Administration, EPA has determined that fundamental changes in approach will be necessary if significant additional progress in protecting the environment is to be made, and if the environmental challenges of the future are to be resolved satisfactorily. The agency refers to this as the need for "regulatory reinvention."[268] In July 1994, EPA began its Common Sense Initiative ("CSI"), which it has termed the "centerpiece" of its regulatory reinvention efforts.[269] The primary goals of CSI are to find "cleaner, cheaper, smarter" ways of reducing pollution, and to formulate proposed changes in the existing regulatory structure to effectuate them.[270] As with Project XL, negotiation among interested parties is the means by which EPA hopes to achieve the goals of the program. Unlike Project XL, however, the focus of the negotiations is industry-wide. To carry out CSI, the agency has assembled six advisory committees, one for each of six industrial sectors: automobile manufacturing, computers and electronics, iron and steel, metal finishing, petroleum refining, and printing.[271] Each advisory committee consists of representatives from EPA, the relevant industry sector, state and local regulatory agencies, national and local environmental groups, labor, and community organizations.[272] The work of these committees is overseen by a separate council, whose membership is drawn from the same sources.[273] The council is chaired by the EPA Administrator, and each of the six sector committees is chaired by an EPA official.[274] The work of the council and the committees is assisted by EPA staff.[275]

This industry-sector structure is based on a fundamentally sound premise: that, for a variety of reasons, different industries often differ in their technological and economic potential for reducing pollution, and also in the way in which they respond to various types of regulatory sig-

268. *See* U.S. GEN. ACCOUNTING OFFICE, REGULATORY REINVENTION: EPA'S COMMON SENSE INITIATIVE NEEDS AN IMPROVED OPERATING FRAMEWORK AND PROGRESS MEASURES 4 (1997) [hereinafter GAO REPORT]. Project XL is also considered by EPA to be part of this regulatory reinvention program. As discussed in Part IV.A.2 above, however, the focus of XL is not on reinventing the regulations themselves, but rather on affording increased flexibility in the implementation of the regulations with regard to particular facilities. The CSI, discussed here, is a much more broad-based, and potentially much more far-reaching, approach.

269. *See id.* at 4.

270. *See id.* at 12–13.

271. *See id.* at 13.

272. *See id.* at 13–14.

273. *See id.*

274. *See id.*

275. *See id.* at 14. The council and committees are organized under, and are subject to, FACA, *see supra* note 8.

nals. By bringing together people who are knowledgeable about the opportunities for reducing pollution within a particular industry, and who have a stake in how, when, and under what terms that reduction will occur, EPA hoped to harness the potential of each industry to a fuller extent than it had heretofore been able to do. The agency also hoped that, by creating an atmosphere in which innovation and flexibility were emphasized, the focus of the committees would be on pollution prevention rather than end-of-pipe pollution control.[276] If the CSI approach proved to be a success, EPA also hoped to expand the initiative to other industry segments in the future.[277]

Thus far, the results of the CSI experiment have been mixed. On the one hand, as EPA points out, the initiative has brought together six groups of people representing a diverse set of interests and has encouraged an ongoing dialogue on issues that are important to the future development of environmental policy. As summarized by EPA:

> In that regard a very significant, but non-quantifiable, accomplishment of CSI has been reducing barriers between formerly adversarial parties. A major success of CSI has been getting the parties to the table, getting them to agree to talk, getting them, in fact, to engage in substantive discussions on issues in a mutually respectful manner, and having the parties willingly agree to continue to invest their own time and energy to maintain and enhance the discussions.[278]

This is a valid point. If CSI succeeds at nothing more than promoting a better understanding of the issues, and of each other, among those likely to participate in environmental policy-making and implementation affecting these industries, it arguably will have had a positive impact.

On the other hand, however, CSI has been criticized for its lack of substantive results. A series of reviews of CSI have raised this issue, including a 1997 report issued by the U.S. General Accounting Office ("GAO"), a research arm of Congress.[279] One of GAO's primary conclusions is that

276. *See* OFFICE OF THE ADM'R, U.S. EPA, COMMON SENSE INITIATIVE: ADMINISTRATOR'S UPDATE 1 (1994).

