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

by

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

*John M. Megara**

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-

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¹ 7 U.S.C. §§ 136-136y (1994).

² See Linda J. Fisher et al., *A Practitioner's guide to the Federal Insecticide, Fungicide, and Rodenticide Act: Part I*, 24 *Envtl. L. Rep. (Envtl. L. Inst.)* 10,449, 10,450 (Aug. 1994).

³ See *id.* at 10,451.

⁴ See *id.*

⁵ See *id.*

⁶ See *id.*

⁷ See 57 *Fed. Reg.* 38,102, 38,104 (1992).

⁸ See *id.* at 38,104.

⁹ See ENVIRONMENTAL PROTECTION AGENCY, EPA GRANTS ROSE GROWERS TWO-YEAR

ers to hand harvest roses grown in greenhouses after they are treated with pesticides, but before the pesticides' specific time intervals have elapsed.¹⁰ The exception is not limited to certain specific pesticides, but is instead effective as to all pesticides used on roses.¹¹ EPA engaged in a cost-benefit analysis when it decided to grant the rose industry exception.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."¹³ No other agricultural industry has been given such an exception to the regulations prohibiting early entry into pesticide treated areas.¹⁴ The exception will expire on October 4, 1999, unless the rose industry successfully seeks another exception.¹⁵

The 1996 exception was the second time that EPA had granted the rose industry an exception to the worker reentry standards.¹⁶ The first exception was granted in 1994 and it expired after two years.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.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.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.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.²¹

EXCEPTION TO WORKER PROTECTION STANDARD (Dec. 20, 1996) [hereinafter EPA PRESS RELEASE].

¹⁰ See *id.*

¹¹ See *id.*

¹² See *id.*

¹³ See *id.*

¹⁴ See 40 C.F.R. § 170.112(e)(7) (1996).

¹⁵ See 62 Fed. Reg. 51,994, 51,998 (1997).

¹⁶ See 61 Fed. Reg. 56,100, 56,101 (1996).

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

¹⁸ See 59 Fed. Reg. at 30,270.

¹⁹ See *id.*

²⁰ See *infra* Section VI.

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

Farm Workers: Among the Least Protected, 18 ENVTL PROTECTION AGENCY J., Mar.-Apr. 1992, at 13. Farmworkers suffer the most from the chemical dependency of United States agriculture. *See id.* It is therefore not surprising that "agriculture has been found to be the second most dangerous occupation in the United States." *See* Lori Nessel & Kevin Ryan, *Migrant Farmworkers, Homeless and Runaway Youth: Challenging the Barriers to Inclusion*, 13 LAW & INEQ. J. 99, 108 n.39 (1994) (citing GENERAL ACCOUNT OFFICE REPORT TO CONGRESSIONAL REQUESTERS, HIRED FARMWORKERS, HEALTH AND WELL-BEING AT RISK 20 (1992)). It has been estimated that as many as 313,000 farmworkers in the United States may fall victim to pesticide related illnesses each year, and that between 800 and 1000 farmworkers die each year from exposure to pesticides. *See* Perfecto & Velásquez, *supra*, at 13. Ninety percent of the approximately two million hired farmworkers in the United States are members of a minority group. *See id.* The majority are Chicanos, followed by Puerto Ricans, Caribbean blacks, and African Americans. *See id.* at 14.

Agricultural interests in the United States exert an enormous amount of political pressure. *See* David A. Dana, *Setting Environmental Priorities: The Promise of a Bureaucratic Solution: Breaking the Vicious Circle: Toward Effective Risk Regulation*, 74 B.U. L. REV. 365, 377 (1994) (reviewing STEPHEN BREYER, *BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION* (1993)). This can be seen by their routine acquisition of subsidies even in times of government budget cut backs. *See id.* Agriculture interests also have been extremely successful in avoiding environmental regulation despite the fact that agricultural pollution is both well documented and serious. *See id.*

EPA did not feel it was required to perform any action pursuant to Executive Order Number 12,898, entitled Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, when it granted the rose industry exception because the exception "does not impose any requirements" and "[i]t only implements a technical correction to the Code of Federal Regulations." *See* 62 Fed. Reg. 51,994, 52,003 (1997).

Although there may be arguments against the rose industry exception based on a theory of environmental justice, such a debate is outside the scope of this Comment due to limited publishing space. For further information on environmental justice, see generally Gerald Torres, *Environmental Burdens and Democratic Justice*, 21 FORDHAM URB. L.J. 431 (1994).

