The Rose Industry Exception for Early Entry into Pesticide Treated Greenhouses: Romance in Regulation

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THE ROSE INDUSTRY EXCEPTION FOR EARLY ENTRY INTO PESTICIDE TREATED GREENHOUSES: ROMANCE IN REGULATION

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I. INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)1 is the most significant federal law regulating the production and use of pesticides.2 Chemical pesticides can be extremely harmful to humans and the environment because they never can affect solely the target pest that they are intended to destroy.3 FIFRA has twin policy objectives.4 On the one hand, FIFRA attempts to protect man and the environment from the harmful effects of pesticides.5 On the other, FIFRA tries to give growers the ability to use pesticides effectively for pest control purposes.6

Pursuant to its delegated authority under FIFRA, the Environmental Protection Agency (EPA) generally prohibits farmworkers from working in greenhouses shortly after the application of pesticides.7 Each pesticide has a specific interval of time that must elapse before workers are permitted to reenter and engage in hand harvesting.8 On December 18, 1996, EPA granted the rose industry a limited exception to the early entry prohibition.9 The exception allows work-


3 See id. at 10,451.
4 See id.
5 See id.
6 See id.
8 See id. at 38,104.
9 See Environmental Protection Agency, EPA Grants Rose Growers Two-Year

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ers to hand harvest roses grown in greenhouses after they are treated with pesticides, but before the pesticides’ specific time intervals have elapsed.\textsuperscript{10} The exception is not limited to certain specific pesticides, but is instead effective as to all pesticides used on roses.\textsuperscript{11} EPA engaged in a cost-benefit analysis when it decided to grant the rose industry exception.\textsuperscript{12} EPA found that the benefits of allowing early entry during the period of the exception were “substantial” and that early entry would “not pose unreasonable risks to rose workers.”\textsuperscript{13} No other agricultural industry has been given such an exception to the regulations prohibiting early entry into pesticide treated areas.\textsuperscript{14} The exception will expire on October 4, 1999, unless the rose industry successfully seeks another exception.\textsuperscript{15}

The 1996 exception was the second time that EPA had granted the rose industry an exception to the worker reentry standards.\textsuperscript{16} The first exception was granted in 1994 and it expired after two years.\textsuperscript{17} At the time, EPA stated that the exception was “temporary” so that the rose industry could change its practices to be consistent with the regulations.\textsuperscript{18} EPA also stated that future exceptions would be considered only if the rose industry could “clearly demonstrate that an aggressive attempt to develop and implement alternative practices” was made during the period of the exception.\textsuperscript{19}

This Comment argues that EPA failed to consider all of the required factors when the Agency engaged in a cost-benefit analysis that led to its decision to grant the rose industry exception.\textsuperscript{20} In addition, this Comment also discusses the problems with the use of EPA’s cost-benefit analysis when dealing with worker health and the lack of a reasoned analysis when EPA changed its policies to grant the exception.\textsuperscript{21}

\textbf{Exception to Worker Protection Standard (Dec. 20, 1996) [hereinafter EPA Press Release].}

\textsuperscript{10} See id.

\textsuperscript{11} See id.

\textsuperscript{12} See id.

\textsuperscript{13} See id.

\textsuperscript{14} See 40 C.F.R. § 170.112(e)(7) (1996).


\textsuperscript{17} See 40 C.F.R. § 170.112(e)(7); 59 Fed. Reg. 30,265, 30,270 (1994).

\textsuperscript{18} See 59 Fed. Reg. at 30,270.

\textsuperscript{19} See id.

\textsuperscript{20} See infra Section VI.

\textsuperscript{21} See id. Each year about 1.2 billion pounds of pesticides are used in the United States, making it the single largest user of pesticides in the world. See Ivette Perfecto & Baldemar Velásquez,
Section II discusses the history of pesticide legislation in the United States and the history of EPA's standard to protect farmworkers from exposure to pesticides. Section III explains how EPA farmworker protection regulations operate. This Section will pay particular attention to the industry specific exception process and its cost-benefit methodology. Section IV discusses both the 1994 and 1996 rose industry exceptions to the prohibition on early entry into pesticide treated greenhouses. Section V discusses the difficulties with using cost-benefit analysis and how the United States Supreme Court has interpreted OSHA with regard to such analysis. This Section also looks at cases involving the application of cost-benefit analysis under FIFRA's suspension of registration provisions. Section VI argues that EPA failed to examine all of the required factors in its cost-benefit analysis when it decided to grant the rose industry exception. This section makes other related arguments regarding the failure of cost-benefit analysis in general and the lack of reasoned analysis by the EPA when...
changing its policies. Finally, Section VII proposes an end to the use of cost-benefit analysis when granting specific industry exceptions to the prohibition on worker early entry into pesticide treated areas.

II. HISTORY OF FIFRA AND THE WORKER PROTECTION STANDARD

A. History of Pesticide Legislation

The first weak attempt at federal pesticide regulation came in 1910 with the enactment of the Insecticide Act of 1910. The Insecticide Act was mainly concerned with fraud, making it illegal to sell fraudulently labeled pesticides. It did not require the registration of pesticides nor did it develop guidelines for their use.

The Insecticide Act of 1910 was abandoned in 1947 when Congress enacted the original version of FIFRA. FIFRA provided for the labeling of pesticides and the seizure of misbranded pesticides. FIFRA also required pesticides that were sold or distributed in interstate commerce to be registered with the United States Department of Agriculture (USDA). USDA's responsibilities for pesticide regulation were later transferred to EPA upon its creation in 1970.

FIFRA was amended in 1972 by the Federal Environmental Pesticide Control Act (FEPCA). FEPCA required EPA not to register a pesticide that caused "unreasonable adverse effects on the environment." FEPCA made it unlawful for a person "to use any registered pesticide in a manner inconsistent with its labeling" and provided both civil and criminal penalties for noncompliance. FEPCA provided that a person was liable for a penalty if another person employed by or acting for that person violated any provision of FEPCA.

23 See id.
24 See Fisher et al., supra note 2, at 10,451.
26 See id. at 166, 170.
27 See id. at 168.
28 See Fisher et al., supra note 2, at 10,452.
30 See id. at 980.
31 See id. at 990.
32 See id. at 992–93.
33 See id. at 993. FIFRA was further amended in 1975, 1978, 1988, 1990, and 1991 to deal with such issues as the cancellation of pesticides, data compilation and compensation, reregistration
Today, FIFRA allows EPA to register a pesticide if the Agency finds that "it will perform its intended function without unreasonable adverse effects on the environment." The term "unreasonable adverse effects on the environment" is defined in FIFRA as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." Therefore, when determining whether to register a pesticide, EPA engages in a cost-benefit analysis pursuant to the Act.

B. History of Farmworker Protection by EPA

The 1972 FEPCA amendments to FIFRA authorized EPA to enact regulations to carry out the provisions of FIFRA. EPA had enacted regulations dealing with farmworker protection and the labeling of pesticides before FIFRA was amended by FEPCA, but these regulations were only informational until FEPCA made them enforceable. Although Congress did not explicitly give authority to EPA to enact worker protection regulations in the Act, the legislative history of the 1972 Amendments to the Act suggested that protecting workers from the hazardous effects of pesticides was intended. The United States Senate Committee on Agriculture and Forestry stated that "protection of man and the environment" was to be construed broadly and would include farmworker protection. The Committee stated that it "believes there can be no question . . . but . . . that [FEPCA] requires the Administrator to require that the labeling and classification of pesticides be such as to protect farmers, farm workers, and others coming in contact with pesticides or pesticide residues."
In 1974, EPA promulgated such regulations under 40 Code of Federal Regulations part 170, the Worker Protection Standard, which regulated the activities of farmworkers engaged in hand labor operations in fields after the application of pesticides.\(^{42}\) The regulations prohibited reentry into pesticide treated fields until “the sprays had dried or dusts had settled and longer reentry intervals for 12 specific pesticides.”\(^{43}\) The regulations also required protective clothing for workers that entered before the reentry interval had expired.\(^{44}\)

In *Organized Migrants in Community Action v. Brennan*, the United States Court of Appeals for the District of Columbia Circuit found that EPA had statutory authority under FIFRA to promulgate reentry standards to protect farmworkers.\(^{45}\) The plaintiffs brought suit against the U.S. Department of Labor to force it to issue regulations protecting farmworkers from exposure to pesticides pursuant to the Occupational Safety and Health Act (OSHA).\(^{46}\) The court noted that EPA had already issued regulations regarding farmworker exposure to pesticides (the 1974 regulations) and that the Department of Labor was therefore preempted from issuing similar regulations.\(^{47}\) The plaintiffs then argued that EPA never had authority under FEPCA to issue the 1974 regulations.\(^{48}\) After examining both the statutory language and legislative history of FEPCA, the court found that EPA had authority to regulate farmworker exposure to pesticides.\(^{49}\)

In 1992, EPA revised the 1974 worker protection standard, resulting in regulations that are still in effect.\(^{50}\) EPA changed the regulations in part because of EPA's concern that the 1974 regulations did not cover farmworkers engaged in hand labor operations in greenhouses and that there had been an increased use of pesticides in agriculture since 1974.\(^{51}\) EPA also noted that despite the 1974 regula-

\(^{42}\) See id. at 38,103.
\(^{43}\) See id.
\(^{44}\) See 57 Fed. Reg. at 38,103.
\(^{46}\) See id. at 1163-64.
\(^{47}\) See id. at 1169.
\(^{48}\) See id. at 1164.
\(^{49}\) See id. at 1165.
\(^{50}\) See generally 57 Fed. Reg. 38,102 (1992). The effective date of the 1992 regulations was October 20, 1992. See 40 C.F.R. § 170.5(a) (1996). The accelerated compliance dates for some provisions was on April 21, 1993, and all other provisions were to be complied with after April 15, 1994. See id. § 170.5(b), (c).
\(^{51}\) See 57 Fed. Reg. at 38,103.
tions, "at least tens of thousands of acute illnesses and injuries and a less certain number of delayed onset illnesses occur annually to agricultural employees as the result of occupational exposures to pesticides."52

III. EXPLANATION OF THE WORKER PROTECTION STANDARD

A. The Worker Protection Standard

The revised 1992 regulations established the Worker Protection Standard (WPS) which was "designed to reduce the risks of illness or injury resulting from workers' and handlers' occupational exposures to pesticides."53 The WPS prohibits the entry of workers to perform "hand labor" in greenhouses treated with pesticides during an interval of time when the pesticide is considered dangerous, with a few exceptions.54 The WPS defines "hand labor" to mean "any agricultural activity performed by hand or with hand tools that causes a worker to have substantial contact with surfaces (such as plants, plant parts, or soil) that may contain pesticide residues."55 The restrictions for greenhouses are more stringent than those for farm or forest application because production areas in greenhouses are often close together and plants requiring different pesticide treatments often occupy the same plant bed.56 The time interval that workers are not permitted to perform hand labor activities following a pesticide application is called a restricted-entry interval (REI).57 The REI for each pesticide is set by EPA according to the toxicity of the pesticide (generally between four and forty-eight hours).58 "After the applica-

52 Id. at 38,105.
53 40 C.F.R. § 170.1. In the scope and purpose provision of the WPS it states that the standard "requires workplace practices designed to reduce or eliminate exposure to pesticides." Id.
54 See 57 Fed. Reg. at 38,104. The time interval provisions of the WPS are applicable "when any pesticide product is used on an agricultural establishment in the production of agricultural plants." 40 C.F.R. § 170.102. The WPS is not applicable generally when pesticides are used for governmental wide-area public pest control programs (i.e. mosquitoes), on livestock, on non-commercial home plants and home greenhouses, by injection directly into plants, for control of vertebrate pests, in traps, and for research uses of unregistered pesticides. See id. § 170.103. The regulations also exempt owners of agricultural establishments and their families from some provisions of the regulations, as well as those that qualify as "crop advisors" under the WPS. See id. § 170.104.
55 40 C.F.R. § 170.3. The definition also contains a list of activities within the meaning of "hand labor" (harvesting is included) and a list of activities that do not constitute "hand labor" (activities involving irrigation are excluded). See id.; see also 57 Fed. Reg. at 38,109.
57 See 40 C.F.R. § 170.3.
58 See 57 Fed. Reg. at 38,104. Generally, a 48-hour REI is established for a pesticide that
tion of any pesticide on [sic] an agricultural employer shall not allow or direct any worker to enter or to remain in the treated area before the restricted-entry interval specified on the pesticide labeling has expired, except as provided in [section 170.112].

