

BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF CIVIL RIGHTS

Angelita C., by herself and on behalf of)
Thalia C., age 10; Jorge G., by himself and on)
behalf of Jorge G., Jr., age 6; Maria G., by)
herself and on behalf of David G., age 14;)
Margarita M., by herself and on behalf of)
Aurelio A., age 11; Emiliano P., by himself)
and on behalf of Albertina P. age 11, and)
Gadiela P., age 10; Bernabe S., by himself)
and on behalf of Cesar S., age 8 and Lucila)
S., age 13,)
Complainants,)
v.)
California Department of Pesticide)
Regulation,)
Respondent.)

**COMPLAINT UNDER TITLE VI
OF THE CIVIL RIGHTS ACT OF
1964, 42 U.S.C. §2000d AND
40 C.F.R. Part 7**

I. INTRODUCTION

This is a complaint under Title VI of the Civil Rights Act of 1964 and the U.S. Environmental Protection Agency's implementing regulations by children and the parents of children who attend the California schools most exposed to methyl bromide, alleging ongoing discrimination in the permitting of this extremely acutely toxic Category I pesticide and all pesticides in California. This complaint names as respondent the California Department of Pesticide Regulation ("DPR"), which is responsible for permitting methyl bromide and other highly toxic pesticides for agricultural use in California. DPR, a recipient of financial assistance from the United States Environmental Protection Agency ("U.S. EPA"), most recently took action to permit the use of methyl bromide and other pesticides on January 5, 1999.

The agricultural use of pesticides in California has a disproportionate impact on people of color, primarily Latinos. To demonstrate this disproportionate impact, this complaint focuses on methyl bromide, due to its particularly deadly characteristics, as an example of overall use of and exposure to highly toxic pesticides in the state.

School children of color in California suffer a much greater risk of exposure to the deadly agricultural chemical methyl bromide than their white counterparts. Schools which have over 35,000 pounds of methyl bromide applied annually within a 1.5 mile radius have a student population that averages 82 percent students of color. In contrast, the average non-white student population for all California schools is 60 percent.¹ Moreover, the disproportionate risk is part of a larger pattern. In California, the amount of methyl bromide applied within a 1.5 mile radius of a school is positively correlated with the school's non-white population: the more methyl bromide applied in proximity to a school, the more likely that the school will have a greater non-white student population.

DPR is responsible for this clear discriminatory pattern of methyl bromide application because it allows usage at extremely high levels despite methyl bromide's high toxicity, because it fails to fully consider the impact on schoolchildren, and because it fails to implement readily available less discriminatory and less dangerous alternatives.

Methyl bromide is classified by the U.S. EPA as a Category I Acute Systemic Poison, the most deadly category of substances, lethal at less than 50 mg per 1 kg of body weight.² Methyl bromide is lethal at an air concentration of 0.063 mg methyl bromide per liter of air breathed for 15

¹In this complaint, we use the terms "people of color" and "non-white" interchangeably, to refer to African Americans, Latinos, Asian Americans and Native Americans.

²According to the standard LD50 test. Liebman, James, *Rising Toxic Tide: Pesticide Use in California 1991-1995* (Pesticide Action Network and Californians for Pesticide Reform, 1997), at 8 (hereafter Liebman, *Rising Toxic Tide*).

minutes.³ Assuming a breathing rate of 11.6 liters per minute for a 21.7 kg child, methyl bromide is lethal at a level of 0.5 mg/kg body weight.⁴

Methyl bromide is toxic primarily to the central nervous system and also damages the lungs, kidneys, eyes and skin. Mild symptoms of inhalation of methyl bromide may include headache, dizziness, nausea, and chest and abdominal pain. More severe symptoms include lung swelling; congestion; hemorrhaging of the brain, heart, and spleen; and severe kidney damage. Death may occur within one to thirty hours, usually from respiratory failure. Chronic exposure, consisting of lower doses over a period of months or years, can cause dizziness, vision and hearing disturbance, depression, confusion, and hallucinations. If exposure is severe, lung swelling and bronchial pneumonia may also occur.⁵ At least 470 cases of illnesses and 19 deaths from methyl bromide poisoning have been reported in since 1982.⁶

Methyl bromide is used more than any other pesticide in California. A colorless and odorless gas, methyl bromide kills most living organisms in soil, agricultural products, and buildings where it is applied. In 1995, 17.6 million pounds were applied, accounting for almost a quarter (24.2%) of all pesticides used in California;⁷ in 1996, the most recent year for which figures are available, 16.6 million pounds of methyl bromide were used in California. Of the total amount applied, 81 percent was used to treat soil in unplanted fields, 12 percent to treat nursery soil, 3

³According to the standard LD50 test. Meister Publishing Company, *1998 Farm Chemicals Handbook, Volume 84*, at C257.