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 1910.²² The Insecticide Act was mainly concerned with fraud, making it illegal to sell fraudulently labeled pesticides.²³ It did not require the registration of pesticides nor did it develop guidelines for their use.²⁴

The Insecticide Act of 1910 was abandoned in 1947 when Congress enacted the original version of FIFRA.²⁵ FIFRA provided for the labeling of pesticides and the seizure of misbranded pesticides.²⁶ FIFRA also required pesticides that were sold or distributed in interstate commerce to be registered with the United States Department of Agriculture (USDA).²⁷ USDA's responsibilities for pesticide regulation were later transferred to EPA upon its creation in 1970.²⁸

FIFRA was amended in 1972 by the Federal Environmental Pesticide Control Act (FEPCA).²⁹ FEPCA required EPA not to register a pesticide that caused "unreasonable adverse effects on the environment."³⁰ FEPCA made it unlawful for a person "to use any registered pesticide in a manner inconsistent with its labeling"³¹ and provided both civil and criminal penalties for noncompliance.³² 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.³³

²² Insecticide Act of 1910, ch. 191, 36 Stat. 331 (repealed 1947).

²³ See *id.*

²⁴ See Fisher et al., *supra* note 2, at 10,451.

²⁵ See Pub. L. No. 80-104, 61 Stat. 163, 172 (1947).

²⁶ See *id.* at 166, 170.

²⁷ See *id.* at 168.

²⁸ See Fisher et al., *supra* note 2, at 10,452.

²⁹ Pub. L. No. 92-516, 86 Stat. 973 (1972).

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."³⁴ 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."³⁵ Therefore, when determining whether to register a pesticide, EPA engages in a cost-benefit analysis pursuant to the Act.³⁶

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.³⁷ 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.³⁸ 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.³⁹ 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.⁴⁰ 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."⁴¹

of pesticides, voluntary cancellation of registration, and the correction of technical errors, respectively. See Fisher et al., *supra* note 2, at 10,452.

³⁴ 7 U.S.C. § 136a(c)(5)(C) (1994).

³⁵ *Id.* § 136(bb).

³⁶ *Id.* § 136a(c)(5)(C).

³⁷ See Pub. L. No. 92-516, 86 Stat. 973, 997 (1972).

³⁸ See *Organized Migrants in Community Action v. Brennan*, 520 F.2d 1161, 1166 (D.C. Cir. 1975) (citing 39 Fed. Reg. 16,888, 16,889 (1974)).

³⁹ See 57 Fed. Reg. 38,102, 38,102 (1992). The Senate Committee on Agriculture and Forestry specifically rejected a proposal to include provisions for the protection of farmworkers in the Act. See *id.*

⁴⁰ See *id.*

⁴¹ *Id.* at 38, 102-03 (quoting S. REP. No. 92-883, pt. 2 at 43-46 (1972), reprinted in 1972 U.S.C.A.N. 3993, 4063)).

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.

⁴⁵ See *Organized Migrants in Community Action v. Brennan*, 520 F.2d 1161, 1165 (D.C. Cir. 1975).

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.

⁵⁶ See 57 Fed. Reg. at 38,109-10.

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]."⁵⁹

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.⁶⁰ 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.⁶¹ 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.⁶² 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.⁶³

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 eyeflushing. *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.⁶⁵ 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 entry⁶⁷ 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.

⁶⁵ 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 "[E]arly 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. "[A]gricultural 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 than 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).

⁷⁵ See 59 Fed. Reg. 30,265, 30,265 (1994); 57 Fed. Reg. at 38,112.

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.⁸⁴ 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.⁸⁵ 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.”⁸⁶ The cut flower and cut fern industry has since declined to seek an exception.⁸⁷

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.⁸⁸ Later, ten other states sought similar exceptions.⁸⁹ Chlorothalonil is a fungicide used to destroy Downy Mildew disease and has been classified as a probable human carcinogen.⁹⁰ Chlorothalonil can cause eye and skin irritation and can have adverse effects on the kidneys.⁹¹ Delaware asserted that cantaloupe and squash crops were being destroyed by Downy Mildew and that Chlorothalonil needed to be applied every seven days.⁹² 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.⁹³ EPA

⁸⁴ See 61 Fed. Reg. 68,034, 68,034 (1996); 60 Fed. Reg. 49841, 49844 (1995); 57 Fed. Reg. 38,102, 38,113 (1992).

⁸⁵ See 57 Fed. Reg. at 38,113.

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.*

⁸⁷ See 57 Fed. Reg. 30,265, 30,265 (1994).

⁸⁸ See 60 Fed. Reg. 30,872, 30,873 (1995). Delaware had asked EPA to allow workers to enter treated fields and perform hand harvesting only 12 hours after application of Chlorothalonil. See 61 Fed. Reg. 29,096, 29,097 (1996).

⁸⁹ See 60 Fed. Reg. at 49,842.

⁹⁰ See 60 Fed. Reg. at 30,873.

⁹¹ See 60 Fed. Reg. at 49,844.

⁹² 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.⁹⁴ According to Delaware, a delay in harvesting of twenty-four hours would result in the fruit being overripe.⁹⁵ Cantaloupes are produced for a fresh market only, while overripe squash can be downgraded for bulk processing.⁹⁶ Maryland estimated that a maximum of ten to fifteen percent loss of yield would be incurred for both crops,⁹⁷ while Delaware estimated that fifty to seventy percent of grower net revenue would be lost without the exception.⁹⁸ 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."⁹⁹ On September 27, 1995, EPA denied the requests for all eleven states stating that "the risks of the exception outweigh the benefits."¹⁰⁰

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.¹⁰¹ 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.¹⁰² Roses Inc.