277. *See id.*

278. Letter from J. Charles Fox, Assoc. Adm'r, Office of Reinvention, U.S. EPA, to Peter F. Guerrero, U.S. Gen. Accounting Office (Jul. 3, 1997), *reprinted in* GAO REPORT, *supra* note 268, at 47.

279. *See* GAO REPORT, *supra* note 268; *see also* THE SCIENTIFIC CONSULTING GROUP, INC., REVIEW OF THE COMMON SENSE INITIATIVE, (1997) (an outside review commissioned by EPA); HOUSE COMM. ON TRANSP. AND INFRASTRUCTURE, U.S. CONGRESS, AN ASSESSMENT OF EPA'S REINVENTION (1996); J. CLARENCE DAVIES & JAN MAZUREK, INDUSTRY INCENTIVES FOR ENVIRONMENTAL IMPROVEMENT: EVALUATION OF U.S. FEDERAL INITIATIVES (1996); OFFICE OF INSPECTOR GEN., U.S. EPA, EPA FACA COMMITTEES' COST INCREASE (1996).

> [i]n the almost three years the Initiative has been under way, it has produced three formal recommendations to EPA, none of which has suggested the types of changes in the existing approach to environmental management that EPA expected.[280]

In general, GAO and other reviewers have found that the CSI process moves considerably more slowly than many of the participants would like.[281] The reasons for CSI's slow pace, GAO found, have been manifold: the time necessary to collect and analyze data; the variations in the participants' understanding of the technical issues involved; the time taken by the participants "in reaching consensus on the approaches needed to address large, complex issues or policies"; the time taken by participants "discussing how they would carry out their work and developing their own operating standards;" and the difficulties experienced by some participants in making the necessary time commitment.[282] None of this should be particularly surprising. Indeed, when one adds to this list the overall need to establish a degree of trust among the participants in each sector group sufficient to permit a meaningful discussion on substantive issues, it is not difficult to understand why substantive progress has been slow in coming. Indeed, the fact that the Initiative is still moving forward is itself a measure of progress of some import.

Nonetheless, there appears to be a growing feeling among participants that a failure to increase the pace of substantive progress meaningfully in the near future could be the death-knell of the Initiative.[283] The automobile and petroleum refining industries have ended their participation, and other participants have indicated that they will leave unless EPA makes changes which yield a more efficient process.[284] To address this issue, GAO has proposed that EPA

> provide an improved operating framework that (1) more clearly defines the Initiative's "cleaner, cheaper, smarter" environmental protection goal—including its expected results—and (2) specifies how the Council and its subcommittees and workgroups will accomplish their work, clarifying issues such as how and when consensus will be achieved, how the Initiative's goal should be interpreted and applied to individual projects, and to what extent representatives of all

280. GAO REPORT, *supra* note 268, at 5.

281. *See, e.g.*, Vincent LeClair, *'Common Sense' Reform Initiative Falters*, 13 ENVTL. SCI. & TECH. NEWS 222A (1997).

282. GAO REPORT, *supra* note 268, at 5. For a detailed discussion of these factors, see *id.* at 19–25.

283. *See* LeClair, *supra* note 281.

284. *See id.*; *see also* GAO REPORT, *supra* note 268, at 25–26. In addition, "several environmental-justice groups and all the representatives from the state of Michigan" have withdrawn from the CSI negotiations. Mazurek, *supra* note 224, at 156.

stakeholder groups should be included in activities at each level of the Initiative, including its projects and workgroups.[285]

EPA has indicated that it will introduce reforms of this nature,[286] but GAO faults the agency for not having done much of this at the outset. It is not at all clear, however, that this would have been the right approach. It is arguable that, had EPA attempted to dictate terms of this nature to the participants at the beginning of the process, rather than allowing the participants to first address these issues on their own, it would have engendered considerable resentment among some of the participants. Now, armed with numerous meetings' worth of information from the participants as to their thinking on these issues—what is generally agreed to work well and be appropriate, what is generally agreed to work poorly and/or not be appropriate, and what areas will require judicious further definition from the agency—EPA is in a position to help create a better framework to help guide these (wholly voluntary) participants.