⁴United States Environmental Protection Agency, *Exposure Factors Handbook* (Office of Research and Development 1997), USEPA 600/P-95/002Fn.

⁵Extension Toxicology Network (EXTOXNET) Profile for Methyl Bromide, Revised 9/93, web site: <http://ace.orst.edu/info/extoxnet>.

⁶Kennedy, James, "EPA Still Favors Methyl Bromide Phaseout by 2001 Deadline, Official Tells Hearing," Bureau of National Affairs, 29 Environment Reporter 356 (June 12, 1998); Pesticide Action Network (PAN) North America Regional Center, "Pesticide Fact Sheet: Methyl Bromide Use in California" (1998).

⁷Based on calculations from data contained in Liebman, *Rising Toxic Tide*, at 29.

percent for structural fumigation, and 4 percent for post-harvest commodity fumigation and other uses.⁸ When used to treat soil, it is normally injected into the soil at a rate of 200 to 400 pounds per acre to a depth of about one foot; the treated soil is often covered with a plastic tarp to enhance pesticidal effectiveness.⁹

Among pesticides classified as Category I acute toxins, methyl bromide is unique in the extent of its use. While there were 47 other Category I pesticides used in California in 1995, the amount of methyl bromide used was 50 percent greater than all other pesticides combined.¹⁰ California uses more methyl bromide than any other state, accounting for almost a third of all methyl bromide use in the United States and about 10 percent of methyl bromide use worldwide.¹¹ Strawberry growers are the greatest users of methyl bromide in California, accounting for almost a quarter of the statewide consumption.¹²

In its permitting process, DPR has failed to consider and account for the extent to which high methyl bromide use occurs near residential areas and schools.¹³ At one school, attended by

⁸Department of Pesticide Regulation, Consumer Fact Sheet: About Methyl Bromide, web site: <http://www.cdpr.ca.gov/docs/factshts/methbro.htm>.

⁹DPR, "Methyl Bromide Suggested Soil Injection Fumigation Permit Conditions" (revised October 16, 1998 (ENF-042)), at 19.

¹⁰Based on calculations from data contained in Liebman, *Rising Toxic Tide*, at 29.

¹¹California EPA web page: www.calepa.cahwnet.gov/epadocs/methyl.txt, U.S. EPA web page: <http://www.epa.gov/spdpublic/mbr/mbrqa.html>.

¹²Environmental Working Group (EWG), *Methyl Bromide Use Near California Schools 1995* (1998), at 6. Web site: <http://www.ewg.org/> (hereafter EWG, *Methyl Bromide Use Near California Schools*.)

¹³Throughout this complaint, data regarding the amount of methyl bromide used within 1.5 miles of California schools is taken from the 1998 EWG study *Methyl Bromide Use Near California Schools*, *supra* note 11. EWG's analysis is based on 1995 pesticide use reporting ("PUR") data collected by the DPR and school location information from the California Department of Education. As explained by EWG, "The PUR data is plotted geographically in roughly 1-mile sections. Our analysis located elementary, middle, and high schools within these sections and calculated the amount of methyl bromide use reported in the sections that were

476 students, over 70,000 pounds of methyl bromide were used within a 1.5 mile radius in 1995 alone.¹⁴ One hundred percent of this spraying occurred from mid-August through late May, when schools are generally in session. At 10 public schools, attended by 7,753 students, at least 50,000 pounds of methyl bromide were used within a 1.5 mile radius. More than 75 percent of this spraying occurred from mid-August through late May. In 1995, at least 25,000 pounds of methyl bromide were used within a 1.5 mile radius of 39 schools, attended by 28,753 students. Children in communities bearing the most impact from methyl bromide may be exposed at school and at home. These same children also commonly face increased risk of exposure from other pesticides registered and permitted by DPR.