⁹⁴ See 60 Fed. Reg. at 49,843.

⁹⁵ See *id.*

⁹⁶ 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.*

⁹⁸ See *id.*

⁹⁹ See 60 Fed. Reg. at 49,844.

¹⁰⁰ 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.

¹⁰¹ See 61 Fed. Reg. 56,100, 56,101 (1996).

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.¹⁰⁸ Survey data collected by Roses Inc. suggest that growers treat roses with pesticides an average 6.4 times per month.¹⁰⁴ According to Roses Inc., varieties of roses reach the harvest stage in cycles 365 days per year.¹⁰⁶ 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.¹⁰⁶ The flowers bloom twice daily and remain in the bud stage for a period of two to six hours.¹⁰⁷ 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.¹⁰⁸ For pesticides with longer REIs, the pesticide application may eliminate both harvests for the following day as well.¹⁰⁹ According to Roses Inc., without an exception losses would be seven to fourteen percent of the annual harvest¹¹⁰ and revenues would decrease by eight to sixteen million dollars annually.¹¹¹ Roses Inc. estimated that the average grower¹¹² 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.¹¹³

¹⁰⁸ 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.*

¹⁰⁴ See 62 Fed. Reg. 51,994, 51,995 (1997).

¹⁰⁶ See 61 Fed. Reg. at 56,101. A single rose plant produces about 24 roses per year. See *id.*

¹⁰⁶ See *id.* "Perfection for cut-roses requires the buds to have the same size, shape, and degree of maturity." 62 Fed. Reg. at 51,995. A secondary market for imperfect roses consisting of street vendors exists, but prices are 50% to 75% lower than the prime market price. See *id.* at 51,996.

¹⁰⁷ See 62 Fed. Reg. at 51,995; 61 Fed. Reg. at 56,101.

¹⁰⁸ See 62 Fed. Reg. at 51,994.

¹⁰⁹ 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.

¹¹¹ See 62 Fed. Reg. at 51,996. Other growers estimated losses between 10% and 30% of the annual harvest per year. See *id.*

¹¹² According to Roses Inc., in 1996, about 200 rose growers cultivated more than 15 million rose plants in the United States. See 61 Fed. Reg. at 56,101. Forty-six percent of all growers are located in California and produce at least 65% of United States total production. See 62 Fed. Reg. at 51,997.

¹¹³ 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, 1994.¹¹⁴ At the time, EPA found that the rose industry would "suffer substantial economic impact" if required to comply with the early entry restrictions.¹¹⁵ 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."¹¹⁶ 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.¹¹⁷ 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.¹¹⁸

EPA granted the exception to give the rose industry time to bring their practices into compliance with the regulations.¹¹⁹ 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."¹²⁰ 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.¹²¹

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.

¹¹⁹ See 59 Fed. Reg. at 30,265.

¹²⁰ *Id.*

¹²¹ *Id.* at 30,269.

EPA stated that the exception was only "temporary"¹²² 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 th[e] exception."¹²³

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.¹²⁴ Also, rose growers were required to provide workers with PPE when they entered greenhouses to perform hand labor during a REI.¹²⁵ 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.¹²⁶

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.¹²⁷ The two-year 1994 exception expired on June 10, 1996.¹²⁸

In response to Roses Inc. second exception request on October 30, 1996,¹²⁹ EPA noted that "[t]he cut-rose industry was not able to make

¹²² See *id.* at 30,270.

¹²³ See *id.*

¹²⁴ See 59 Fed. Reg. at 30,267.

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."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.¹³¹ Roses Inc. noted that new pesticides with shorter REIs and biological controls had not been developed as quickly as hoped.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.¹³³ Also, Roses Inc. asserted that the industry has not had the resources necessary to implement alternatives due to strong foreign competition.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.¹³⁵

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

1996, Roses Inc. then requested on June 14, 1996 after the first exception had expired that EPA issue an Administrative Order that would give the rose industry protection from enforcement of the early entry provisions of the WPS. *See id.* EPA declined to issue such an order without conducting a cost-benefit analysis as required by the WPS. *See id.*

¹³⁰ 62 Fed. Reg. 51,994, 52,000 (1997).

¹³¹ *See* 61 Fed. Reg. at 56,102.

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.*

¹³³ *See* 61 Fed. Reg. at 56,102.

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.*

¹³⁵ *See* 61 Fed. Reg. at 56,102.