Moreover, the changes envisioned by GAO are unlikely to address the more deep-seated issues that have slowed or prevented substantive results along the lines originally anticipated by EPA. It is likely that a major factor inhibiting real progress is the fact that, in contrast to negotiated rulemaking, the CSI negotiations are not proceeding within a formal legal context, with a known and meaningful set of potential consequences. In negotiated rulemaking, the participants all know that, regardless of whether they reach agreement on a proposed rule, a rule is likely to be issued eventually. The "stakes" for the participants thus are fairly clear; if they do not negotiate, the agency likely will promulgate a regulation without them, and the result may be something they will not like. In the CSI negotiations, however, the consequences of inaction are likely to be both far less clear and far less dramatic. Indeed, in most cases, the failure of a negotiating committee to agree on a particular "regulatory reinvention" proposal will have no greater practical effect than simply the preservation of the status quo.[287]

285. GAO REPORT, *supra* note 268, at 7.

286. Reportedly, EPA stated in an October 31, 1997, letter to Rep. Dan Burton, chairman of the House Government Reform and Oversight Committee, that the agency agreed with the GAO recommendations and would institute reforms designed to implement them. *See* Susan Bruninga, *Statutory Limits, Mandate for Consensus, Among Barriers to Reinvention, Panel Told*, 28 Env't Rep. (BNA) 1350, 1351 (1997); *see also* Susan Bruninga, *supra* note 221, at 2530 (reporting that Charles Fox, head of EPA's Office of Reinvention, told the House Commerce Subcommittee on Oversight and Investigations on November 4, 1997, that EPA planned to adopt all of the GAO recommendations).

287. In explaining why the State of Michigan decided to leave the CSI negotiations, Michigan Department of Environmental Quality Director Russel Harding reportedly told the House Commerce Subcommittee on Oversight and Investigations on November 4, 1997, that "too many stakeholders have too much invested in the *status quo* to agree to any real change." Susan Bruninga, *supra* note 221, at 2530.

Accordingly, the chief factor likely to be motivating industry's participation in the CSI negotiations is the opportunity to push for regulatory alternatives that are less expensive (to industry) than the status quo.[288] Industry's interest, then, is likely to be in streamlining or eliminating current regulation, and not in extending the scope of regulation into new areas. This is the experience described by Lois Epstein of the Environmental Defense Fund, who is a member of the petroleum refining work group. "[Epstein] said many in the group wanted to look at leaking above-ground storage tanks, an area not regulated by EPA, but industry would not agree to that. 'You need some sort of stick to get the petroleum industry to talk,' she said."[289] Additionally, since the environmental representatives should not be expected to agree to a cheaper alternative if it does not also represent increased environmental benefit, progress may be slow in coming, especially in those industry sectors where few easy and obvious "win/win" (i.e., cheaper *and* cleaner) regulatory improvements present themselves.

Thus, it should not be surprising that the petroleum and automobile industries decided to abandon their participation in the Initiative. Effective participation in negotiations of this nature takes a considerable commitment of resources. As noted by the American Petroleum Institute in a letter to EPA explaining the withdrawal of its member companies from the CSI negotiations, the companies "believe the refining industry's resources and those of EPA and the states can be more productively directed toward other approaches."[290] As summarized more bluntly by Epstein, "[t]hey pulled out because for them it is not the most effective way of getting what they want."[291]

Another systemic problem one would expect to encounter in negotiations of this nature stems from the participants' unequal access to relevant data. If effective strategies to encourage pollution prevention are to be crafted by consensus, reliable technical information, especially information relating to the technological potential for pollution prevention, is likely to be important. Much of the relevant data, of course, will be in the hands of industry. Without a clear incentive to make the data available to the other participants, industry is likely to pick and choose what it will share, making meaningful negotiations all the more difficult. This reportedly has been a major issue, for example, in the computer and electronics work group. Companies reportedly have been reluctant to divulge information because "they feared that regulators would use the data to extract further concessions[,]" and because they believed that environmental

288. As noted by GAO, "[i]n carrying out the Initiative, 'cleaner' is seen as the principal interest of the environmental representatives, and 'cheaper' is seen as the principal interest of the industry representatives." GAO REPORT, *supra* note 268, at 23–24.