Although the WPS generally prohibits entry into pesticide treated areas during an REI, EPA recognizes that pesticides may be dangerous for many days after the REI has expired. EPA has also recognized that pesticide REIs are based on "average" conditions and cannot take into account all of the potential factors that can affect the length of time that pesticide residues remain hazardous to workers. In order to minimize the risk of lingering pesticide residues to workers both before and after the expiration of an REI, EPA requires the agricultural employer to provide a decontamination site reasonably accessible to workers who enter treated areas during an REI and up to thirty days after the expiration of an REI. EPA also requires workers to be given pesticide safety information when entering a pesticide treated area up to thirty days after the expiration of an REI.

contains an active ingredient in toxicity category I (most toxic category), which is extended to 72 hours if the active ingredient organophosphate is being applied outdoors. See id. Pesticides with active ingredients in Category II (moderate toxic category) generally have a REI of 24 hours. See id. A REI of 12 hours is established for all other pesticides. See id. 59 40 C.F.R. § 170.112(a). When two or more pesticides are applied at the same time, the REI is set as the longest of the applicable time periods. See id. § 170.112(a)(3). In order to make the provisions of the WPS enforceable under FIFRA § 12(a)(2)(G), which makes it "unlawful for any person ... to use any registered pesticide in a manner inconsistent with its labeling," the pesticide label must specify the WPS restrictions. See 57 Fed. Reg. at 38,132. Therefore, EPA incorporates the requirements of 40 C.F.R. part 170 (the WPS regulations) by reference on the labels of each pesticide product. See id.

60 See 57 Fed. Reg. at 38,123. In one 1989 study, noted by EPA, of poisoning incidents that occurred after the expiration of a REI, it was found that the median time from application of the pesticide to the poisoning incident was 29 days. See id. The study was conducted by Knaak, Iwata, and Maddy. See id. More recently EPA studied data regarding the incidence of multiple case systematic illnesses of agricultural workers from exposure to the residues of organophosphates in California. See id. Among the 44 incidents studied, the mean length of time from application to poisoning was 20 days, with a median of 16 days. See id. In 1985, EPA used a computer model to estimate how long dangerous pesticide residues might persist after application, and found that for at least one pesticide it was predicted to remain for 30 days after the REI had expired. See 57 Fed. Reg. at 38,123.

61 See id. at 38,135.

62 See 40 C.F.R. §§ 170.112(c)(8), 170.150(a)(1)(i); 57 Fed. Reg. at 38,123. The decontamination site must contain water, soap, and single-use towels for routine washing and emergency eyewashing. See 40 C.F.R. § 170.150(b).

63 See 40 C.F.R. § 170.130(a)(3).
B. Exceptions to the Prohibition on Early Entry

Agricultural workers can enter greenhouses treated with pesticides during an REI under certain narrow exceptions.64 Farmworkers can enter treated areas during an REI when they will not be required to have contact with any treated surfaces.66 Workers are also allowed to enter treated areas during an REI when they are performing short-term tasks that do not involve hand labor activity.66 Another exception to the early entry prohibition during an REI occurs when there is an agricultural emergency and entry is necessary to save a crop.68 The EPA can also grant exceptions to the WPS prohibition on a case-by-case basis to affected individuals or industries if abiding by the restrictions would cause them to "bear an unreasonable economic burden."69

Even when early entry is allowed, workers who will have contact with treated surfaces are not permitted to enter for the first four hours after a pesticide application.70 The regulations require that the agricultural employer ensure that early entry workers are informed

64 See id. § 170.112(b)-(e); 57 Fed. Reg. at 38,104.
66 See 40 C.F.R. § 170.112(b)(1); 57 Fed. Reg. at 38,104. The exception requires that the worker “have no contact with anything that has been treated with the pesticide to which the [REI] applies, including, but not limited to, soil, water, air, or the surfaces of plants.” 40 C.F.R. § 170.112(b)(1) (emphasis added). For example, pesticides are considered to be in the air in a greenhouse when any inhalation exposure level listed on the product's labeling has not yet been reached. See 57 Fed. Reg. at 38,111. Therefore, workers must wait until after any such inhalation level has been attained before they can enter under the no contact exception. See id. Also, workers wearing special personal protective equipment as defined in the regulations are not considered to have no contact for purposes of the exception. See id. at 38,112.
66 See 40 C.F.R. § 170.112(c)(1); 57 Fed. Reg. at 38,104. The regulations only allow early entry for short term tasks when the time in which the worker is within the treated area does not exceed one hour in any 24 hour period, no entry is permitted for the first four hours after an application, and any inhalation and ventilation criteria on the product labeling must have been met. See 40 C.F.R. § 170.112(c)(2) and (3).
67 “Early entry” is defined as “entry by a worker into a treated area on the agricultural establishment after a pesticide application is complete, but before any restricted-entry interval for the pesticide has expired.” 40 C.F.R. § 170.3.
68 See id. § 170.112(d)(2); 57 Fed. Reg. at 38,104. “Agricultural emergency” is defined as: a sudden occurrence or set of circumstances which the agricultural employer could not have anticipated and over which the agricultural employer has no control, and which requires entry into a treated area during a restricted-entry interval, when no alternative practices would prevent or mitigate a substantial economic loss. A substantial economic loss means a loss in profitability greater than that which would be expected based on the experience and fluctuations of crop yields in previous years.
40 C.F.R. § 170.112(d)(1).
69 See 40 C.F.R. § 170.112(e); 57 Fed. Reg. at 38,104.
70 See 40 C.F.R. § 170.112(c)(3).
about the product's labeling requirements relating to the pesticide's use and safety.71 Of particular importance is the responsibility of the agricultural employer to assure that early entry workers who will have contact with pesticide treated surfaces wear the personal protective equipment (PPE) that is specified on the labeling of the pesticide used.72 "Personal protective equipment" is defined in the regulations as "devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues."73 The agricultural employer must provide PPE to workers when necessary and ensure that PPE is cleaned, repaired, and stored properly after use.74

EPA has been skeptical about the effectiveness of PPE and is concerned that it may cause more problems then it solves.75 In fact, EPA originally prohibited early entry during a REI for hand labor such as harvesting because of EPA's conclusion that such entry is rarely necessary, that PPE is impractical because field workers may remove it or use it incorrectly, and that PPE can also pose risks to worker health due to heat stress.76 To reduce the risks of heat stress,

71 See id. § 170.112(c)(5). In addition, any worker that enters a treated area before the expiration of a REI must be specifically trained in safety precautions and the health aspects of pesticide exposure during the five years prior to entry. See 40 C.F.R. § 170.130(a). Training agricultural workers can be repetitive and expensive because of the high turnover rate in the agricultural industry (1000 percent is not uncommon). See 57 Fed. Reg. at 38,126.

72 See 40 C.F.R. § 170.112(c)(4); 57 Fed. Reg. at 38,104.

73 40 C.F.R. § 170.112(c)(4)(i). Such PPE includes, but is not limited to, "coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear." Id. However, normal items of work clothing, such as shirts, long pants, shoes and socks, are not considered PPE. See id. § 170.112(c)(4)(ii).

74 See id. § 170.112(c)(6).


76 See 59 Fed. Reg. at 30,265. EPA has stated:

The Agency has studied the issue of PPE for agricultural field workers who are performing routine hand labor tasks and has concluded that routine use of PPE... for such field workers is, in general, not only impractical, but also may be risk-inducing due to heat stress concerns. The Agency has determined that hired agricultural workers, especially harvesters, have a disincentive to wear PPE; because they frequently are paid at a piece rate, they have little tolerance for anything that hinders speed and efficiency. The Agency concludes that it is likely that the PPE would be removed or would be worn incorrectly if it were required routinely in most hand labor situations... After consideration of the comments and the available data, the Agency has concluded that, under most circumstances, allowing routine entry for unlimited time to areas under an REI, even with PPE, decontamination, and training, will not reduce adequately the risk of agricultural workers' exposure to pesticides, and that the economic benefits associated with such routine early entry do not justify the risks associated with such early entry.

57 Fed. Reg. at 38,112.
the regulations require that agricultural employers use appropriate precautions to prevent heat-related illness when workers perform tasks while wearing PPE.77

C. Industry Specific Exceptions Based on Cost-Benefit Analysis

EPA allows anyone affected by the requirements of the WPS to request an exception to the prohibition on early entry into pesticide treated areas during a REI.78 In determining whether to grant the exception, 40 C.F.R. § 170.112(e)(3) states that “EPA will base its decision on whether the benefits of the exception outweigh the costs, including the value of the health risks attributable to the exception.”79 EPA believes that FIFRA requires such a cost-benefit analysis when it grants or denies an exception.80 An exception may be withdrawn by EPA at any time if the Agency determines that the health risks of early entry are unacceptable or if the exception is no longer necessary.81

EPA has granted a few limited exceptions to the WPS requirements using such a cost-benefit analysis.82 These exceptions include an exception to perform certain irrigation tasks, an exception to perform certain limited contact tasks, and the 1994 and 1996 rose industry exceptions.83

77 See 40 C.F.R. § 170.112(c)(7).
78 See id. § 170.112(e). EPA prefers that persons who wish to submit a request for exception do so as a group or association of affected parties, rather than as individuals, to ensure a more efficient review process. See 57 Fed. Reg. at 38,113.
79 40 C.F.R. § 170.112(e)(3). The regulations state that “EPA will not grant exceptions where the costs of early entry equal or exceed the expected loss in value of crop yield or quality.” Id. § 170.112(e)(1)(vi).
80 See 62 Fed. Reg. 51,994, 51,994 (1997). The affected individual or industry is required to submit certain information to EPA, including a description of the specific crops and crop production tasks for which the exception is requested, the time period that the exception will cover, and a description of the geographic area covered by the exception. See 40 C.F.R. § 170.112(e)(1)(ii)–(iv). The request also must include an explanation, with supporting data, of the necessity of the exception. See id. § 170.112(e)(1)(iii). The request must also describe the safety aspects of the exception, including the feasibility of performing the necessary hand labor while wearing PPE and the means of reducing heat stress. See id. § 170.112(e)(1)(vi). The request also must explain why alternative practices would not be technically or financially viable. See id. § 170.112(e)(1)(v). The regulations suggest several alternatives to early entry, including rescheduling pesticide applications or hand labor activity, using non-chemical pest control techniques, using machine cultivation, or using a substitute pesticide with a shorter REI. See id. § 170.112(e)(1)(v).
81 See 40 C.F.R. § 170.112(e)(6).
82 See id. § 170.112(e)(7).
83 See id.
EPA has considered several other industries for exception to the WPS requirements. At the time of the adoption of the WPS in 1992, EPA believed that the cut flower and cut fern industry would warrant an exception to the early entry prohibition. However, when a copy of the proposed WPS was put before the U.S. Senate Committee on Agriculture, Nutrition, and Forestry and the U.S. House Committee on Agriculture as required by FIFRA § 25(a), Congress commented that they "[s]trongly object to the exemption for cut flower and cut fern workers for early entry. Congress notes that California prohibits early entry for hand labor without apparent deleterious effect on the cut flower industry." The cut flower and cut fern industry has since declined to seek an exception.

On June 12, 1995, Delaware sought an exception to the prohibition against worker entry into Chlorothalonil-treated cantaloupe and squash fields before the expiration of its forty-eight hour REI. Later, ten other states sought similar exceptions. Chlorothalonil is a fungicide used to destroy Downy Mildew disease and has been classified as a probable human carcinogen. Chlorothalonil can cause eye and skin irritation and can have adverse effects on the kidneys. Delaware asserted that cantaloupe and squash crops were being destroyed by Downy Mildew and that Chlorothalonil needed to be applied every seven days. Delaware believed that spray schedules could not be changed because no matter how the grower scheduled them, an REI of forty-eight hours would follow an application, and harvesting may be necessary because of weather conditions during that time. EPA

86 Id. at 38,138. EPA responded to the comment by stating that California had established a minimum REI according to a "sprays have dried/dusts have settled" standard and a maximum REI of 24 hours. See id. Since EPA-mandated REIs are generally longer, the economic cost of complying with the EPA regulations is likely to be higher than the cost of complying with California's rules. See id. Therefore, EPA believed (at the time the WPS was promulgated) that the cut flower and cut fern industry exception would be warranted. See id.
89 See 60 Fed. Reg. at 49,842.
90 See 60 Fed. Reg. at 30,873.
93 See id. It was argued that other pesticides, such as Maneb and Penncozeb, could not be used because they required that harvesting not be done until five days after pesticide application (squash and cantaloupe are harvested daily). See id.
stated that the most that growers would have to delay harvesting would be twenty-four hours. According to Delaware, a delay in harvesting of twenty-four hours would result in the fruit being overripe. Cantaloupes are produced for a fresh market only, while overripe squash can be downgraded for bulk processing. Maryland estimated that a maximum of ten to fifteen percent loss of yield would be incurred for both crops, while Delaware estimated that fifty to seventy percent of grower net revenue would be lost without the exception. Despite these claims, EPA stated that it had "incomplete information" and that it was "not able to quantify or complete a reliable qualitative assessment of the projected economic impacts, yield loss and grower profit associated with loss of harvest days." On September 27, 1995, EPA denied the requests for all eleven states stating that "the risks of the exception outweigh the benefits."

IV. THE ROSE INDUSTRY EXCEPTIONS TO THE WPS

On October 30, 1996, Roses Incorporated, a national association that represents rose growers, made a request to EPA for an exception to allow rose workers to hand harvest roses in greenhouses before the expiration of a REI. In its request, Roses Inc. asserted that the public demands roses that are cosmetically perfect, and therefore, pesticides must be used to control insects and disease. Roses Inc.