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.¹³⁷ Usually, pesticides are applied in the late morning when several pests are most active and when pesticide sprays would dry most rapidly.¹³⁸ As previously stated, this late morning spraying usually prohibits an afternoon harvest because of the length of most REIs.¹³⁹ Several scientists and growers believe that late day spraying would slow leaf drying which might increase the prevalence of diseases.¹⁴⁰ However, other scientists and growers believe that late day spraying would be acceptable.¹⁴¹ EPA noted that several growers commented that they had used late day spraying successfully after the expiration of the first exception.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."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."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.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.¹⁴⁶ "Acute toxicity is the capability of producing adverse effects from a brief exposure."¹⁴⁷ EPA stated:

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. *See id.* Roses Inc. asserted that alternatives such as rearranging work schedules or changing spray schedules were also too expensive. *See id.*

¹³⁷ *See* 62 Fed. Reg. at 51,995.

¹³⁸ *See id.*

¹³⁹ *See id.*

¹⁴⁰ *See id.*

¹⁴¹ *See id.*

¹⁴² *See* 62 Fed. Reg. at 52,000.

¹⁴³ *Id.*

¹⁴⁴ *See* 59 Fed. Reg. 30,265, 30,266-67 (1994).

¹⁴⁵ *See* 62 Fed. Reg. at 51,997.

¹⁴⁶ *See* 61 Fed. Reg. 56,100, 56,103 (1996).

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.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.”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.¹⁵⁰ EPA noted that industry practice requires that rose workers “have considerable contact with plant foliage” while harvesting.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).¹⁵²

Other commenters believed that the risk to workers was much less because of characteristics specific to the rose industry.¹⁵³ They believed that rose workers form a “stable, skilled work force” that tends to be receptive to safety training.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.¹⁵⁵ Some commenters noted that the greenhouse environment provides easy access to decontamination facilities and easy monitoring

¹⁴⁸ *Id.*

¹⁴⁹ 62 Fed. Reg. at 51,998.

¹⁵⁰ *See id.* at 51,997.

¹⁵¹ *See* 61 Fed. Reg. at 56,103.

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.

¹⁵³ *See* 62 Fed. Reg. at 51,997.

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.

¹⁵⁵ *See* 62 Fed. Reg. at 51,997.

of workers to ensure compliance with safety rules.¹⁵⁶ 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.¹⁵⁷ Although EPA believed that pesticide-related illness incident reporting might be higher in California,¹⁵⁸ the Agency noted several reasons to believe that such studies only document a fraction of the actual incidents of illness.¹⁵⁹ 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.¹⁶⁰ 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."¹⁶¹

On December 18, 1996, EPA announced in a press release that another early entry exception would be granted to the rose industry.¹⁶² The exception allows workers to hand harvest roses grown in greenhouses after they are treated with pesticides before their REIs have expired.¹⁶³ 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."¹⁶⁴

The terms of the 1996 rose industry exception are similar to the terms of the earlier 1994 exception.¹⁶⁵ 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, 1999.¹⁶⁶ EPA refused to grant Roses Inc.'s request for an indefinite or five-

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.*

¹⁶⁰ See 62 Fed. Reg. at 51,997.

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.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.¹⁶⁸ The maximum time period that workers are allowed in treated areas during an REI is three hours within any twenty-four hour period.¹⁶⁹ Rose industry employers are required to provide, maintain, and ensure workers wear the early entry PPE listed on the pesticide's label.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.¹⁷¹ However, EPA noted that it had "insufficient information" comparing the benefits of using different pesticides with varying REIs to treat the same pests.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-

¹⁶⁷ See EPA PRESS RELEASE, *supra* note 9; 61 Fed. Reg. 56,100, 56,102 (1996).

¹⁶⁸ See 62 Fed. Reg. at 52,000.

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.*

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.*

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.

¹⁷² See 62 Fed. Reg. at 51,996. EPA stated that "this deficiency should be remedied if another renewal is requested." *Id.*

cides 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* EPA PRESS RELEASE, *supra* note 9.

¹⁷⁸ *See* 62 Fed. Reg. at 52,000-01.

¹⁷⁹ *See* Bernard Schwartz, *The Court and Cost-Benefit Analysis: An Administrative Law Idea Whose Time Has Come - or Gone*, 1981 SUP. CT. REV. 291, 292 (1981).

¹⁸⁰ *See id.*

¹⁸¹ *See id.* (citing 10 Jeremy Bentham, *THE WORKS OF JEREMY BENTHAM* 142 (Bowring, ed. 1962)).

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.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."¹⁸⁴ Until very recently, the use of cost-benefit analysis was not often expressly provided for in federal legislation.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.¹⁸⁶ These agencies were often created with the purpose of protecting the economic interests of the very industry that was being regulated.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.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.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.¹⁹⁰ Often statutes would set minimum standards of health without any regard for cost, and specifically prohibited the use of cost-benefit analysis.¹⁹¹ However, with the growing popularity of legal economic theory, fed-

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).

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.

¹⁸⁵ See Schwartz, *supra* note 179, at 292.

¹⁸⁶ See *id.* at 293.