Non-white children bear the disproportionate share of the heavy use of methyl bromide in close proximity to California public schools. Where over 70,000 pounds of methyl bromide were used within 1.5 miles, 88 percent of the students were non-white. Where over 35,000 pounds were used within 1.5 miles, 82 percent were non-white. At the 39 schools where over 25,000 pounds of methyl bromide were used, 79 percent of the student population was non-white.¹⁵

The actions of DPR must be considered in light of other existing adverse environmental impacts on communities of color. Studies done by U.S. EPA, other government agencies and non-governmental organizations clearly show that people of color bear a significantly disproportionate share of the country's environmental risks and dangers, including those created by the use of pesticides in agriculture. Other significant hazards include hazardous waste facilities, air pollution, lead poisoning, groundwater contamination, and rat bites.¹⁶

entirely located within 1.5 miles of that school in 1995." The analysis is conservative, as PUR sections that fell partly within a 1.5 mile distance were excluded. Further, although it cannot be specified precisely, it is likely that at least one-third of the usage occurs within a 0.5 mile distance of the schools.

¹⁴EWG, *Methyl Bromide Use Near California Schools 1995*, at 9.

¹⁵Racial classification data available for 96.1% students.

¹⁶United States Environmental Protection Agency, *Environmental Equity: Reducing Risk for All Communities*, Vol. 1, EPA 230-R-008, at 12 (June 1992); Luke W. Cole, *Empowerment as the Means to Environmental Protection: The Need for Environmental Poverty Law*, 19

The Clinton Administration has pledged its support to efforts to combat and eradicate environmental racism. Executive Order 12,898 on Environmental Justice requires all federal agencies to conduct and administer all programs, policies and activities "that substantially affect public health or the environment in a manner that ensures that these programs, policies, and activities do not have the effect of excluding persons... from participation in, denying persons... the benefits of, or subjecting persons... to discrimination under, such programs, policies, and activities."¹⁷ President Clinton has also instructed EPA to take action to protect children from environmental hazards. In Executive Order 13,045, President Clinton ordered the EPA to ensure that all environmental programs are adequate to protect infants and children, who may be more susceptible to environmental toxins than adults.

This complaint is being filed with the U.S. EPA. The DPR is the recipient of substantial federal assistance from the U.S. EPA. Thus, the discriminatory practices of this public agency are subject to Title VI of the Civil Rights Act of 1964.¹⁸ Title VI prohibits discrimination on the basis of race, color, or national origin by any program or activity receiving federal financial assistance. EPA regulations prohibit recipients from making decisions which have the effect of subjecting individuals to discrimination because of their race, color, or national origin.¹⁹

To break this pattern of discrimination, EPA should require the DPR to ban the use of methyl bromide and require the use of less toxic pest control measures in its place. Alternatively, EPA should require DPR to greatly expand its buffer zones, increase dramatically its enforcement of existing laws and regulations and to otherwise change the permitting process such that predominantly non-white schools and communities are no longer subject to a disproportionate

ECOLOGY L.Q. 619, 622-28 (1992).

¹⁷Executive Order 12898 of Feb. 11, 1994: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations Section 2-2, 59 Fed. Reg, 7629, 7630-31 (Feb. 16, 1994).

¹⁸42 U.S.C. Section 2000d.

¹⁹40 C.F.R. Section 7.35(b).

burden from methyl bromide permitting. EPA should impose these measures as a condition for DPR's continued receipt of federal financial assistance.

This complaint is organized into four main sections. Section II sets out the parties to this complaint. Section III sets forth the argument, showing that DPR has violated Title VI in its permitting of methyl bromide and other pesticides. Section IV contains the remedies that complainants seek and discusses less discriminatory alternatives that are available to DPR.

II. PARTIES

A. Complainants

The complainants are children and parents of children at six schools, including elementary, middle and high schools. All schools attended by the child complainants are located within a 1.5 mile radius of the spraying of at least 35,000 pounds of methyl bromide annually.²⁰ Because of well-founded and historically realized fears of retaliation from agricultural interests in their home communities, each of the complainants is identified by his or her first name and only the first letter of his or her last name. Complainants are willing to file their full names under seal with the U.S. EPA if necessary.

1. Children and parents of Rio Plaza Elementary School

Bernabe S. is a resident of Oxnard, California, and the father of Cesar S., age eight, who is a student at Rio Plaza Elementary School. Rio Plaza Elementary School is located in an unincorporated area near the city of Oxnard in Ventura County. Rio Plaza has an enrollment of 476 students, 88 percent of whom are non-white. In 1995, at least 79,517 pounds of methyl bromide were applied within a 1.5 mile radius of the school, conferring on Rio Plaza the unfortunate distinction of being the school bearing the greatest impact of methyl bromide application in California.