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96 See id.
98 See id.
97 This estimation was based on the assumption that a one day delay in harvesting would occur each week resulting in a loss of one seventh of grower's total production. See id.
99 See id.
100 See 60 Fed. Reg. at 49,844.
101 See id. In late March 1996, Indiana petitioned EPA for an exception to allow workers to enter Chlorothalonil-treated muskmelon fields before the expiration of the 48 hour REI. See 61 Fed. Reg. 68,034, 68,034 (1996). Indiana asserted that growers would suffer substantial economic losses if they could not harvest their crop on a daily basis. See id. Indiana stated that muskmelons must be harvested daily to avoid the fruit from becoming overripe. See 61 Fed. Reg. 29,096, 29,097 (1996). During a 48 hour REI many of the muskmelons would be lost due to their becoming overripe when unable to be harvested. See id. Also, when melons are left in the field they suck nutrients from the soil away from other growing fruit. See id. Indiana contended that there was no substitute for Chlorothalonil during harvest season and that rescheduling of spray applications would not be possible. See id. at 29,098. Indiana asserted that a crop loss of 7% would result from the 48 hour REI and a 24 hour REI would result in a 2% loss. See id. at 29,097. Indiana calculated the loss of income for growers to be 28% for a 24 hour delay and 59% for a 48 hour delay. See 61 Fed. Reg. at 29,098. After going through EPA's 30 day comment period, Indiana withdrew its petition. See 61 Fed. Reg. at 68,034.
102 See id.
stated that at least twenty-eight pesticide chemicals, with REIs ranging from twelve to forty-eight hours, are essential to the rose industry, including chlorothalonil, chlorpyrifos, endosulfan, mancozeb, and vinclozolin. Survey data collected by Roses Inc. suggest that growers treat roses with pesticides an average 6.4 times per month. According to Roses Inc., varieties of roses reach the harvest stage in cycles 365 days per year. Roses Inc. believed that roses that are cut when not in bloom stage, where the bud is just beginning to open, have no commercial value. The flowers bloom twice daily and remain in the bud stage for a period of two to six hours. Roses Inc. asserted that the possibility of a second daily harvest is eliminated on days when pesticides with an REI greater than four hours are applied in the late morning because workers are prevented from reentering the area due to the WPS early entry restrictions. For pesticides with longer REIs, the pesticide application may eliminate both harvests for the following day as well. According to Roses Inc., without an exception losses would be seven to fourteen percent of the annual harvest and revenues would decrease by eight to sixteen million dollars annually. Roses Inc. estimated that the average grower in the United States has three acres under rose production and that abiding by the WPS without the exception would result in an annual loss for each grower of $11,500 to $36,600 per acre.

103 See id. According to Roses Inc., the insect and disease problems that must be controlled through the use of pesticides include aphids, botrytis, downy mildew, powdery mildew, spider mites, thrips, and whiteflies. See id.


110 The USDA 1995 Floriculture Crops Report estimates the farm gate value of the United States greenhouse produced rose crop at approximately $124 million. See 61 Fed. Reg. at 56,102. EPA stated: The estimated losses of $11,500 to 36,600 per acre are derived from a predicted loss of the equivalent of one harvest per week due to compliance with the WPS and are calculated using average July prices for selected Tea roses in California and New
EPA had previously granted the rose industry a two-year exception to the WPS early entry restrictions on June 10, 1994. At the time, EPA found that the rose industry would "suffer substantial economic impact" if required to comply with the early entry restrictions. EPA granted the exception based on information submitted by the rose industry, despite its own conclusion that EPA had "insufficient information to project quantitatively the economic impacts of not granting an exception to rose growers." EPA did find that without the exception "rose growers would be forced to change their practices" and that this would lead, at least in the short run, to a decrease in growers' revenues, increased costs of production, or both. The EPA believed that early entry into greenhouses treated with pesticides during the two-year period of the exception would not pose "unreasonable adverse effects" to workers.

EPA granted the exception to give the rose industry time to bring their practices into compliance with the regulations. EPA specifically provided that the two-year exception was "to provide rose growers time to adjust pesticide spray schedules, find early-entry alternatives, and develop technology." EPA stated:

A [two-year] time limit will encourage development and implementation of safer methods of pest control. EPA believes that time and research are needed to develop sustainable alternatives to early entry, but that the industry should aggressively work toward implementation of alternatives that have been proven effective. EPA expects that much early entry can be eliminated immediately through "planning and shifting personnel," and that in 2 years other alternatives to toxicity category I and II pesticides can be implemented.

England. These figures appear to be based on the frequency that Roses Inc. estimates pesticides are normally applied in rose production, the toxicity categories of the pesticides most commonly used on roses, and the asserted need to harvest roses two times per day to ensure the harvested crop will yield a premium price.

Id.

114 See 40 C.F.R. § 170.112(e)(7) (1996). The two-year time limit of the exception seems to have been based, at least in part, on Roses Inc.'s estimate in 1988 that it would take five to seven years "for the rose industry to develop alternatives to toxicity category I and II pesticides." See 59 Fed. Reg. 30,265, 30,269 (1994).

115 See id. at 30,265.

116 See id. at 30,266.

117 See id.

118 See id. at 30,265.


120 Id.

121 Id. at 30,269.
EPA stated that the exception was only "temporary" and that another exception would be considered if the rose industry could "clearly demonstrate that an aggressive attempt to develop and implement alternative practices was made during the period of the exception." Under the 1994 exception, workers were not allowed to perform hand activity operations in pesticide treated areas for more than three hours in any twenty-four hour period. Also, rose growers were required to provide workers with PPE when they entered greenhouses to perform hand labor during a REI. EPA stated that its concerns that PPE might be removed by workers, or otherwise used incorrectly, and the risk of heat stress that PPE posed to workers, was mitigated by a variety of factors in the particular case of the rose industry:

PPE would be worn for only limited periods of time; harvesters could work relatively efficiently while wearing the required PPE; water for drinking and decontamination is immediately available in most rose greenhouses; and the usual presence in rose greenhouses of fans or other mechanical ventilation to provide some cooling.

EPA also required as "conditions" of the exception that no entry take place during the first four hours after a pesticide application or until any inhalation criteria specified on the product label had been met, that decontamination areas be established, and that safety training be given to early entry harvesters. The two-year 1994 exception expired on June 10, 1996.

In response to Roses Inc. second exception request on October 30, 1996, EPA noted that "[t]he cut-rose industry was not able to make

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122 See id. at 30,270.
123 See id.
125 See id. at 30,268.
126 Id. at 30,269. The time period that workers would be required to wear PPE would be limited by the maximum time limit of three hours in any 24 hour period that workers are permitted to remain in pesticide-treated greenhouses during a REI. See id. at 30,265. Also, EPA stated that "greenhouses usually encompass a much smaller area than field crops so that employers should more easily be able to ensure that workers wear the PPE." See id.
127 See id. at 30,267.
128 See id. at 30,272.
129 See 61 Fed. Reg. 56,100, 56,101 (1996). On May 16, 1996, before the 1994 exception expired, Roses Inc. made a request for EPA to extend the 1994 exception. See id. However, EPA denied the request at that time because Roses Inc. had not provided enough information to grant the extension and there was insufficient time for EPA to process the request. See id. On June 14,
adequate progress over the 2 years that the original exception was in place to eliminate the need for renewal.\textsuperscript{130} In response to EPA's concerns over the inability of the rose industry to bring itself into compliance during the period of the 1994 exception, Roses Inc. gave a number of reasons for the slower progress than expected by the industry.\textsuperscript{131} Roses Inc. noted that new pesticides with shorter REIs and biological controls had not been developed as quickly as hoped.\textsuperscript{132} Roses Inc. noted the increased costs of pesticide product development and registration, and that growers did not feel that registration of products was cost effective because of the small size of the rose industry.\textsuperscript{133} Also, Roses Inc. asserted that the industry has not had the resources necessary to implement alternatives due to strong foreign competition.\textsuperscript{134} In addition, certain pesticides that were used extensively by the rose industry before 1988 have since been taken off the market, and new and more resistant pests have become a problem for the industry.\textsuperscript{135}

Although EPA proposed alternatives to granting the exception, Roses Inc. cited economic and industry specific reasons why the alternatives were not feasible.\textsuperscript{136} One alternative to the exception that was debated by growers and scientists would involve spraying after


\textsuperscript{131} See 61 Fed. Reg. at 56,102.

\textsuperscript{132} See 62 Fed. Reg. at 51,996. However, some individual growers commented that they had attempted using biological controls, such as predatory mites. See id.

\textsuperscript{133} See 61 Fed. Reg. at 56,102.

\textsuperscript{134} See 62 Fed. Reg. at 51,996. The impact of the importation of roses from foreign countries, where pesticide regulation is not as strong, is a major concern of Roses Inc. and growers. See id. Sixty-six percent of the United States market is made up of imported roses, which forces domestic growers to reach high quality standards at lower prices. See id. According to a March 1995 U.S. International Trade Commission Report, almost half of rose growers incurred net losses in 1991 and 1992 and two-thirds of growers incurred net losses in 1993. See id. However, EPA noted that it was not possible to fully interpret the budget data from the Report without more details. See id.

\textsuperscript{135} See 62 Fed. Reg. at 56,102.

\textsuperscript{136} See id. For example, rose growers did not want to rely on a given set of pesticide products with shorter REIs because they asserted that it would encourage the growth of more resistant pests. See id. For fungal diseases, such as downy mildew, that spread when plants are wet or humidity is high, EPA suggested active drying of foliage. See id. Dry plants also would allow for application of pesticides at times when foliage would otherwise dry too slowly. See id. Roses Inc. stated that active drying methods have either large start-up costs or are expensive to use.
the last harvest of the day, with reentry into the greenhouse after the twelve hour REI of most pesticides expired the following morning.\textsuperscript{137} Usually, pesticides are applied in the late morning when several pests are most active and when pesticide sprays would dry most rapidly.\textsuperscript{138} As previously stated, this late morning spraying usually prohibits an afternoon harvest because of the length of most REIs.\textsuperscript{139} Several scientists and growers believe that late day spraying would slow leaf drying which might increase the prevalence of diseases.\textsuperscript{140} However, other scientists and growers believe that late day spraying would be acceptable.\textsuperscript{141} EPA noted that several growers commented that they had used late day spraying successfully after the expiration of the first exception.\textsuperscript{142} EPA concluded that “spraying after the last harvest was generally claimed to be unacceptable for a number of reasons . . . However, little documentation was presented concerning these shortcomings, and there was no evidence given regarding their impact. Some of these shortcomings, while generally accepted, remain hypothetical or anecdotal.”\textsuperscript{143}

When EPA granted the 1994 exception to the rose industry it stated that “worker exposure risk is a serious concern in greenhouse rose production.”\textsuperscript{144} In response to the 1996 exception request, some commenters noted that the large number and high volume of pesticides used, as well as the high frequency of applications typical in the rose industry, indicated both high worker exposure and high worker risk.\textsuperscript{145} Many of the twenty-eight products that Roses Inc. cited as essential are classified by EPA in Toxicity Categories I and II, based on their acute toxicity.\textsuperscript{146} “Acute toxicity is the capability of producing adverse effects from a brief exposure.”\textsuperscript{147} EPA stated:

\textit{See} 61 Fed. Reg. at 56,102. Roses Inc. also stated that other non-chemical pest control methods, such as high intensity discharge lighting, horizontal air flow fans, night curtains, infrared radiant heat lines, and step dehumidification, had either prohibitive start-up costs or were too expensive to use. \textit{See id.} Roses Inc. asserted that alternatives such as rearranging work schedules or changing spray schedules were also too expensive. \textit{See id.}

\textsuperscript{137} See 62 Fed. Reg. at 51,995.
\textsuperscript{138} See id.
\textsuperscript{139} See id.
\textsuperscript{140} See id.
\textsuperscript{141} See id.
\textsuperscript{142} See 62 Fed. Reg. at 52,000.
\textsuperscript{143} Id.
\textsuperscript{147} Id.
Laboratory animal studies of some Toxicity Category I and II chemicals demonstrated other effects associated with long-term exposure, such as increased cancer rates, reproductive and developmental effects and effects on the nervous system. Routine repeated occupational exposures (that would occur during early-entry rose harvesting) become a greater risk concern when the chemicals can pose long-term effects.\textsuperscript{148} 

"EPA does not have sufficient data to determine whether the potential level of exposure to rose harvesters corresponds to levels of concern identified in the toxicological studies that demonstrated these effects."\textsuperscript{149} Some commenters believed that the greenhouse environment is more humid and warm which might discourage workers from wearing PPE and might induce heat stress when PPE is worn.\textsuperscript{150} EPA noted that industry practice requires that rose workers "have considerable contact with plant foliage" while harvesting.\textsuperscript{151} EPA also noted a study, compiled by the California Department of Industrial Relations from 1981 to 1990, that indicated that workers in horticultural specialty crops (which include roses), had a higher rate of pesticide poisonings among workers (0.53 poisonings per 1000 workers per year) than for agricultural workers in general (0.46 poisonings per 1000 workers per year).\textsuperscript{152} 