289. LeClair, *supra* note 281, at 222A.

290. *Id.*

291. *Id.*

groups would "use information divulged during CSI meetings to mount lawsuits."[292] This, in turn, contributed to a sense of mistrust among the environmental group participants.[293]

This is not to say that CSI is not likely to produce any meaningful results of substance. There are cleaner/cheaper opportunities in a number of industries that may be able to be realized without the "push" of additional regulatory pressure, and CSI can be expected to bring some of these to light. The metal finishing work group, for example, began a successful demonstration of a new technology for filtering chromium from air releases that is expected to decrease chromium emissions while also reducing costs by about ninety percent,[294] and has announced agreement on an emission reduction program that may well rely, in part, on pollution prevention strategies.[295] In addition, the printing work group has been developing an education and outreach project designed "to achieve fundamental change . . . [by] incorporat[ing] the philosophy of pollution prevention into everyday work practices . . . ."[296] In general, however, the

292. Mazurek, *supra* note 224, at 157.

293. *See id.*

294. *See* LeClair, *supra* note 281, at 223A.

295. Metal finishing is a prime example of an industry sector where creative negotiation would be expected to encourage pollution prevention, as pollution prevention methods (such as a "closed loop" recycling process for metals) have already been well-demonstrated within the industry. *See, e.g.*, Michael Berube et al., *Case Study: From Pollution Control to Zero Discharge: How The Robbins Company Overcame the Obstacles*, POLLUTION PREVENTION REV., Spring 1992, 189 (discussing the installation of a closed-loop metals recovery system at a metal finishing facility). Under the Metal Finishing Strategic Goals Program, which was announced by EPA and the metal finishing work group on October 27, 1997, and has not yet been implemented, participating firms would commit to individual reductions designed to achieve the following total reductions in emissions by the entire industry sector by 2002: reduce volatile organic compound ("VOC") emissions to the air from 8000 tons to 2200 tons; reduce VOC discharges to the water from 250 tons to 70 tons; reduce copper discharges to the air from 60 tons to 36 tons; reduce copper discharges to the water from 173 tons to 104 tons; and reduce hazardous sludge from 500,000 tons to 300,000 tons. *See* Susan Bruninga, *Metal Finishers, EPA Agree on Strategy to Cut Pollution, Costs, Conserve Energy*, 28 Env't Rep. (BNA) 1295 (1997). EPA, in turn, would make changes in reporting, permitting, and monitoring requirements that reportedly would reduce the firms' environmental administrative costs by 50%. *See id.* Among other goals of the program are a 50% reduction in water use, a 25% reduction in energy use, and a "98% efficiency in use of metals on products." *Id.* This last goal suggests a commitment to achieving reductions in metals emissions through improvements in the production process itself, a keystone of pollution prevention. However, EPA reportedly also stated that, "in the near term," the agency "will consider reforming [RCRA hazardous waste] regulations to allow metal finishing facilities to recover their metal wastes onsite . . . ." *Id.* This suggests, at least in the short term, more of a commitment to waste recycling than to true process change. *See also* Susan Bruninga, *January Goal Set for Compliance Plan on Metal-Finishing Sector Reinvention*, 28 Env't Rep. (BNA) 1668 (1998) (describing further details of the metal finishing program).

296. GAO REPORT, *supra* note 268, at 45. *See also id.* at 38–39. The printing work group reportedly reached agreement on May 29, 1998, on "elements of a possible pilot program" known as the "Printers' Simplified Total Environmental Partnership (PrintSTEP) pilot program . . . ." Angela Baggetta, *Basis for Printer Pilot Program Devised; Two Outstanding Issues to Be Resolved*, 29 Env't Rep. (BNA) 324 (1998). The focus of the proposed pilot program would be on providing regulatory flexibility to the printing industry

bulk of the CSI negotiations thus far reportedly have not focused on pollution prevention strategies.[297] If this does not change, the CSI experiment will have fallen well below EPA's original goals.