¹⁸⁷ See *id.*

¹⁸⁸ See *id.*

¹⁸⁹ See *id.* at 294.

¹⁹⁰ See Schwartz, *supra* note 179, at 294.

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 carcinogenic. 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.¹⁹²

Shortly after taking office in 1981, President Reagan issued Executive Order 12,291, which adopted a cost-benefit theory of federal regulation.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."¹⁹⁴ This requires federal agencies in the executive branch, like EPA, to engage in cost-benefit analysis before enacting regulations.¹⁹⁵ 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.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. 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. See Victor B. Flatt, *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. See *id.* (citing *American Petroleum Inst. v. Costle*, 665 F.2d 1176, 1185 (D.C. Cir. 1981)).

¹⁹² See generally National Environmental Policy Act, 42 U.S.C. § 4321 (1994) (requires balancing environmental costs of project against economic and technological benefits); Consumer Products Safety Act, 15 U.S.C. § 2056 (1994) (determination of what constitutes "unreasonable risk" of injury by product requires balancing costs and benefits).

¹⁹³ See Exec. Order No. 12,291, 46 Fed. Reg. 13,193, 13,193 (1981). President Carter first adopted cost-benefit analysis for executive branch agencies in 1978. See Exec. Order No. 12,044, 43 Fed. Reg. 12,661, 12,661 (1978). President Clinton issued a similar order in 1993. See Exec. Order No. 12,866, 58 Fed. Reg. 51,735, 51,735 (1993).

¹⁹⁴ See 46 Fed. Reg. at 13,193.

¹⁹⁵ 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. See *id.*

¹⁹⁶ See Flatt, *supra* note 191, at 588; Junius C. McElveen & Chris Amantea, *Legislating Risk Assessment*, 63 U. CIN. L. REV. 1553, 1553 (1995).

B. *Problems with Cost-Benefit Analysis*

In theory, cost-benefit analysis may be a good way to develop regulations and standards.¹⁹⁷ After all, taking account of the costs and benefits of a proposed rule may lead to the most happiness for all.¹⁹⁸ Also, a cost-benefit decision process may make agencies more accountable for their decisions by encouraging them to engage in a reasoned analysis.¹⁹⁹

However, in reality, how one person values health or the risk of impaired health may be different from another person.²⁰⁰ 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.²⁰¹ In effect, each person has their own personal cost-benefit analysis.²⁰² To address this problem agencies try to make their conclusions based on "scientific" findings and make their cost-benefit analysis scientifically objective.²⁰³ 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.²⁰⁴

The scientific approach to cost-benefit analysis does not cure the problem of the valuation of supposedly scientific factors.²⁰⁵ It is sometimes difficult to put numerical values on societal factors, such as worker health, well-being, and productivity.²⁰⁶ Also, it is sometimes difficult to put the risk to workers or the environment when exposed to pollutants in numerical terms that are accurate.²⁰⁷ 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.²⁰⁸ Also, different

¹⁹⁷ See Flatt, *supra* note 191, at 603.

¹⁹⁸ See Schwartz, *supra* note 179, at 292.

¹⁹⁹ 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 See Flatt, *supra* note 191, at 604-05.

²⁰¹ See *id.* at 605.

²⁰² See *id.*

²⁰³ See *id.*

²⁰⁴ See *id.* at 604.

²⁰⁵ See Flatt, *supra* note 191, at 606.

²⁰⁶ See 57 Fed. Reg. 38,102, 38,145 (1992).

²⁰⁷ See Flatt, *supra* note 191, at 606.

²⁰⁸ 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 Dep't, 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.”²¹⁶ 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.²¹⁷ 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.”²¹⁸ 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.²¹⁹ 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.²²⁰ In determining the intent of Congress when enacting the OSH Act, the Court noted Senator Eagleton’s summary of Congresses’ position.²²¹ 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.”²²²

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.²²³ 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*²²⁴ Chevron requires a deferral to a permissible agency interpretation of a statute

²¹⁶ *American Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 510 (1981).

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.*

²²¹ *See American Textile Mfrs. Inst.*, 452 U.S. at 522.

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.

²²⁴ *See* 467 U.S. 837, 843–44 (1984).

unless it is contrary to the unambiguously expressed intent of Congress.²²⁵ This Congressional intent is determined by the statute's language and legislative history.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.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.²²⁸ The agency may not simply state that the benefits of the proposed standard or rule outweigh the costs.²²⁹ Also, the agency must consider all those factors that Congress intended that it consider.²³⁰ The United States Supreme Court has stated that

[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.²³¹

An agency must explain any change of position that it has on a particular standard or policy.²³² Such an explanation must consist of a reasoned analysis.²³³ However, new standards that are based on new evidence do not require the same level of analysis.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.²³⁵ Both of these standards require EPA to conduct a cost-benefit analysis.²³⁶ The de-

²²⁵ See *id.*

²²⁶ See *id.* at 842, 845.