Other commenters believed that the risk to workers was much less because of characteristics specific to the rose industry.\textsuperscript{153} They believed that rose workers form a "stable, skilled work force" that tends to be receptive to safety training.\textsuperscript{154} Also, workers are generally paid on an hourly or salary basis instead of a piece rate, which makes it less likely that workers would avoid using PPE if it would slow their work.\textsuperscript{155} Some commenters noted that the greenhouse environment provides easy access to decontamination facilities and easy monitoring

\textsuperscript{148} Id.
\textsuperscript{149} 62 Fed. Reg. at 51,998.
\textsuperscript{150} See id. at 51,997.
\textsuperscript{151} See 61 Fed. Reg. at 56,103.
\textsuperscript{152} See 62 Fed. Reg. at 51,998. This report also was noted by EPA in its 1994 rose industry exception decision. See 59 Fed. Reg. 30,265, 30,266 (1994). EPA also discussed in its 1994 exception decision another study that indicated that workers in the cut flower industries may actually sustain greater exposure to pesticides than the workers who apply them. See id. However, EPA noted that workers in that study did not wear any protective clothing when they were exposed to the pesticides. See id. at 30,267.
\textsuperscript{154} See id. Roses Inc. estimates that the entire rose industry employs 1580 greenhouse production workers, with about 1190 (75\%) employed as harvesters. See 61 Fed. Reg. at 56,101.
of workers to ensure compliance with safety rules. EPA noted a report for the 1990 to 1994 period which showed that only three cases of pesticide-related illness linked to the California rose industry were reported during the period. Although EPA believed that pesticide-related illness incident reporting might be higher in California, the Agency noted several reasons to believe that such studies only document a fraction of the actual incidents of illness. Commenters noted that farmworkers often lack the financial means to receive medical aid, medical providers might not recognize or report symptoms of pesticide-related illnesses, incidents may not be reported because pesticide poisoning often mimics the symptoms of colds and flu, and the delayed effects of pesticide poisoning are often not linked to pesticide exposure. EPA stated that it was “difficult to conclude, based on incident data, that reentry protections such as REIs are less important to the health and safety of rose harvesters than to other farmworkers.”

On December 18, 1996, EPA announced in a press release that another early entry exception would be granted to the rose industry. The exception allows workers to hand harvest roses grown in greenhouses after they are treated with pesticides before their REIs have expired. EPA found that the benefits of allowing early entry over the two-year period were “substantial” and that early entry would “not pose unreasonable risks to rose workers.”

The terms of the 1996 rose industry exception are similar to the terms of the earlier 1994 exception. Despite the press release stating that the exception is good for a two-year period, the exception will actually be in effect from December 18, 1996, to October 4, 1999. EPA refused to grant Roses Inc.’s request for an indefinite or five-

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156 See id.
157 See id.
158 See id. Some commenters noted that more pesticide-related illnesses may be reported in California because of “California’s extensive regulatory program, the general level of public awareness about pesticide use, and requirements placed on the medical care industry to report all suspected pesticide-related cases.” See id.
159 See id.
161 Id. at 51,998.
162 See EPA PRESS RELEASE, supra note 9.
163 See id.
164 See id.
165 See id.
166 See id.; 62 Fed. Reg. at 52,000.
year exception, and instead made the exception only effective for the shorter period.\textsuperscript{167} No entry is allowed for the first four hours after any pesticide application, and until any inhalation criteria specified on the pesticide label is met.\textsuperscript{168} The maximum time period that workers are allowed in treated areas during an REI is three hours within any twenty-four hour period.\textsuperscript{169} Rose industry employers are required to provide, maintain, and ensure workers wear the early entry PPE listed on the pesticide's label.\textsuperscript{170}

EPA believes that the danger to workers will be mitigated by the limited time harvesters are permitted in the treated area, the use of PPE, accessible decontamination facilities, the provision of label-specific information for harvesters, and the basic safety information that employers must provide to workers.\textsuperscript{171} However, EPA noted that it had “insufficient information” comparing the benefits of using different pesticides with varying REIs to treat the same pests.\textsuperscript{172} EPA defended its decision to grant the exception despite this lack of information, stating:

[D]espite presenting less than the desired amount of comparative information regarding pesticides, the Agency believes that there is still a need for the exception no matter which individual pesti-


\textsuperscript{168} See 62 Fed. Reg. at 52,000.

\textsuperscript{169} See id. EPA did not grant Roses Inc.'s request to allow workers in treated areas for a maximum of eight hours in the two-week period before major floral holidays. See 61 Fed. Reg. at 56,101. According to Roses Inc., the five major floral holidays are Christmas, Valentine's Day, Secretary's Day, Mother's Day, and Sweetest Day. See id. Roses Inc. stated that the eight hour time period was necessary because roses have a short shelf life and cannot be stored to meet the increased demands of the floral holidays. See id.

\textsuperscript{170} See 62 Fed. Reg. at 52,000. EPA also requires that the early entry workers are informed about the pesticide's label requirements related to use, and that they are informed that they are entering a treated area under the rose industry exception. See id.

\textsuperscript{171} See EPA Press Release, supra note 9. The following additional factors or terms contributed to EPA's decision: (1) Early entry PPE could be comfortably worn for 3 hours; (2) use of unattached absorbent glove liners make it much more likely that harvesters will wear the required chemical resistant gloves or liners underneath the optional leather gloves; (3) there is approximately only 200 greenhouse cut-rose growers, facilitating communication and compliance monitoring activity between the rose industry and EPA; (4) the scale of greenhouse operations and limited number of harvesters per greenhouse should allow employers to more easily ensure that workers wear the PPE; (5) cut-rose growers using this exception will be required to report any incidents which harvesters believe are the result of pesticide exposure occurring during early-entry harvesting under the conditions of this exception; (6) running water, and in some cases showers, for decontamination and heat-stress alleviation are more accessible in greenhouse operations than in field settings; and (7) the exception will be in effect for less than 3 years before reevaluation. 62 Fed. Reg. at 51,999.

\textsuperscript{172} See 62 Fed. Reg. at 51,996. EPA stated that “this deficiency should be remedied if another renewal is requested.” Id.
icides may be used. Regardless of the justification of the necessity of any particular pesticide, clearly the cut-rose industry cannot currently rely only on 4-hour REI pesticides, changes in cultural practices or drastic reductions of the number of pesticide applications. Therefore, even if several individual pesticides were determined unessential, growers would still be faced with applying mostly longer REI pesticides at frequencies similar to the present.¹⁷³

Although EPA stated that early entry with PPE is "feasible and provides adequate reduction of risks to rose harvesters,"¹⁷⁴ EPA provided funding to the National Institute of Occupational Safety and Health to evaluate the effectiveness of PPE in decreasing pesticide residue exposure.¹⁷⁵

EPA granted the exception for only a limited period to give the rose industry time to adapt their practices to eliminate the need for the exception.¹⁷⁶ The industry will be required to identify specific research methods that will be employed to bring individual growers into eventual compliance with the regulations.¹⁷⁷ EPA noted that better documentation on the use of alternate practices will be necessary in the future if another exception is sought.¹⁷⁸

V. Cost-Benefit Analysis

A. History of Cost-Benefit Analysis

The type of cost-benefit analysis used in the EPA WPS exception process is nothing new.¹⁷⁹ Cost-benefit analysis is based on the utilitarian theories of Jeremy Bentham and John Stuart Mill.¹⁸⁰ Utilitarian theory provides that laws should be written so that the greatest good is provided to the greatest number of people.¹⁸¹ According to this theory, only when the benefits of the proposed rule outweigh the costs is the greatest good done for the greatest number of people.¹⁸² Cost-

¹⁷³ Id.
¹⁷⁴ Id. at 51,999.
¹⁷⁵ See id.
¹⁷⁶ See id. at 51,998; EPA PRESS RELEASE, supra note 9; 61 Fed. Reg. 56,100, 56,102 (1996).
¹⁷⁷ See id. at 52,000-01.
¹⁷⁹ See id.
¹⁸⁰ See id. (citing 10 Jeremy Bentham, THE WORKS OF JEREMY BENTHAM 142 (Bowring, ed. 1962)).
¹⁸¹ See id.
¹⁸² See id.
benefit analysis is also viewed as less arbitrary than other regulatory decision processes because the agency engages in a scientific type analysis.\textsuperscript{183}

The first piece of legislation to use cost-benefit analysis was the Flood Control Act of 1936, which stated that federal projects should be done only when “the benefits to whomsoever they may accrue are in excess of the estimated costs.”\textsuperscript{184} Until very recently, the use of cost-benefit analysis was not often expressly provided for in federal legislation.\textsuperscript{185} However, early agencies, such as the Interstate Commerce Commission, were often forced to consider the costs involved to the industries they regulated when making rules.\textsuperscript{186} These agencies were often created with the purpose of protecting the economic interests of the very industry that was being regulated.\textsuperscript{187} The agencies had to analyze the potential costs of proposed regulations because the agency’s primary “constituency” would often be the regulated industry itself.\textsuperscript{188}

The creation of EPA and other similar agencies to promote social, rather than economic, goals led to less concern over the costs of the proposed regulations to the many different industries that were being regulated.\textsuperscript{189} These agencies more often had public interest groups as their “constituency” which condemned sacrificing environmental safety because of its effect on prices and operating costs.\textsuperscript{190} Often statutes would set minimum standards of health without any regard for cost, and specifically prohibited the use of cost-benefit analysis.\textsuperscript{191} However, with the growing popularity of legal economic theory, fed-

\textsuperscript{183} See Exec. Order No. 12,291, 46 Fed. Reg. 13,193, 13,193 (1981). Executive Order Number 12,291, issued in 1981 by President Reagan, required a cost-benefit analysis to be done before enacting regulations. See id. The purposes of the Executive Order were “to reduce the burdens of existing and future regulations, increase agency accountability for regulatory actions, provide for presidential oversight of the regulatory process, minimize duplication and conflict of regulations, and insure well-reasoned regulations.” Id. (emphasis added).

\textsuperscript{184} 33 U.S.C. § 710a (1976). In American Textile Manufacturers Institute v. Donovan, 452 U.S. 490, 510 (1981), the United States Supreme Court stated that the statute’s language indicated the intent of Congress was to require a cost-benefit analysis. See also Schwartz, supra note 179, at 292.

\textsuperscript{185} See id. at 293.

\textsuperscript{186} See Schwartz, supra note 179, at 292.

\textsuperscript{187} See id. at 293.

\textsuperscript{188} See id.

\textsuperscript{189} See id. at 294.

\textsuperscript{190} See Schwartz, supra note 179, at 294.

\textsuperscript{191} See id. For example, the Delaney Clause of the Food, Drug, and Cosmetic Act provides an absolute bar to selling food that has any pesticide residue that is carcinogous. See 21 U.S.C. § 348(c)(3)(A) (1994); see also Bell v. Goddard, 366 F.2d 177, 181 (7th Cir. 1966). The Endangered
eral statutes are now more often requiring EPA-type agencies to conduct cost-benefit analyses while regulating.\textsuperscript{192}

Shortly after taking office in 1981, President Reagan issued Executive Order 12,291, which adopted a cost-benefit theory of federal regulation.\textsuperscript{193} The order required that regulatory action not be done "unless the potential benefits to society for the regulation outweigh the potential costs to society."\textsuperscript{194} This requires federal agencies in the executive branch, like EPA, to engage in cost-benefit analysis before enacting regulations.\textsuperscript{196} More recently, efforts have been underway in Congress to enact federal legislation that will make cost-benefit analysis mandatory for all agency regulation unless another method of rulemaking is provided for in the applicable statute.\textsuperscript{196}

Species Act also does not allow the consideration of cost when it prohibits both the taking of any animal listed as endangered and the destruction of any habitat crucial to the survival of a species. \textit{See} 16 U.S.C. § 1533(b)(2) (1994). The Clean Air Act also mandates that EPA consider public health, without regard to cost, when establishing ambient air quality standards. 42 U.S.C. § 7409(b)(1) (1994). Occasionally, EPA uses cost-benefit analysis even in the face of a direct prohibition in the statute, especially when the health effects of the pollutants being regulated are uncertain. \textit{See} Victor B. Flatt, \textit{Environmental "Contraction" for America? (Or How I Stopped Worrying and Learned to Love the EPA)}, 29 Loy. L.A. L. Rev. 585, 601 (1996). At least one court has disapproved of the cost-benefit analysis done in the case of the ozone standard under the Clean Air Act, but at the same time allowed the standard set by EPA. \textit{See id.} (citing American Petroleum Inst. v. Costle, 665 F.2d 1176, 1185 (D.C. Cir. 1981)).


\textsuperscript{194} \textit{See id.} In fact, when EPA enacted the WPS it made a finding, under Executive Order Number 12,291, that "the benefits to society from avoided incidents of acute, allergic, and delayed adverse effects from occupational exposures to agricultural-plant pesticides exceed the costs attributable to [the WPS requirements]." 57 Fed. Reg. 38,102, 38,145 (1992). In completing its cost-benefit analysis, EPA noted that the benefits from "the reduction in lost time from the workforce, reduced medical expenses, and increased well-being and productivity through being less affected by pesticide poisoning" and other related benefits could not be adequately quantified with available data. \textit{See id.}

B. Problems with Cost-Benefit Analysis

In theory, cost-benefit analysis may be a good way to develop regulations and standards. After all, taking account of the costs and benefits of a proposed rule may lead to the most happiness for all. Also, a cost-benefit decision process may make agencies more accountable for their decisions by encouraging them to engage in a reasoned analysis.