VII. CONCLUSION

Negotiation should hardly be viewed as a panacea for the various difficulties that typically confront the policy-maker. Used in the right context, however, negotiation can be a useful tool in the establishment, implementation, and enforcement of environmental and occupational health and safety policy. Negotiation can facilitate a better understanding of issues, concerns, facts, and positions among adversaries. It can also promote the sharing of relevant information, and can provide an opportunity for creative problem-solving. Whether negotiation will be better than other, generally more adversarial, mechanisms as a means of fostering improved environmental, health, and safety outcomes, or of stimulating meaningful technological change, will depend on the situation in which it is used. In general, negotiation would appear to work best as a means of securing these goals in situations in which the necessary regulatory signals for improvement and innovation are already in place.

This is one of the reasons that EPA's use of *negotiated compliance*, as embodied in its SEP policy, has been as successful as it has been. To the firm that is the target of the enforcement action, the "stakes" are clear; so long as it believes it faces higher costs (in the form of a larger fine and/or higher transaction costs and/or adverse publicity) if it does not identify and execute a SEP that is acceptable to EPA, the firm has a meaningful incentive to participate in good faith in the SEP process. Additionally, because the agency has structured the program to allow maximum credit for pollution prevention projects, pollution prevention can become the focus, and the goal, of the negotiations. The pollution prevention results of the SEP program have been relatively modest—mostly diffusion and, sometimes, incremental innovation—but this is in keeping

by reformulating regulations to place the emphasis on multi-media performance. *See id.* However, there reportedly is dissatisfaction within the printing work group, especially among environmental justice representatives, regarding aspects of the program, *see id.* at 325, and it is not clear when, or if, the program will become fully defined and functional. Moreover, although an emphasis on multi-media evaluation could lend itself to a concomitant emphasis on pollution prevention, it is not clear that a pollution prevention focus will emerge.

297. As described by one source, "most of CSI's six sectors have proposed pilot projects that represent incremental improvements possible under the extant regulatory system. These projects are largely designed to reduce paperwork requirements, to improve permitting, and to promote waste reduction through recycling and reuse efforts, rather than pollution prevention." MAZUREK, *supra* note 224, at 155. *See also* GAO REPORT, *supra* note 268, at 43–45 (noting only that only three of the fifteen projects chosen for study by GAO appear to have a clear pollution prevention focus).

with the relatively modest nature of the financial incentives typically involved, and with the relatively short time period within which the SEP typically must be identified and completed. Especially because negotiation is the traditional means of resolving enforcement disputes, even outside of the SEP process, negotiation appears to work well here. OSHA would be well-advised to design a policy of its own to take advantage of the opportunities for positive technological changes that arise in appropriate enforcement situations.

One would also expect negotiation to work well in those *negotiated implementation* situations that have a clear, formal focus on technological change, such as the innovation waiver opportunities created by certain environmental statutes and the "experimental" variance authorized by the OSHAct. The chief signal to innovate—the new regulatory standard—is already in place (or clearly on the horizon) before negotiation over the waiver or variance begins, and the statutes typically provide an extended period of time for the firm to develop and test the proposed innovation. Thus, so long as the new standard is stringent enough to command the firm's attention, firms should have a meaningful incentive to negotiate time to pursue an innovative compliance alternative.

The fact that EPA's innovation waiver program has thus far not lived up to expectations appears largely due to a failure of administration. This, in turn, may have contributed to what appears to be an unwillingness by Congress to include innovation waiver provisions in its revisions to existing statutes. If EPA could develop and promote its innovation waiver program the way it has the SEP program, the innovation waiver might become a much more important means of securing environmentally beneficial technological change. Similarly, although OSHA has not made significant use of its experimental variance authority in the past, there is good reason to believe that this provision could be a force for technological change. OSHA should develop a set of criteria to help define those situations in which a variance of this nature could be used productively, and should publicize the availability of this option when it promulgates a standard. The agency should then work with employers and unions to help them identify opportunities for innovative technological responses.