2. Children and parents of Rio Mesa High School

Maria G. is a resident of Oxnard and the mother of David G., age 14, who is a student at Rio Mesa High School. Bernabe S. is a resident of Oxnard, California, and the father of Lucila S., age 13, who is a student at Rio Mesa High School. Rio Mesa High is located in an unincorporated

²⁰Based on 1995 DPR data.

area near the city of Oxnard in Ventura County. It has an enrollment of 2,169 students, 75 percent of whom are non-white. At least 67,492 pounds of methyl bromide are applied annually within a 1.5 mile radius of the school.

3. Children and parents of Pajaro Middle School

Margarita M. is a resident of Pajaro and the mother of Aurelio A., age 11, who is a student at Pajaro Middle School. Pajaro Middle School is located in the city of Pajaro in Monterey County. It has an enrollment of 524 students, 94 percent of whom are non-white. At least 67,354 pounds of methyl bromide are applied annually within a 1.5 mile radius of the school.

4. Children and parents of Barton Elementary School

Emiliano P. is a resident of Salinas and the father of Albertina P., age 11, and Gadiela P., age 10, who are students at Barton Elementary School. Barton Elementary School is located in the city of Salinas in Monterey County. It has an enrollment of 1,025 students, 98 percent of whom are non-white. At least 59,725 pounds of methyl bromide are applied annually within a 1.5 mile radius of the school.

5. Children and parents of Macquiddy Elementary School

Jorge G. is a resident of Watsonville and father of Jorge G., Jr., age six, who is a student at Macquiddy Elementary School. Macquiddy Elementary School is located in Watsonville in Santa Cruz County. It has an enrollment of 850 students, 90 percent of whom are non-white. At least 47,506 pounds of methyl bromide are applied annually within a 1.5 mile radius of the school.

6. Children and parents of Ohlone Elementary School

Angelita C. is a resident of Pajaro and mother of Thalia C., age 10, who attends Ohlone Elementary School. Ohlone Elementary School is located in Pajaro in Monterey County. It has an enrollment of 518 students, 96 percent of whom are non-white. At least 36,198 pounds of methyl bromide are applied annually within a 1.5 mile radius of the school.

B. Respondent

Respondent California Department of Pesticide Regulation (“DPR”) is a department of the State of California Environmental Protection Agency and is responsible for regulating the use of methyl bromide pursuant to the California Food and Agriculture Code and the California Code of Regulations. DPR is a recipient of federal financial assistance from EPA, including but not limited

to the following grants in the last three fiscal years: EPA grant #009155960 for \$748,548 for Pesticide Compliance Monitoring and Program Development, grant #009335960 for \$233,407 for the Pesticide Certification Program, grant #999440010 for \$75,000 for the Pesticide Integrated Environmental Border Project, grant #999442010 for \$991,360 for Pesticide Regulatory Education Program, grant #009155970 for \$894,210 for Pesticide Compliance Monitoring, grant #999642010 for \$75,000 for the Pesticide Outreach Project, and grant #009155980 for \$1,029,337 for the Consolidated Pesticide program. DPR takes actions with respect to pesticides generally, and methyl bromide specifically, on a regular basis. Its most recent action on methyl bromide was a January 5, 1999 "Notice of Proposed Decision to Renew Registration of Pesticides," attached as Exhibit A, which covered methyl bromide.

III. ARGUMENT

Title VI of the Civil Right Act of 1964 provides:

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.²¹

DPR has violated Title VI, as implemented by EPA regulations, by consistently permitting methyl bromide use although such use has a demonstrably disproportionate impact on school children of color in California. DPR's permitting the use of methyl bromide is exacerbated by its failure to require adequate protective "buffer zones" and its continued failure to adequately enforce pesticide laws in California, both of which contribute to the disproportionate impact of methyl bromide on students of color.

EPA must ensure that recipients of EPA financial assistance are not subjecting people to discrimination. In particular, EPA's Title VI regulations provide that an EPA aid recipient "shall not use criteria or methods of administering its program which have the effect of subjecting individuals to discrimination because of their race, color, national origin, or sex."²²

²¹42 U.S.C. Section 2000d.

²²40 C.F.R. Section 7.35(b).