However, in reality, how one person values health or the risk of impaired health may be different from another person. The problem is that the values that a person will assign certain factors, such as worker well-being, will depend on that person's own perspective and self interest. In effect, each person has their own personal cost-benefit analysis. To address this problem agencies try to make their conclusions based on "scientific" findings and make their cost-benefit analysis scientifically objective. However, cost-benefit analysis suffers from the inherent problems of suspect valuation of these scientific factors and whose values are really being considered in the analysis.

The scientific approach to cost-benefit analysis does not cure the problem of the valuation of supposedly scientific factors. It is sometimes difficult to put numerical values on societal factors, such as worker health, well-being, and productivity. Also, it is sometimes difficult to put the risk to workers or the environment when exposed to pollutants in numerical terms that are accurate. This is a result of the long period of time that it takes some diseases to appear in workers exposed to low levels of toxic substances. Also, different

\[197 \text{See Flatt, supra note 191, at 603.} \]
\[198 \text{See Schwartz, supra note 179, at 292.} \]
\[199 \text{See Exec. Order No. 12,291, 46 Fed. Reg. at 13,193. Executive Order Number 12,291, issued in 1981 by President Reagan, required a cost-benefit analysis to be done before enacting regulations. See id. The purposes of the Executive Order were "to reduce the burdens of existing and future regulations, increase agency accountability for regulatory actions, provide for presidential oversight of the regulatory process, minimize duplication and conflict of regulations, and insure well-reasoned regulations." Id. (emphasis added).} \]
\[200 \text{See Flatt, supra note 191, at 604-05.} \]
\[201 \text{See id. at 605.} \]
\[202 \text{See id.} \]
\[203 \text{See id. at 604.} \]
\[204 \text{See Flatt, supra note 191, at 606.} \]
\[206 \text{See Flatt, supra note 191, at 606.} \]
\[207 \text{See 57 Fed. Reg. 38,102, 38,145 (1992).} \]
\[208 \text{See Flatt, supra note 191, at 606.} \]
\[209 \text{See McElveen, supra note 196, at 1561.} \]
studies may reach different conclusions as to the risk that a particular toxin presents to human safety.209

Even if an agency were able to assign an appropriate value to social variables, someone must still decide what level of safety is necessary.210 When making decisions of what are acceptable levels of risk to worker health or what is an unacceptable cost to a particular industry, agencies are not dealing with scientific fact.211 These decisions are policy choices, regardless of the scientific jargon used in rationalizing the decisions.212 It is not surprising, considering the value judgments involved with cost-benefit analysis, that it has been criticized for benefiting a few at the expense of others.213 Cost-benefit analysis is not objective science, but a public policy and political means of justifying choosing one person’s values over the values of another.214

C. Cost-Benefit Analysis and the Feasibility Standard of OSHA

In Industrial Union Department, AFL-CIO v. American Petroleum Institute, which is popularly referred to as the Benzene decision, the United States Supreme Court refused to find that the Occupational Safety and Health Act (OSH Act) (Section 6(b)(5) of 29 U.S.C. § 655(b)(5)) requires a cost-benefit analysis, but the Court seemed to approve of quantitative risk assessment by regulatory bodies.215 In a later decision, American Textile Manufacturers Institute v. Donovan, the United States Supreme Court stated that “[w]hen Congress has intended that an agency engage in cost-benefit analysis, it has clearly

209 See Flatt, supra note 191, at 606.
210 See id.
211 See McElveen & Amanatea, supra note 196, at 1553.
212 See id. Also, when making a decision between one particular scientific study and another as to a particular factor’s value, the agency is still deciding what values society weighs most heavily. See Flatt, supra note 191, at 606.
213 See Flatt, supra note 191, at 603.
214 See id. at 606.
215 See Industrial Union Dept’, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 615, 645 (1980) [hereinafter Benzene]; McElveen & Amanatea, supra note 196, at 1565–66. Four of the Justices (the plurality, because Justice Rehnquist agreed with the result) found, under the OSH Act, that OSHA had the burden of showing that exposure to a particular toxic substance above the level specified in a regulation presented a significant health risk. See Benzene, 448 U.S. at 642. Although the plurality did not define what a significant risk was, three of the Justices gave examples of the concept using quantitative terms. See id. at 655. The significant risk determination was instead left to OSHA. See id. They noted that odds of one in one billion that a person will die of cancer from drinking chlorinated water would be insignificant, while chances of one in one thousand that regular exposure to benzene would be fatal might lead a reasonable person to conclude that there is a significant risk. See id.
indicated such intent on the face of the statute." The Court held that OSHA was not required by the OSH Act to show that the benefits of a standard set for the cotton industry outweighed the costs of attaining the desired reduction in cotton dust. The Court noted that Section 655(b)(5) of the OSH Act stated that "[t]he Secretary . . . shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity." The Court defined the term "to the extent feasible" as "capable of being done," instead of the lower standard sought by the textile industry that would have required a cost-benefit analysis. The Court noted that the legislative history of the OSH Act showed that Congress knew the Act would impose substantial costs on employers, but that such costs were to be imposed to ensure safe working conditions. In determining the intent of Congress when enacting the OSH Act, the Court noted Senator Eagleton's summary of Congresses' position. The Senator stated that "[w]hether we, as individuals, are motivated by simple humanity or by simple economics, we can no longer permit profits to be dependent upon an unsafe or unhealthy worksite.

Although American Textile Manufacturers Institute did not require OSHA to engage in a cost-benefit analysis because the OSH Act did not require it, an agency may engage in a cost-benefit analysis when the statute does not otherwise explicitly reject that interpretation. This interpretation of American Textile Manufacturers Institute is strengthened by the United States Supreme Court's decision in Chevron U.S.A. v. Natural Resources Defense Council. Chevron requires a deferral to a permissible agency interpretation of a statute.

217 See id. at 512.
218 See id. at 508. The Court also noted the general language of the definition of the term "occupational safety and health standard" as "a standard which requires conditions . . . reasonably necessary or appropriate to provide safe or healthful employment." Id. at 512. Although the Court believed that this language might be construed to contemplate a cost-benefit type analysis, it found that the general terms in the definition did not override the specific statutory standard of "to the extent feasible." See id.
219 See id. at 508-09.
220 See id. at 514. The Court stated, "Congress viewed the costs of health and safety as a cost of doing business." Id.
222 Id. (citing 116 Cong. Rec. 41,764 (1970)). "We are talking about people's lives, not the indifference of some cost accountants." Id. at 521.
223 See Schwartz, supra note 179, at 305.
unless it is contrary to the unambiguously expressed intent of Congress.\textsuperscript{225} This Congressional intent is determined by the statute's language and legislative history.\textsuperscript{226} If Congress did not directly speak on the issue, then it will be assumed by the reviewing court that Congress gave the agency broad discretion.\textsuperscript{227}

D. Operation of Cost-Benefit Analysis

When an agency engages in cost-benefit analysis, it must state the method that it arrived at its conclusion.\textsuperscript{228} The agency may not simply state that the benefits of the proposed standard or rule outweigh the costs.\textsuperscript{229} Also, the agency must consider all those factors that Congress intended that it consider.\textsuperscript{230} The United States Supreme Court has stated that

\begin{quote}
[n]ormally, an agency rule [will] be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.\textsuperscript{231}
\end{quote}

An agency must explain any change of position that it has on a particular standard or policy.\textsuperscript{232} Such an explanation must consist of a reasoned analysis.\textsuperscript{233} However, new standards that are based on new evidence do not require the same level of analysis.\textsuperscript{234}

FIFRA requires that EPA start suspension proceedings for the cancellation of any pesticide that either poses an imminent hazard or has unreasonable adverse effects on the environment.\textsuperscript{236} Both of these standards require EPA to conduct a cost-benefit analysis.\textsuperscript{236} The de-

\textsuperscript{225} See id.
\textsuperscript{226} See id. at 842, 845.
\textsuperscript{227} See id. at 843–44.
\textsuperscript{228} See Benzene, 448 U.S. 607, 670 (1980) (Powell, J., concurring).
\textsuperscript{229} See id.
\textsuperscript{231} Id.
\textsuperscript{232} See National Coalition Against the Misuse of Pesticides v. Thomas, 809 F.2d 875, 883 (D.C. Cir. 1987) (EPA's change of position on safety of EDB in foreign mangoes had to be supplied with reasoned analysis); see also Benzene, 448 U.S. at 718–19, 710 n.27.
\textsuperscript{233} See National Coalition Against the Misuse of Pesticides, 809 F.2d at 883.
\textsuperscript{234} See Environmental Defense Fund, Inc. v. EPA, 510 F.2d 1292, 1294 (D.C. Cir. 1975).
dictions of the cases that follow show how the courts have examined EPA cost-benefit decisions involving the suspension of pesticide registrations.237

In *Environmental Defense Fund v. Ruckelshaus*, the Secretary of Agriculture had refused to suspend the registration of DDT under FIFRA despite his own questions regarding the pesticide's risk to the environment.238 The Secretary noted that large amounts of DDT produced cancer in animals and humans, but that its effects in small doses were unknown.239 Therefore, the Secretary refused to suspend DDT's registration stating that "DDT has important beneficial uses in connection with disease control and protection of various crops."240

The United States Court of Appeals for the District of Columbia Circuit remanded the case to EPA for more findings because of the Secretary's acknowledgment that there was "a substantial question concerning the safety of DDT."241 The court held that the Secretary must explain the reasons for not suspending the registration of a pesticide when the product's safety is at issue.242

In *Wellford v. Ruckelshaus*, the United States Court of Appeals for the District of Columbia Circuit remanded the case to EPA for further consideration of its conclusion that the risk of harm from the use of 2,4,5-T on food crops was insufficient to warrant a suspension.243 EPA had come to this conclusion because pesticide residues were found to be negligible in food that is actually sold to consumers.244 The court stated that the Secretary:245

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237 See infra text accompanying notes 238--69.
238 See *Environmental Defense Fund*, 510 F.2d at 1296 n.4; Environmental Defense Fund, Inc. v. Ruckelshaus, 439 F.2d 584, 594 (D.C. Cir. 1971). The suspension order must include "findings pertaining to the question of 'imminent hazard.'" 7 U.S.C. § 136d(c)(1); see *Love v. Thomas*, 858 F.2d 1347, 1350 (9th Cir. 1988).
239 See *id.*
240 See *id.*
241 See *id.* at 595. The court found that the unreasonable adverse effects standard of FIFRA requires the cancellation of a pesticide's registration whenever "there is a substantial question about the safety of a registered pesticide." See *id.* at 594.
242 See *id.* at 598.
243 See *Wellford v. Ruckelshaus*, 439 F.2d 598, 603 (D.C. Cir. 1971).
244 See *id.*
245 EPA only recently had been created and therefore the Secretary of Agriculture had the responsibility for making the decision regarding the use of 2,4,5-T. See *id.*
did not discuss the risk of injury to farmworkers or others who might be exposed to the chemical by virtue of its use on food crops, despite the fact that he clearly recognizes a hazard from direct exposure. . . . We are troubled by the possibility that the Secretary failed to give petitioners' allegations the careful consideration to which they were entitled, or that he failed to assign sufficient importance to the risk of harm to human lives.246

In the 1972 Environmental Defense Fund v. EPA decision, the United States Court of Appeals for the District of Columbia Circuit found that EPA had failed to do an adequate analysis of the benefits of the pesticides, aldrin and dieldrin.247 The court stated that:

a mere recitation of a pesticide's uses does not suffice as an analysis of benefits is fortified where, as here, there was a submission by EDF, that alternative pest control mechanisms are available for such use. The analysis of benefit requires some consideration of whether such proposed alternatives are available or feasible, or whether such availability is in doubt.248

In the 1975 Environmental Defense Fund v. EPA decision, the United States Court of Appeals for the District of Columbia Circuit upheld EPA's decision to suspend aldrin and dieldrin despite the scientific uncertainty of studies that suggested carcinogenic reactions in mice.249 The court reasoned that such scientific evidence was in the area of the Agency's expertise.250 Also, the court found that the earlier refusals to suspend the registrations of aldrin and dieldrin based on earlier mice studies did not preclude EPA from changing its policy when there was a change in the nature of the evidence.251 The court explained that what had changed was not EPA's policy, but the nature of the available evidence.252

The court upheld the EPA's cost-benefit analysis despite the court's statement that "[t]he statute places a heavy burden on any administrative officer to explain the basis for his decision to permit the continued use of a chemical known to produce cancer in experimental animals."253 Also, the court dismissed the registrant's arguments that