²²⁷ See *id.* at 843-44.

²²⁸ See *Benzene*, 448 U.S. 607, 670 (1980) (Powell, J., concurring).

²²⁹ See *id.*

²³⁰ See *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

²³¹ *Id.*

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.

²³³ See *National Coalition Against the Misuse of Pesticides*, 809 F.2d at 883.

²³⁴ See *Environmental Defense Fund, Inc. v. EPA*, 510 F.2d 1292, 1294 (D.C. Cir. 1975).

²³⁵ See 7 U.S.C. § 136d(b), (c)(1) (1994).

²³⁶ See *id.* § 136(bb), (l). The courts have found that EPA must issue a notice of intent to cancel

scriptions 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

a pesticide's registration or change its classification "whenever there is a substantial question about the safety of a registered pesticide." 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).

²³⁷ See *infra* text accompanying notes 238-69.

²³⁸ See *Environmental Defense Fund*, 439 F.2d at 594.

²³⁹ See *id.* The Secretary of Agriculture had found that "DDT is toxic to certain birds, bees, and fish, but there is no evidence of harm to the vast majority of species of nontarget organisms." 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 593.

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.

²⁴⁷ See *Environmental Defense Fund, Inc. v. EPA*, 465 F.2d 528, 539 (D.C. Cir. 1972).

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 and '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.²⁵⁴ 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.²⁵⁵

In *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.²⁵⁶ 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.²⁵⁷ A group of farmers in the Northwest challenged the suspension order, stating that "[t]hey simply could not grow their crops without dinoseb."²⁵⁸ They argued that there was no substitute for dinoseb in the Northwest and that the entire caneberry²⁵⁹ crop of the Pacific Northwest, where ninety-five percent of the nation's commercial caneberry crop is grown, would be lost.²⁶⁰ Potential crop losses from the suspension of dinoseb would amount to \$39.2 million in the year of the suspension.²⁶¹

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.²⁶² The court concluded that the data relied on for such crops were incomplete.²⁶³ 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.²⁶⁴ 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.²⁶⁵ The court believed that EPA had conducted

²⁵⁴ See *id.* at 1303.

²⁵⁵ See *id.*

²⁵⁶ See *Love v. Thomas*, 858 F.2d 1347, 1349 (9th Cir. 1987).

²⁵⁷ See *id.* at 1350.

²⁵⁸ See *id.* at 1351.

²⁵⁹ Caneberries include red raspberries, blackberries, boysenberries, and loganberries. See *id.* at 1350 n.1.

²⁶⁰ See *id.* at 1351.

²⁶¹ See *Love*, 858 F.2d at 1352.

²⁶² See *id.*

²⁶³ See *id.* at 1358.

²⁶⁴ See *id.* at 1359 n.20.

²⁶⁵ See *id.*

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 FIFRA."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.

²⁷⁰ See 40 C.F.R. § 170.112(e)(1) (1996).

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.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."²⁷⁶ Statistics that are used to describe the risks that pesticides pose to workers are often inaccurate because of reporting problems.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.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.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."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.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.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"²⁸³ EPA stated that it was "difficult to conclude, based on incident data, that reentry protections such as REIs are less

²⁷⁵ See *id.* at 588; McElveen & Amanatea, *supra* note 196, at 1553.

²⁷⁶ See 57 Fed. Reg. 38,102, 38,145 (1992).

²⁷⁷ See Flatt, *supra* note 191, at 606.

²⁷⁸ See 62 Fed. Reg. 51,994, 51,997 (1997).

²⁷⁹ See *id.*

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).

²⁸¹ See 61 Fed. Reg. 56,100, 56,103 (1996).

²⁸² See *id.*; 62 Fed. Reg. at 51,997.

²⁸³ 62 Fed. Reg. at 51,998.

important to the health and safety of rose harvesters than to other farmworkers."²⁸⁴

The economic costs that may be imposed on an industry by pesticide regulation may be more easily quantified than other non-economic factors.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.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.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."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.²⁸⁹

Even if EPA could assign appropriate numbers to such factors, EPA must still decide what level of safety is necessary.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.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,

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.

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).

²⁸⁶ See 59 Fed. Reg. at 30,266.

²⁸⁷ See *id.*

²⁸⁸ See *id.*

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

²⁹⁰ See Flatt, *supra* note 191, at 606.

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).

²⁹³ See Flatt, *supra* note 191, at 603 (criticizing cost-benefit analysis for benefiting the few at the expense of others).

²⁹⁴ See *id.*; 61 Fed. Reg. 56,100, 56,101 (1996).

²⁹⁵ 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.*

²⁹⁶ See Flatt, *supra* note 191, at 603.

²⁹⁷ See *id.* at 606.

²⁹⁸ See *American Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 510 (1981).