In contrast to negotiated compliance and negotiated implementation, *negotiated rulemaking* is a situation in which the chief regulatory signal for improvement and innovation is not already established, at least not in full. Rather, one of the functions of negotiation in this context is to establish, either in part or in full, the stringency of the regulatory standard. If the goal is innovation, this may well be problematic. If the nature of the regulated industry is such that it will require a dramatic impetus, such as the promulgation of an unexpectedly stringent standard (or the fear that such a standard will be promulgated) before it will be motivated to innovate, negotiated rulemaking may well be inadvisable. Since negotiated rulemaking seeks consensus among the participants, and since such an industry is unlikely to agree to a standard that it views as having a "dramatic" impact, negotiated rulemaking is unlikely to produce a standard of this nature. In such situations, negotiated rulemaking's focus on consensus can effectively remove the potential to spur innovation.[298]

In situations in which the desired technological change is likely to come more easily, negotiated rulemaking should be expected to have a better chance of success. Here, the advantages of negotiation, such as information-sharing and creative problem-solving, may work to encourage productive technological change. The key to the willingness of industry representatives to explore the technological options in good faith is likely to be tied to what they perceive the likely "default" standard to be. If they believe that, in the absence of a negotiated rule, the agency will promulgate a stringent rule on its own, their willingness to focus on creative technological solutions is likely to be higher. The agency can facilitate this process by making clear at the outset that promoting technological change will be a focus of the regulation. If technologically literate stakeholders, such as certain trade unions or sophisticated nonprofit groups, are involved, the dominance of industry's technical expertise may be minimized, and outcomes that advance the state of the technology may emerge.

Another important difference between negotiated rulemaking and negotiations over SEPs and innovation waivers, however, is that the scope of the negotiations in negotiated rulemaking is (at least) industry-wide, rather than firm-specific. Interest in the negotiations thus is much stronger, and the number of participants who must be involved, if the negotiations are to succeed, is an order of magnitude higher. Accordingly, management of the negotiation process becomes a formidable task, and the agency must have the resources to be able to keep pace. There is always the risk that the process itself, and not the ultimate results of the process, will assume center stage, and that a focus on technological change will give way to a focus on achieving consensus.

Many of these same concerns will be at hand when negotiation is used in an *extra-statutory* sense, as it is now being used in EPA's Project XL and Common Sense Initiative, in an attempt to change regulatory policy. If the focus is industry-wide, as it is with CSI (and is often perceived to be with Project XL), the resource demands will be large. Further, where there is no meaningful incentive for industry negotiators to move away from the *status quo*—that is, where there is no impending "default" standard or requirement that they perceive as onerous—they

298. For an international study that makes this point, see ANDREW GOULDSON & JOSEPH MURPHY, REGULATORY REALITIES: THE IMPLEMENTATION AND IMPACT OF INDUSTRIAL ENVIRONMENTAL REGULATION (1998) (comparing the technology-forcing success of two regulatory systems, one of which—that of the United Kingdom—tends to rely on a consensus-based approach, and the other of which—that of the Netherlands—does not).

may well be interested only in those regulatory changes that save them money.

In the last analysis, it must be recognized that negotiation is a process that facilitates *market solutions* to questions regarding the appropriate ends or means of compliance. That is, the relative bargaining power of the stakeholders largely determines the outcome, unless it is checked at the end of the process by a government agency with a strong sense of trusteeship for the congressional policy it is charged with implementing. Agencies who see themselves as *mediators* of the negotiation, or who otherwise relinquish their statutory role as trustees, help to promote a market-like result through the operation of the consensus process. For example, when OSHA abdicates its policy-making responsibility by making clear to industry and labor that it will accept a negotiated settlement as the basis for occupational safety and health standards, the chances that negotiation will produce meaningful safety and health gains are reduced considerably. When this happens, the relative success of the negotiations likely will depend on whether some *other* factor, such as a court ruling or a scientific study, can produce the kind of incentives that are likely to promote technological change. If a superior result is to be achieved, it likely will require the participation of agencies with both the means and the will to take a firm position in support of health, safety, and the environment, and in support of the development of new technologies.