246 See id. at 602–03.
248 Id.
249 See 510 F.2d 1292, 1299 (D.C. Cir. 1975).
250 See id. at 1298–99. The court stated that "FIFRA confers broad discretion' on the Administrator to find facts 'to set policy in the public interest.'" Id. at 1297 (citing Wellford, 439 F.2d at 601.).
251 See Environmental Defense Fund, 510 F.2d at 1299–1300.
252 See id.
253 Id. at 1302.
the EPA's decision was inadequate because the Agency failed to provide extensive cost-benefit analysis for each crop and geographical area for which the pesticides were suspended.\footnote{See \textit{id.} at 1303.} It stated that in an expedited suspension proceeding there was no need for such a degree of detail, but instead such analysis could be done at the final cancellation proceeding.\footnote{See \textit{id}.}

In \textit{Love v. Thomas}, the United States Court of Appeals for the Ninth Circuit evaluated the EPA's suspension of the registration of dinoseb, a pesticide used in the cultivation of such crops as green peas, cucumbers, squash, zucchini, and several types of beans and berries.\footnote{See \textit{Love v. Thomas}, 858 F.2d 1347, 1349 (9th Cir. 1987).} Studies in possession of EPA in 1986 gave the appearance that dinoseb caused serious health risks to persons, including sterility in men and birth defects in the unborn children of pregnant women.\footnote{See \textit{id.} at 1350.} A group of farmers in the Northwest challenged the suspension order, stating that "[t]hey simply could not grow their crops without dinoseb."\footnote{See \textit{id.} at 1351.} They argued that there was no substitute for dinoseb in the Northwest and that the entire caneberry\footnote{Caneberries include red raspberries, blackberries, boysenberries, and loganberries. See \textit{id}. at 1350 n.1.} crop of the Pacific Northwest, where ninety-five percent of the nation's commercial caneberry crop is grown, would be lost.\footnote{See \textit{id.} at 1358.} Potential crop losses from the suspension of dinoseb would amount to $39.2 million in the year of the suspension.\footnote{See \textit{id.} at 1359 n.20.}

When making its decision, EPA never evaluated several individual crops, including green peas, snap beans, caneberries, and cucurbits, because EPA ran out of time and resources.\footnote{See \textit{id}.} The court concluded that the data relied on for such crops were incomplete.\footnote{See \textit{id}.} The court also showed displeasure with the EPA's conclusion that consumer impact of the removal of dinoseb would be "uncertain" for green peas, snap beans and berries.\footnote{See \textit{id}.} The grower impact for these crops was listed as minor, although the annual increase in treatment costs for green peas and berries was estimated by EPA to be $1.2 million and $78,000 respectively.\footnote{See \textit{id}.} The court believed that EPA had conducted
only a “cursory” investigation of alternative pesticides and the economic impact of the suspension in the Northwest.266

The court found that the EPA's cost-benefit analysis for several of the crops was insufficient.267 The court disagreed with arguments made by EPA that it should be allowed to rely on nationwide findings as to pesticide alternatives and economic impacts considering the low amount of dinoseb used on such crops as green peas and snap beans (each account for about two percent of dinoseb usage in the United States).268 Therefore, the court declared that the emergency suspension in its entirety was “arbitrary and capricious, an abuse of discretion, and was not issued in accordance with the provisions of FFRA.”269

VI. COST-BENEFIT ANALYSIS AND THE ROSE INDUSTRY EXCEPTION

A. Cost-Benefit Analysis Should Not Be Used to Grant Exceptions to the WPS

As stated previously, EPA allows anyone affected by the requirements of the WPS to request an exception to the prohibition on early entry into pesticide treated areas during a REI.270 When determining whether to grant an exception, “EPA will base its decision on whether the benefits of the exception outweigh the costs.”271 In theory, the cost-benefit analysis required by the regulations is supposed to ensure that the greatest good is done for the greatest number.272 However, the reality is that how one person may value factors, such as the risk of impaired health, will depend on that person's own perspective and self interest.273 To avoid the problem of value judgments in cost-benefit analysis, agencies are supposed to make findings that are scientifically objective.274 However, many of the “scientific” variables that must be incorporated into the analysis are not easily quantified

266 See Love, 858 F.2d at 1360.
267 See id.
268 See id.
269 See id. at 1363.
271 See id. § 170.112(e)(1)(vi).
272 See Schwartz, supra note 179, at 292.
273 See Flatt, supra note 191, at 605.
274 See id.
and the weight given these variables depends on whose values are used when making the analysis.\textsuperscript{275}

EPA has stated that it is unable to quantify certain benefits of protecting workers from pesticide exposure, such as "the reduction in lost time from the workforce, reduced medical expenses, and increased well-being and productivity through being less affected by pesticide poisoning . . . and any related benefits."\textsuperscript{276} Statistics that are used to describe the risks that pesticides pose to workers are often inaccurate because of reporting problems.\textsuperscript{277} Thus, although allergic and acute effects caused by pesticides can appear during or shortly after exposure, these incidents may not be reported because medical providers might not recognize or report symptoms of pesticide-related illnesses, farmworkers often lack the financial means to receive medical aid, and pesticide poisoning often mimics the symptoms of colds and flu.\textsuperscript{278} EPA also noted that long term exposure to many of the pesticides in Roses Inc.'s 1996 exception request could cause increased cancer rates, reproductive and development effects, and adverse effects on the nervous system.\textsuperscript{279} EPA stated that long term exposure, such as would be required of workers under the rose industry exception, can produce "delayed, chronic and subchronic effects [that] are generally not reported as pesticide-related incidents because of the time between exposure and effect."\textsuperscript{280} Because these delayed health effects are generally not reported, the studies that rely on such data as support for the proposition that pesticides present a low risk to worker health may be flawed.\textsuperscript{281} Thus, EPA discounted the California study relied on by Roses Inc. in its 1996 exception request that suggested that rose harvesters do not experience unacceptable risks from pesticides as unreliable.\textsuperscript{282} "EPA does not have sufficient data to determine whether the potential level of exposure to rose harvesters corresponds to levels of concern identified in the toxicological studies . . . ."\textsuperscript{283} EPA stated that it was "difficult to conclude, based on incident data, that reentry protections such as REIs are less

\textsuperscript{275} See id. at 588; McElveen & Amanatea, supra note 196, at 1553.
\textsuperscript{277} See Flatt, supra note 191, at 606.
\textsuperscript{279} See id.
\textsuperscript{280} See id.; see also McElveen & Amanatea, supra note 196, at 1561 (discussing the difficulty in determining a numerical value for the risk that a carcinogenic pesticide will cause cancer).
\textsuperscript{283} 62 Fed. Reg. at 51,998.
important to the health and safety of rose harvesters than to other farmworkers.\textsuperscript{284}

The economic costs that may be imposed on an industry by pesticide regulation may be more easily quantified than other non-economic factors.\textsuperscript{285} The cost to rose growers annually of complying with the WPS was estimated in 1994 by EPA by examining the amount of harvest loss per week, the frequency at which pesticides are normally applied in rose production, toxicity categories of the pesticides used, and the times at which roses must be harvested to yield a premium price.\textsuperscript{286} When granting the 1994 rose exception, EPA found that rose growers would lose between $22,000 and $50,000 per acre annually based primarily on such data submitted by rose growers and Roses Inc.\textsuperscript{287} However, even with these calculations, EPA still concluded that it had "insufficient information to project quantitatively the economic impacts of not granting an exception to rose growers."\textsuperscript{288} In Love v. Thomas, the United States Court of Appeals for the Ninth Circuit showed displeasure when EPA had suspended the use of dinoseb despite its findings that consumer impact of the removal of dinoseb was "uncertain" for green peas, snap beans and berries.\textsuperscript{289}

Even if EPA could assign appropriate numbers to such factors, EPA must still decide what level of safety is necessary.\textsuperscript{290} Determining what the costs to the industry and society must be to outweigh the risks to worker health and the environment depends on a value judgment.\textsuperscript{291} Thus, in Wellford v. Ruckelshaus, where the Secretary of Agriculture decided against suspending the use of 2,4,5-T, the United States Court of Appeals for the District of Columbia Circuit stated,

\textsuperscript{284} Id. Uncertainty as to the risks posed by a pesticide has been grounds for remanding an agency decision. See Environmental Defense Fund, Inc. v. Ruckelshaus, 439 F.2d 584, 595 (D.C. Cir. 1971). In Environmental Defense Fund v. Ruckelshaus, the Secretary of Agriculture noted that large amounts of DDT produced cancer in animals and humans, but that its effects in small doses was unknown. See id. at 594. The United States Court of Appeals for the District of Columbia Circuit remanded the case to EPA for more findings because of the Secretary's acknowledgment that there was "a substantial question concerning the safety of DDT." See id. at 595.

\textsuperscript{285} Compare 59 Fed. Reg. 30,265, 30,266 (1994) (estimating cost to rose industry), with 61 Fed. Reg. at 56,103 (recognizing difficulty in placing numerical value on risk to worker health from rose pesticides).

\textsuperscript{286} See 59 Fed. Reg. at 30,266.

\textsuperscript{287} See id.

\textsuperscript{288} See id.

\textsuperscript{289} See Love v. Thomas, 858 F.2d 1347, 1359 n.20 (9th Cir. 1988).

\textsuperscript{290} See Flatt, supra note 191, at 606.

\textsuperscript{291} See McElveen & Amanatea, supra note 196, at 1553.
"We are troubled by the possibility that the Secretary failed to give petitioners' allegations the careful consideration to which they were entitled, or that he failed assign sufficient importance to the risk of harm to human lives."292 In determining how much weight society places on such factors, EPA may be unduly influenced by groups that do not represent society as a whole.293 In the case of the rose industry exception to the WPS, EPA may have placed too much weight on the interests of rose growers and their national lobbying group, Roses Inc.294 The undue influence of Roses Inc., and rose growers generally, on EPA can be seen by EPA's reliance on information submitted primarily by these groups as to the costs to the rose industry of abiding by the regulations.295 This kind of influence over EPA decision-making, leads to EPA overemphasizing the values of Roses Inc. and rose growers when it engages in cost-benefit analysis.296 Thus, the cost-benefit analysis used by EPA in granting the rose industry exception could not be truly objective because it necessarily involved value judgments.297

Another argument against using cost-benefit analysis to determine industry specific exceptions to pesticide reentry time limits is that such analysis is not specifically authorized by FIFRA.298 As the United States Supreme Court stated in American Textile Manufacturers Institute v. Donovan, "[w]hen Congress has intended that an agency engage in cost-benefit analysis, it has clearly indicated such intent on the face of the statute."299 Although FIFRA requires a cost-benefit analysis when registering a pesticide,300 the Act does not address specifically how to determine when it is safe for a farmworker

292 See Wellford v. Ruckelshaus, 439 F.2d 598, 602-03 (D.C. Cir. 1971); see also Love, 858 F.2d at 1359 n.20 (court notes that grower impact for green peas and berries was listed as minor, although annual changes in treatment costs for these crops were estimated by EPA to be $1.2 million and $78,000, respectively).


294 See 59 Fed. Reg. 30,265, 30,266 (1994). EPA granted the 1994 exception based on calculations by the rose industry of economic costs despite EPA's own conclusion that it "had insufficient information to project quantitatively the economic impacts of not granting an exception to rose growers." See id.

295 See Flatt, supra note 191, at 603.

296 See Flatt, supra note 191, at 603.

297 See id.


299 See id.

300 7 U.S.C. §§ 136a(c)(5)(C), 136 (bb) (1994). FIFRA allows EPA to register a pesticide if the Agency finds that "it will perform its intended function without unreasonable adverse effects
to reenter a farm or greenhouse after the application of an already registered pesticide.\footnote{\textsuperscript{901}}

In the absence of such a specific standard in FIFRA, it could be argued that the OSH Act's statutory requirement of making standards for worksites that assure, "to the extent feasible, . . . that no employee will suffer material impairment of health" should guide EPA.\footnote{\textsuperscript{902}} A feasibility requirement would force EPA to enact regulations that protect farmworkers from exposure to pesticides at a level that is "capable of being done" by the industry, instead of a level set according to a lower cost-benefit standard.\footnote{\textsuperscript{903}} The Congressional intent behind the OSH Act, as noted by the United States Supreme Court in American Textile Manufacturers Institute, supports the conclusion that profits can no longer be dependent upon an unsafe or unhealthy worksite and that cost-benefit analysis should not be applied when dealing with worker safety.\footnote{\textsuperscript{904}}

However, the argument that EPA cannot use cost-benefit analysis to grant exceptions to the prohibition on early entry probably would not be successful in court.\footnote{\textsuperscript{905}} Under the Organized Migrants in Community Action v. Brennan decision, EPA can promulgate farmworker protection standards pursuant to FIFRA, and these standards pre-empt OSHA from enacting similar regulations.\footnote{\textsuperscript{906}} Thus, a court probably would find that the OSH Act's feasibility standard does not apply.\footnote{\textsuperscript{907}} The lack of specific language in FIFRA as to what standards should be used when enacting farmworker protection regulations would probably cause a court, under the Chevron ruling, to find that EPA has been given broad discretion on the issue.\footnote{\textsuperscript{908}} EPA apparently believes that a cost-benefit analysis is "required" by FIFRA when deciding to grant or deny a request for an exception.\footnote{\textsuperscript{909}} A court prob-

\footnotesize{\textsuperscript{901}} See generally \textit{id.} §§ 136-136y.
\footnotesize{\textsuperscript{902}} See American Textile Mfrs. Inst., 452 U.S. at 508.
\footnotesize{\textsuperscript{903}} See \textit{id.} at 508--09.
\footnotesize{\textsuperscript{904}} See \textit{id.} at 521--22.
\footnotesize{\textsuperscript{906}} See Organized Migrants in Community Action, 520 F.2d at 1169.
\footnotesize{\textsuperscript{907}} See \textit{id.}
\footnotesize{\textsuperscript{908}} See \textit{Chevron}, 467 U.S. at 843.
\footnotesize{\textsuperscript{909}} See 62 Fed. Reg. 51,994, 51,994 (1997).}
ably would find that EPA's decision to use a cost-benefit analysis is a permissible interpretation of FIFRA because of its provision for the use of such analysis when making pesticide registration decisions. Therefore, despite the problems with value judgments and inaccurate valuation in cost-benefit analysis, a court probably would find that EPA can use cost-benefit analysis to grant exceptions, such as the rose industry exception, to the WPS.