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.³⁰¹

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.³⁰² 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.³⁰³ 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.³⁰⁴

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.³⁰⁵ Under the *Organized Migrants in Community Action v. Brennan* decision, EPA can promulgate farmworker protection standards pursuant to FIFRA, and these standards preempt OSHA from enacting similar regulations.³⁰⁶ Thus, a court probably would find that the OSH Act's feasibility standard does not apply.³⁰⁷ 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.³⁰⁸ EPA apparently believes that a cost-benefit analysis is "required" by FIFRA when deciding to grant or deny a request for an exception.³⁰⁹ A court prob-

on the environment." *Id.* § 136a(c)(5)(C). 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." *Id.* § 136(bb).

³⁰¹ See generally *id.* §§ 136-136y.

³⁰² See *American Textile Mfrs. Inst.*, 452 U.S. at 508.

³⁰³ See *id.* at 508-09.

³⁰⁴ See *id.* at 521-22.

³⁰⁵ See *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843 (1984); *Organized Migrants in Community Action v. Brennan*, 520 F.2d 1161, 1169 (D.C. Cir. 1975).

³⁰⁶ See *Organized Migrants in Community Action*, 520 F.2d at 1169.

³⁰⁷ See *id.*

³⁰⁸ See *Chevron*, 467 U.S. at 843.

³⁰⁹ 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.³¹⁰ 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.³¹¹

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.³¹² 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.³¹³ 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.³¹⁴ 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.'"³¹⁵

However, EPA is not allowed to state simply that the benefits of the exception outweigh the costs when the Agency makes exception decisions.³¹⁶ EPA must supply a reasoned analysis for how it arrived at its decision.³¹⁷ 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.³¹⁸ Congress apparently believes that EPA must con-

³¹⁰ See *id.*; *Chevron*, 467 U.S. at 843; cf. *American Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 512-13 (1981) (agency can engage in cost-benefit analysis unless statute specifically rejects this interpretation).

³¹¹ See *Chevron*, 467 U.S. at 843; Flatt, *supra* note 191, at 606; McElveen & Amanatea, *supra* note 196, at 1553.

³¹² See *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

³¹³ See *Environmental Defense Fund, Inc. v. EPA*, 510 F.2d 1292, 1299 (D.C. Cir. 1975).

³¹⁴ See *id.* at 1297.

³¹⁵ See *id.* (citing *Wellford v. Ruckelshaus*, 439 F.2d 598, 601 (D.C. Cir. 1971)).

³¹⁶ See *Benzene*, 448 U.S. 607, 670 (1980) (Powell, J., concurring).

³¹⁷ See *Environmental Defense Fund, Inc. v. EPA*, 465 F.2d 528, 539 (D.C. Cir. 1972) (mere recitation of a pesticide's uses does not suffice as a cost-benefit analysis).

³¹⁸ See *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

sider all relevant factors before granting an exception to the WPS requirements.³¹⁹ 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.³²⁰ 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.³²¹

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.³²² Without considering the effects of specific pesticides on worker health, EPA would not have adequately assessed an important factor in its cost-benefit analysis.³²³ Pursuant to the WPS, EPA is required to examine the risk to workers in its cost-benefit analysis when deciding to grant an exception.³²⁴ 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.³²⁵ Both types of analysis should be similar because both come from the same statutory authority, namely FIFRA.³²⁶

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.³²⁷ 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

³¹⁹ See 57 Fed. Reg. 38,102, 38,138 (1992).

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).

³²² See *id.* at 1360; 62 Fed. Reg. 51,994, 51,996 (1997).

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.

³²⁵ 7 U.S.C. § 136(bb) (1994).

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.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.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.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.³³¹ 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 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.³³²

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.³³³ This follows from *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.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

³²⁸ See *id.* at 1350, 1360.

³²⁹ See *id.* at 1358, 1360.

³³⁰ See *id.* at 1360.

³³¹ See 62 Fed. Reg. 51,994, 51,996 (1997). EPA also stated that "this deficiency should be remedied if another renewal is requested." *Id.*

³³² *Id.*

³³³ See *Love v. Thomas*, 858 F.2d 1347, 1360 (9th Cir. 1988).

³³⁴ See *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 In the

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).

³³⁷ Compare 62 Fed. Reg. at 51,996 (factors contributing 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).

³³⁸ See 61 Fed. Reg. at 56,103.

³³⁹ See *id.*

³⁴⁰ See 61 Fed. Reg. 29,096, 29,097 (1995).

³⁴¹ See 60 Fed. Reg. 49,841, 49,844 (1995).

³⁴² See 60 Fed. Reg. at 30,873.

³⁴³ See *id.*; 62 Fed. Reg. 51,994, 51,995 (1997).

³⁴⁴ See 60 Fed. Reg. at 49,844.

case of roses, there is a secondary market for imperfect roses, consisting mostly of street vendors.³⁴⁵ Maryland estimated that a maximum of ten to fifteen percent loss of yield would be incurred for both cantaloupe and squash,³⁴⁶ while Delaware estimated that fifty to seventy percent of grower net revenue would be lost without the exception.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.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.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.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.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.³⁵² Also, EPA has discussed two studies that suggest that rose workers may experience higher pesticide exposure than workers in other agricultural fields.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

³⁴⁵ See 62 Fed. Reg. at 51,996.