B. EPA Failed to Examine All Required Factors When the Agency Granted the Rose Industry Exception

A court usually will defer to an agency's conclusion as to whether the costs of a proposed regulation outweigh its benefits unless the decision was arbitrary and capricious. The deference to agency decision-making is based on the policy that courts do not have the same expertise, scientific or otherwise, that an agency has with regards to issues the agency regulates. Therefore, a court probably would not remand EPA's finding that the benefits of granting the rose industry exception outweigh the costs, if EPA considered all the factors that it was required to consider under FIFRA. As the court in the 1975 Environmental Defense Fund v. EPA decision stated, "FIFRA confers broad discretion' on the Administrator to find facts and 'to set policy in the public interest.'"

However, EPA is not allowed to state simply that the benefits of the exception outweigh the costs when the Agency makes exception decisions. EPA must supply a reasoned analysis for how it arrived at its decision. A court will find that EPA acted arbitrarily and capriciously in granting the rose industry exception if the Agency had "entirely failed to consider an important aspect of the problem" under consideration. Congress apparently believes that EPA must con-

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211 See Chevron, 467 U.S. at 843; Flatt, supra note 191, at 606; McElveen & Amanatea, supra note 196, at 1553.


214 See id. at 1297.

215 See id. (citing Wellford v. Ruckelshaus, 439 F.2d 598, 601 (D.C. Cir. 1971)).


sider all relevant factors before granting an exception to the WPS requirements. This can be seen from its strong objection to EPA granting an exception in 1994 to the cut flower and cut fern industry because EPA had not adequately considered California regulations prohibiting early entry. If EPA did not consider all of the factors that it was supposed to consider when engaging in its cost-benefit analysis, then the rose industry exception decision will be remanded to EPA for more analysis.

EPA's decision to grant the rose industry exception was arbitrary and capricious because the Agency failed to determine the risks that specific pesticides with varying REIs would have on early entry workers as a result of the exception. Without considering the effects of specific pesticides on worker health, EPA would not have adequately assessed an important factor in its cost-benefit analysis. Pursuant to the WPS, EPA is required to examine the risk to workers in its cost-benefit analysis when deciding to grant an exception. The cost-benefit analysis used in WPS exception decisions is analogous to the cost-benefit analysis used when EPA makes suspension of pesticide registration decisions. Both types of analysis should be similar because both come from the same statutory authority, namely FIFRA.

In Love v. Thomas, the United States Court of Appeals for the Ninth Circuit found the EPA's decision to suspend the registration of dinoseb arbitrary and capricious. Although studies in possession of EPA in 1986 gave the appearance that dinoseb caused serious health risks to persons, the court found that the Agency could not rely solely

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320 See id. Congress "note[d] that California prohibits early entry for hand labor without apparent deleterious effect on the cut flower industry." Id.
321 See Love v. Thomas, 858 F.2d 1347, 1363 (9th Cir. 1988).
323 See Love, 858 F.2d at 1360; cf. Wellford v. Ruckelshaus, 439 F.2d 598, 602 (D.C. Cir. 1971) (EPA decision to permit use of 2,4,5-T remanded to agency when it failed to include risk to farmworkers in cost-benefit analysis).
324 See 40 C.F.R. § 170.112(e)(1)(vi) (1996). The WPS states that when determining whether to grant an exception, "EPA will base its decision on whether the benefits of the exception outweigh the costs, including the value of the health risks attributable to the exception." See id. (emphasis added). When amending FIFRA in 1972, the United States Senate Committee on Agriculture and Forestry stated that EPA was required to have the "labeling and classification of pesticides be such as to protect farmers, farm workers, and others [from] coming in contact with pesticides or pesticide residues." See S. Rep. No. 92-883, at 43-46 (1972), reprinted in 1972 U.S.C.C.A.N. 3993, 4063.
326 Id.
327 See Love, 858 F.2d at 1363.
on this information without making specific findings as to the economic costs to each crop affected by the suspension.\textsuperscript{328} Thus, EPA's decision was arbitrary and capricious when it did not make specific findings as to the costs that would be imposed by the suspension of dinoseb on green peas and snap beans, even though each of these crops only account for about two percent of total dinoseb usage in the United States.\textsuperscript{329} The court disagreed with arguments made by EPA that the Agency should be allowed to rely on nationwide findings on economic impacts considering the low amount of dinoseb used on such crops.\textsuperscript{330}

In the case of the rose industry exception EPA noted that it had "insufficient information" comparing the benefits of using different pesticides with varying REIs to treat the same pests.\textsuperscript{331} EPA defended its decision to grant the exception despite this lack of information, stating:

\begin{quote}
[D]espite presenting less than the desired amount of comparative information regarding pesticides, the Agency believes that there is still a need for the exception no matter which individual pesticides may be used. Regardless of the justification of the necessity of any particular pesticide, clearly the cut-rose industry cannot currently rely only on 4-hour REI pesticides, changes in cultural practices or drastic reductions of the number of pesticide applications. Therefore, even if several individual pesticides were determined unessential, growers would still be faced with applying mostly longer REI pesticides at frequencies similar to the present.\textsuperscript{332}
\end{quote}

However, EPA cannot simply state that the economic costs to the rose industry are so great that the Agency does not have to examine the risks that specific pesticides with varying REIs will pose to workers.\textsuperscript{333} This follows from \textit{Love v. Thomas}, where the EPA's findings that dinoseb posed a serious health risk did not relieve the Agency of the necessity to examine the economic costs to the green pea and snap bean industries.\textsuperscript{334} EPA must examine the risks that specific pesticides may have on workers in the same manner that the Agency was required to examine the costs of suspending dinoseb on those minor

\textsuperscript{328} See \textit{id.} at 1350, 1360.
\textsuperscript{329} See \textit{id.} at 1358, 1360.
\textsuperscript{330} See \textit{id.} at 1360.
\textsuperscript{331} See 62 Fed. Reg. 51,994, 51,996 (1997). EPA also stated that "this deficiency should be remedied if another renewal is requested." \textit{Id.}
\textsuperscript{332} \textit{Id.}
\textsuperscript{333} See Love v. Thomas, 858 F.2d 1347, 1360 (9th Cir. 1988).
\textsuperscript{334} See \textit{id.} at 1358, 1360.
crops.335 Therefore, in the case of the rose industry exception, EPA's decision was arbitrary and capricious because the Agency did not examine the risks that specific pesticides with varying REIs would pose to workers.336

There is reason to believe that if EPA had examined the risks that specific pesticides would pose to workers, the Agency would either not have granted the exception or would have limited its scope to only apply to certain pesticides.337 In Roses Inc.'s request for an exception to the WPS restrictions, Roses Inc. identified twenty-eight different pesticides that it believed were "essential" to the industry.338 EPA noted that several of the chemicals listed were in Toxicity Categories I and II based on a more heightened risk to human health.339 Included on the list of essential pesticides was Chlorothalonil, a forty-eight hour REI pesticide for which EPA had denied eleven states an exception from the WPS for harvesting cantaloupe and squash.340 As mentioned previously, Chlorothalonil can cause eye and skin irritation and can have adverse effects on the kidneys.341 EPA declined to grant the cantaloupe and squash exception despite growers' claims that spray schedules could not be changed to fit the forty-eight hour REI of Chlorothalonil and that alternatives to the use of Chlorothalonil were inadequate.342 Like roses, squash and cantaloupe are harvested daily.343 While overripe squash could be sold as a downgraded product, overripe cantaloupes are produced for a fresh market only.344

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335 See id. at 1360.
336 See id.; 62 Fed. Reg. at 51,996. However, the 1975 decision of the United States Court of Appeals for the District of Columbia Circuit in Environmental Defense Fund v. EPA, 510 F.2d 1292, 1302 (D.C. Cir. 1975), dismissed the registrant's argument that EPA's decision was inadequate because the Agency failed to provide extensive cost-benefit analysis for each crop and geographical area for which the pesticides were suspended. The court stated that in an expedited suspension proceeding there was no need for such a degree of detail, but instead such analysis could be done at the final cancellation proceeding. See Environmental Defense Fund, 510 F.2d at 1303. In the case of the rose industry decision, there was no expedited proceeding, nor was one apparently necessary, since there was a time lapse of almost five months between the expiration of the first exception and Roses Inc.'s proper request for the second exception. See 61 Fed. Reg. 56,100, 56,101 (1996).
339 See id.
case of roses, there is a secondary market for imperfect roses, consisting mostly of street vendors.\textsuperscript{345} Maryland estimated that a maximum of ten to fifteen percent loss of yield would be incurred for both cantaloupe and squash,\textsuperscript{346} while Delaware estimated that fifty to seventy percent of grower net revenue would be lost without the exception.\textsuperscript{347} These figures are similar to the Roses Inc.'s claims that without the rose industry exception losses would be seven to fourteen percent of the annual harvest.\textsuperscript{348} Therefore, because of the similarity of the necessity for the exceptions in the cantaloupe, squash, and rose industries, EPA may have declined to grant the rose industry exception if it had examined the risks that specific pesticides, such as chlorothalonil, posed to rose workers.\textsuperscript{349}

There is reason to believe that pesticides, such as Chlorothalonil, present an even greater risk to worker health when used in the rose industry.\textsuperscript{350} Some commenters on the rose industry exception believed that the risk to rose workers was serious due to the high volume of pesticides used and the high frequency of application typical in the rose industry.\textsuperscript{351} The WPS restrictions for greenhouses are generally more stringent than those for farm or forest application because production areas in greenhouses are often close together and plants requiring different pesticide treatments often occupy the same plant bed.\textsuperscript{352} Also, EPA has discussed two studies that suggest that rose workers may experience higher pesticide exposure than workers in other agricultural fields.\textsuperscript{353} Therefore, there is reason to believe that if the EPA had examined the risks posed by specific pesticides to workers in the rose industry, the Agency would either not have

\begin{itemize}
  \item \textsuperscript{345} See 62 Fed. Reg. at 51,996.
  \item \textsuperscript{346} This estimation was based on the assumption that a one day delay in harvesting would occur each week resulting in a loss of one-seventh of each grower's total production. See id.
  \item \textsuperscript{347} See id. Although EPA discounted these claims, stating that it had "incomplete information" and that it was not able to quantify or complete a reliable qualitative assessment of the projected economic impacts, yield loss and grower profit associated with loss of harvest days," the claims are made somewhat stronger by Indiana's similar estimates of seven percent crop loss and 59\% grower income loss in its 1996 exception request for Chlorothalonil-treated muskmelon fields. See 61 Fed. Reg. 29,096, 29,097–98 (1996); 60 Fed. Reg. at 49,844.
  \item \textsuperscript{348} See 62 Fed. Reg. at 51,996.
  \item \textsuperscript{349} Cf. id. (factors contributing to EPA's decision to grant rose industry exception) with 60 Fed. Reg. 30,872, 30,873 (1995) (factors contributing to EPA's decision to deny an exception for the use of Chlorothalonil on cantaloupe and squash).
  \item \textsuperscript{351} See 62 Fed. Reg. at 51,997.
  \item \textsuperscript{352} See 57 Fed. Reg. at 38,109–10.
  \item \textsuperscript{353} See 59 Fed. Reg. at 30,266.
\end{itemize}
granted the exception or would have limited its scope to only apply to certain pesticides.\textsuperscript{354}

C. EPA Has Changed its Policy Regarding PPE and the Possibility of Alternatives to the Exception Without Reasoned Analysis

1. Possibility of Alternatives to Early Entry in the Rose Industry

EPA stated that the 1994 rose industry exception was intended to be only "temporary,"\textsuperscript{366} and the exception was supposed to "provide rose growers time to adjust pesticide spray schedules, find early-entry alternatives, and develop technology."\textsuperscript{366} The Agency had stated at the time it granted the 1994 exception that another exception would only be considered if the rose industry could "clearly demonstrate that an aggressive attempt to develop and implement alternative practices was made during the period of the exception."\textsuperscript{367} However, in Roses Inc.'s 1996 request for an exception, Roses Inc. submitted no evidence that "an aggressive attempt to develop and implement alternative practices was made during the period of this exception."\textsuperscript{368} Instead of showing how the rose industry had aggressively attempted to implement alternative practices, Roses Inc. gave a number of excuses as to why the industry was unable to bring itself into compliance.\textsuperscript{369} By considering Roses Inc.'s exception request without the rose industry clearly demonstrating that it had aggressively attempted during the period of the first exception to implement

\textsuperscript{354} See Love v. Thomas, 858 F.2d 1347, 1363 (9th Cir. 1988); supra notes 337–53. Another argument that EPA did not perform an adequate cost-benefit analysis concerns the time period of the exception. Cf. Love, 858 F.2d at 1363. In EPA's press release for the rose industry exception, EPA stated that "the benefits of early entry over the next two years are substantial." See EPA Press Release, supra note 9. However, the exception will actually be in effect from December 18, 1996 to October 4, 1999. See 62 Fed. Reg. at 52,000. Therefore, an argument could be made that EPA did not engage in a proper cost-benefit analysis because the agency did not make any findings for an exception period lasting more than two years. Cf. Love, 858 F.2d at 1363 (court found pesticide suspension order an abuse of discretion when EPA did not engage in cost-benefit analysis for particular region of the country although it did engage in such analysis at the national level).