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.*

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.

³⁴⁸ See 62 Fed. Reg. at 51,996.

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).

³⁵⁰ See 62 Fed. Reg. at 51,997; 59 Fed. Reg. 30,265, 30,266 (1994); 57 Fed. Reg. 38,102, 38,109-10 (1992).

³⁵¹ See 62 Fed. Reg. at 51,997.

³⁵² See 57 Fed. Reg. at 38,109-10.

³⁵³ See 59 Fed. Reg. at 30,266.

granted the exception or would have limited its scope to only apply to certain pesticides.³⁶⁴

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,"³⁶⁵ and the exception was supposed to "provide rose growers time to adjust pesticide spray schedules, find early-entry alternatives, and develop technology."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 th[e] exception."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."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.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

³⁶⁴ 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).

³⁶⁵ See 59 Fed. Reg. at 30,270.

³⁶⁶ See *id.* at 30,265.

³⁶⁷ See *id.* at 30,270.

³⁶⁸ See 61 Fed. Reg. 56,100, 56,102 (1996).

³⁶⁹ 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).

³⁶² See *Environmental Defense Fund, Inc. v. EPA*, 465 F.2d 528, 539 (D.C. Cir. 1972).

³⁶³ See 62 Fed. Reg. 51,994, 51,998 (1997); 59 Fed. Reg. 30,265, 30,269 (1994); EPA PRESS RELEASE, *supra* note 9.

³⁶⁴ 59 Fed. Reg. at 30,269.

³⁶⁵ See 61 Fed. Reg. at 56,102; EPA PRESS RELEASE, *supra* note 9.

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.

³⁶⁷ See 61 Fed. Reg. at 56,102.

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.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."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.³⁷¹ EPA noted that better documentation on the use of alternate practices would be necessary in the future if another exception is sought.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."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."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.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.³⁷⁶

³⁶⁹ See 62 Fed. Reg. at 51,995.

³⁷⁰ *Id.* at 52,000.

³⁷¹ See *id.*

³⁷² See *id.* at 52,000-01.

³⁷³ See *id.* at 51,999.

³⁷⁴ See EPA PRESS RELEASE, *supra* note 9.

³⁷⁵ See 40 C.F.R. § 170.112 (1996); 62 Fed. Reg. 51,994, 52,000 (1997).

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.³⁷⁷ When early entry is allowed by the WPS, workers are never allowed to enter for the first four hours after a pesticide application.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.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.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."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."³⁸² Therefore, EPA:

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.³⁸³

However, in granting the rose industry exception, EPA has seemingly changed its position on PPE.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,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

³⁷⁷ See *id.* §§ 170.112(c)(8), 170.130(a)(3), 170.150(a)(1)(i); 57 Fed. Reg. 38,102, 38,123 (1992).

³⁷⁸ See 40 C.F.R. § 170.112(c)(3).

³⁷⁹ See *id.* § 170.112(c)(4); 57 Fed. Reg. at 38,104.

³⁸⁰ See 40 C.F.R. § 170.112; 62 Fed. Reg. at 52,000.

³⁸¹ See 57 Fed. Reg. at 38,112.

³⁸² *Id.*

³⁸³ *Id.*

³⁸⁴ See *Environmental Defense Fund, Inc. v. EPA*, 510 F.2d 1292, 1299-1300 (D.C. Cir. 1975); 59 Fed. Reg. 30,265 30,269 (1994).

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.

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-

³⁸⁶ See 59 Fed. Reg. at 30,269.

³⁸⁷ See *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *Environmental Defense Fund*, 510 F.2d at 1299-1300.

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.

³⁹⁰ See 59 Fed. Reg. at 30,269.

³⁹¹ See 57 Fed. Reg. 38,102, 38,109-10 (1992).

³⁹² See *id.*

³⁹³ See 62 Fed. Reg. at 51,997.

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,"³⁹⁷ 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.³⁹⁸

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.³⁹⁹ 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.⁴⁰⁰ 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.⁴⁰¹ 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.⁴⁰²

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

³⁹⁷ 62 Fed. Reg. at 51,999.

³⁹⁸ See *id.*

³⁹⁹ See *id.*; *Environmental Defense Fund, Inc. v. EPA*, 510 F.2d 1292, 1299-1300 (D.C. Cir. 1975); 57 Fed. Reg. 38,102, 38,109-10 (1992).

⁴⁰⁰ See *Environmental Defense Fund*, 510 F.2d at 1299-1300.

⁴⁰¹ See *id.*; 62 Fed. Reg. at 51,999; 57 Fed. Reg. at 38,109-10.

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."⁴⁰⁸ 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.

⁴⁰⁸ See *American Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 522 (1981).