\textsuperscript{355} See 59 Fed. Reg. at 30,270.

\textsuperscript{356} See id. at 30,265.

\textsuperscript{357} See id. at 30,270.


\textsuperscript{359} See id.
alternative practices, EPA made a change in policy without a rea­soned analysis. 360

In Love v. Thomas, the United States Court of Appeals for the Ninth Circuit criticized EPA because it had conducted only a "cu­rsory" investigation of the availability of alternative pesticides to the use of dinoseb. 361 Also, in the 1972 Environmental Defense Fund v. EPA decision, the United States Court of Appeals for the District of Columbia Circuit stated that "[t]he analysis of benefit requires some consideration of whether . . . proposed alternatives are available or feasible." 362

EPA believes that the rose industry is capable of adopting alternative practices to early entry. 363 EPA apparently believed that alternatives were possible when it granted the 1994 rose industry exception, stating that "much early entry can be eliminated immediately through 'planning and shifting personnel,' and that in 2 years other alternatives to toxicity category I and II pesticides can be implemented." 364 In the 1996 rose industry exception, EPA refused to grant the rose industry an indefinite or five-year exception and instead made the exception good only for the shorter period. 365 EPA granted the exception for only a limited period to give the rose industry time to adapt their practices to eliminate the need for the exception. 366 In Roses Inc.'s 1996 exception request, EPA noted that Roses Inc. did not give any estimates or loss figures for the almost five month period that elapsed between the new request and the expiration of the first exception. 367 This information was necessary for a reasoned analysis on the availability of alternative practices because the rose industry was required to be in compliance with the WPS during the period. 368

360 See National Coalition Against the Misuse of Pesticides v. Thomas, 809 F.2d 875, 883 (D.C. Cir. 1987) (EPA's change of position on safety of EDB in foreign mangoes had to be supplied with reasoned analysis); 61 Fed. Reg. at 56,102.

361 See Love v. Thomas, 858 F.2d 1347, 1360 (9th Cir. 1988).


366 See 62 Fed. Reg. at 51,998; 61 Fed. Reg. at 56,102; EPA PRESS RELEASE, supra note 9. The industry is also required to identify specific research methods that will be employed to bring individual growers into eventual compliance with the regulations. See EPA PRESS RELEASE, supra note 9.


368 See id. at 56,101; Love v. Thomas, 858 F.2d 1347, 1360 (9th Cir. 1988); Environmental Defense Fund, Inc. v. EPA, 465 F.2d 528, 539 (D.C. Cir. 1972); supra notes 337–53.
One alternative to the exception which was discussed by EPA would involve spraying after the last harvest of the day, with reentry into the greenhouse after the twelve hour REI of most pesticides expired the following morning.\textsuperscript{369} EPA stated that "spraying after the last harvest was generally claimed to be unacceptable for a number of reasons. . . . However, little documentation was presented concerning these shortcomings, and there was no evidence given regarding their impact. Some of these shortcomings, while generally accepted, remain hypothetical or anecdotal."\textsuperscript{370} EPA granted the rose industry exception without deciding if this alternative was acceptable, despite the claims by some growers and scientists that late day spraying would be effective and that the practice had been successfully used in the past.\textsuperscript{371} EPA noted that better documentation on the use of alternate practices would be necessary in the future if another exception is sought.\textsuperscript{372}

2. The Effectiveness of PPE

In its decision to grant the rose industry exception, EPA stated that the Agency "designed th[e] exception to reduce the risk associated with increased exposure."\textsuperscript{373} EPA stated when it granted the exception that the danger to workers will be "mitigated by the limited time harvesters are allowed in the treated area, the use of personal protection equipment that must be worn by the workers, accessible decontamination facilities, the provision of label-specific information for harvesters and the basic safety information that employers must present to workers."\textsuperscript{374} However, except for the requirement of no more than three hours of exposure during an REI in a twenty-four hour period and the limited time period of the exception, the so called "conditions" of the exception merely require what is normally required of agricultural employers when their employees enter into a pesticide treated area during a REI.\textsuperscript{375} These conditions are not viewed by EPA as sufficient to protect worker health however, as can be seen by the fact that they don't allow early entry generally.\textsuperscript{376}

\textsuperscript{369} See 62 Fed. Reg. at 51,995.
\textsuperscript{370} Id. at 52,000.
\textsuperscript{371} See id.
\textsuperscript{372} See id. at 52,000–01.
\textsuperscript{373} See id. at 51,999.
\textsuperscript{374} See EPA PRESS RELEASE, supra note 9.
\textsuperscript{376} See 40 C.F.R. § 170.112(a)(1).
Decontamination sites and safety information must be provided to workers who enter greenhouses up to thirty days after the expiration of an REI even when there is no early entry.\textsuperscript{377} When early entry is allowed by the WPS, workers are never allowed to enter for the first four hours after a pesticide application.\textsuperscript{378} Also, when early entry is permitted, the agricultural employer must assure that workers who will have contact with pesticide treated surfaces wear PPE that is specified on the labeling of the pesticide used.\textsuperscript{379} Thus, these requirements of the rose industry exception do no more than what is normally required by the WPS when early entry is permitted.\textsuperscript{380}

In regards to PPE, EPA has stated in the past that the routine use of PPE is "not only impractical, but also may be risk-inducing due to heat stress concerns."\textsuperscript{381} In general, EPA has stated that "it is likely that the PPE would be removed or would be worn incorrectly if it were required routinely in most hand labor situations."\textsuperscript{382} Therefore, EPA:

\begin{quote}
has concluded that, under most circumstances, allowing routine entry for unlimited time to areas under an REI, even with PPE, decontamination, and training, will not reduce adequately the risk of agricultural workers' exposure to pesticides, and that the economic benefits associated with such routine early entry do not justify the risks associated with such early entry.\textsuperscript{383}
\end{quote}

However, in granting the rose industry exception, EPA has seemingly changed its position on PPE.\textsuperscript{384} EPA believes that specific factors in rose production make PPE more effective, such as greenhouses encompass a smaller area than field crops allowing employers to ensure that workers wear PPE,\textsuperscript{385} harvesting could be done efficiently while wearing PPE, rose greenhouses have accessible water, the limited time for which PPE would be worn, and rose greenhouses have

\begin{itemize}
\item \textsuperscript{377} See id. §§ 170.112(c)(8), 170.130(a)(3), 170.150(a)(1)(i); 57 Fed. Reg. 38,102, 38,123 (1992).
\item \textsuperscript{378} See 40 C.F.R. § 170.112(c)(3).
\item \textsuperscript{379} See id. § 170.112(c)(4); 57 Fed. Reg. at 38,104.
\item \textsuperscript{380} See 40 C.F.R. § 170.112; 62 Fed. Reg. at 52,000.
\item \textsuperscript{381} See 57 Fed. Reg. at 38,112.
\item \textsuperscript{382} Id.
\item \textsuperscript{383} Id.
\item \textsuperscript{385} See 59 Fed. Reg. at 30,265. Also, it was argued that workers are generally paid on an hourly or salary basis instead of a piece rate, which makes it less likely that workers would avoid using PPE when it might slow their work. See 62 Fed. Reg. at 51,997.
\end{itemize}
fans, shades or other mechanical ventilation devices to provide some cooling.386

EPA did not engage in a reasoned analysis when it changed its policy on the effectiveness of PPE because its explanation for the decision “runs counter to the evidence before the agency, [and] is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.”387 First, rose growers have consistently complained that chemical-resistant gloves are not sufficiently supple and durable enough for rose harvesting.388 However, EPA requires such gloves for many pesticides that are used in rose production.389 Therefore, it cannot be said that “harvesting could be accomplished in a reasonably efficient manner while wearing the required PPE.”390 Second, the benefits of greenhouses because of their size, the availability of water, and their cool temperature may be more than offset by EPA's many concerns with pesticide exposure in greenhouses.391 The WPS restrictions for greenhouses are more stringent than for farm applications because of the EPA's conclusion that plants requiring different pesticide treatments often occupy the same area.392 Some commenters believed that the humid and warm greenhouse environment might discourage workers from wearing PPE and might make heat stress more likely when PPE is worn.393 Also, decontamination sites that include water must be provided whenever workers enter a pesticide treated area during an REI.394 Therefore, whether rose greenhouses generally have running water available is irrelevant to the effectiveness of PPE.395 The limited time that PPE will be worn does not increase its effectiveness and therefore cannot be a reason for stating that PPE would be effective in rose harvesting.396 Al-

388 See Motor Vehicle Mfrs. Ass'n, 463 U.S. at 43; Environmental Defense Fund, 510 F.2d at 1299–1300.
389 See 59 Fed. Reg. at 30,269. EPA allows rose workers to wear leather gloves over chemical resistant gloves or to wear absorbent gloves underneath chemical resistant gloves, but EPA did not make any indication whether this would make the PPE more efficient for use in rose harvesting. See 62 Fed. Reg. at 52,000.
392 See id.
394 See 40 C.F.R. §§ 170.112(c)(8), 170.150(b) (1996).
395 See id.
396 See id. § 170.112.
though EPA believed that early entry with PPE is "feasible and provides adequate reduction of risks to rose harvesters," EPA still has questions regarding PPE as shown by the Agency's provision of funding to the National Institute of Occupational Safety and Health to evaluate the effectiveness of PPE in decreasing pesticide residue exposure.

EPA's decision on PPE for purposes of the rose industry exception is not similar to the EPA's decision to suspend the pesticides aldrin and dieldrin in the 1975 *Environmental Defense Fund v. EPA* case. In that decision, the United States Court of Appeals for the District of Columbia Circuit upheld the EPA's decision because it was based on a change in the nature of the evidence and not a change in policy. EPA's decision that PPE is now effective to reduce the risks pesticide exposure to workers is a change in policy not based on changes in the available evidence. The EPA's rose industry exception was arbitrary and capricious because the Agency did not engage in a reasoned analysis when it changed its position on the effectiveness of PPE.

VII. Conclusion

EPA should not be granting exceptions to the WPS for specific industries through the use of cost-benefit analysis. Such analysis is inherently inaccurate due to the difficulties of valuation, and it has been criticized as benefiting the few at the expense of the many. EPA has stated that it is unable to quantify certain benefits of protecting workers from pesticide exposure. Statistics relied on to quantify such non-economic factors are often inaccurate because of reporting problems, such as the failure to recognize the symptoms of pesticide poisoning and the long period after exposure that may elapse before the onset of health problems. Even with relatively accurate statistics, there is still no way to meaningfully value worker health. There will inevitably be a policy decision as to what an "acceptable" worker risk is when compared to the costs to the industry. Thus, EPA should not

398 See id.
400 See *Environmental Defense Fund*, 510 F.2d at 1299–1300.
402 See National Coalition Against the Misuse of Pesticides v. Thomas, 809 F.2d 875, 883 (D.C. Cir. 1987) (EPA's change of position on safety of EDB in foreign mangoes had to be supplied with reasoned analysis).
hide behind the scientific jargon of cost-benefit analysis when making policy decisions that affect worker health.

Cost-benefit analysis has not been used by OSHA when determining industry safety levels for worker exposure to dangerous chemicals. OSHA instead applies a feasibility standard that protects workers from exposure to dangerous chemicals at a level that is "capable of being done" by the industry. In the case of the rose industry exception, there are alternatives to early entry, such as late day spraying, that are "capable of being done" by the rose industry. In American Textile Manufacturers Institute v. Donovan, the United States Supreme Court noted Senator Eagleton's belief that "[w]hether we, as individuals, are motivated by simple humanity or by simple economics, we can no longer permit profits to be dependent upon an unsafe or unhealthy worksite." There is little reason to apply a feasibility standard when dealing with worker exposure to dangerous chemicals in some industries, but to apply a lower cost-benefit standard when protecting farmworkers from exposure to pesticides. A feasibility standard should be applied because, as EPA recognizes, pesticide exposure poses a serious threat to worker health. Therefore, cost-benefit analysis should not be used to balance the risks to workers from pesticide exposure against the costs that the rose industry would incur to abide by the WPS.