DPR is subject to the nondiscrimination requirements of Title VI because it is a recipient of federal funds from EPA used for programs including pesticide compliance monitoring, certification, education and outreach.²³ DPR has primary authority under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) for pesticide permitting programs, and thus has approval authority over all registrations and permitting of pesticides in California.²⁴

A. DPR is responsible for permitting methyl bromide.

DPR holds primary responsibility in the permitting of methyl bromide in the state of California. Most recently, DPR renewed the registration for methyl bromide by issuing its "1999 Public Report Relating to Renewal of Registrations of Pesticides," accompanied by its "Notice of Proposed Decision to Renew Registration of Pesticides," issued on January 5, 1999 (Exhibit A). This is an annual blanket renewal of pesticide registrations which, for the 1999 calendar year,

²³In the Civil Rights Restoration Act of 1987, Congress defined "program or activity" clearly and broadly, in relevant part, as:

[A]ll of the operations of --

- (1) (A) a department, agency, special purpose district, or other instrumentality of a State or of a local government; or

(B) the entity of such State or local government that distributes such [federal] assistance and each such department or agency (and each other State or local government entity) to which the assistance is extended, in the case of assistance to a State or local government; ...

42 U.S.C. Section 2000d-4a. See *Association of Mexican American Educators v. State of California*, 836 F. Supp. 1534, 1534-44 (N.D. Cal. 1993).

In fiscal year 1996, DPR received \$1,548,315 in EPA grants for pesticide compliance monitoring and program development, a pesticide certification program, a pesticide integrated environmental border project, and a pesticide regulatory education program. In fiscal year 1997, DPR received \$969,210 in EPA grants for pesticide compliance monitoring and a pesticide outreach project. In fiscal year 1998, DPR received \$1,029,337 in EPA grants for consolidated pesticide programs.

²⁴7 U.S.C.A. Section 136.

covered approximately 12,000 pesticides including methyl bromide. This action of DPR with respect to methyl bromide occurred within 180 days of the present complaint.

While 55 county agricultural commissioners ("CACs") carry out enforcement activities locally, DPR is the ultimate decision-maker in matters of methyl bromide permitting; for example, permit challenges are appealed to DPR for final review.²⁵ The CACs issue annual permits to individual growers and pest control operators according to the permit conditions specified by DPR. DPR sets out the permit conditions to be followed by the CACs in the 400-page *Methyl Bromide Suggested Soil Injection Fumigation Permit Conditions* ("Suggested Permit Conditions"). DPR thus has the authority to prohibit application of methyl bromide within 1.5 miles of a school.

DPR directs and supervises the CACs in matters of methyl bromide permitting. Division 6 of the California Food & Agriculture Code states that the director of DPR, and the commissioner of each county under the direction and supervision of the director, is responsible for enforcing the laws and regulations governing the licensing and permitting of pesticide use.²⁶ Describing its duties, DPR states that it is "responsible, under existing state laws and delegations of authority by the U.S. EPA for registering all pesticides prior to sale for use in California, as well as regulating and controlling the use of pesticides."²⁷

²⁵California Food and Agriculture Code, §14009; *see also* California Code of Regulations, Title 3, §6442.

²⁶California Food and Agriculture Code, Division 6, § 11501.5. In 1988, California's state legislature enacted Food & Agriculture Code §14081. This law required the adoption of regulations to govern methyl bromide by April 1, 1989. DPR never adopted regulations. In July 1998 – almost 10 years later – a coalition of environmental organizations sued DPR for its failure to adopt the required regulations. *Friends of the Earth, et al. v. California Department of Pesticide Regulation*, San Francisco Superior Court No. 996187.

²⁷DPR, "Pesticide Use Reporting: An Overview of California's Unique Full Reporting System" (June 1995), web site: <http://www.cdpr.ca.gov/docs/dprdocs/userptng/purhtm.htm>.

DPR states that to use restricted materials, farmers or pest control businesses must be licensed or certificated by DPR, as well as obtain a permit from their local CAC.²⁸ In January 1973, methyl bromide was classified as a restricted material in California for all pesticide uses.²⁹ Thus, every user of methyl bromide in California must be licensed or certificated by DPR; without such licensing, no user can legally apply the pesticide.

DPR has taken many actions in the last several years which illustrate its extensive involvement in matters of methyl bromide permitting. In 1992, DPR conducted an interim risk characterization for methyl bromide, and DPR is currently completing a final risk characterization. In 1992, based on the interim risk characterization, DPR decreased the acceptable 24-hour human exposure limit from 5 parts per million (ppm) to 210 parts per billion (ppb) (equivalent to 0.21 ppm).³⁰

DPR's Information Systems Branch developed the computer application programs for issuing annual permits, and prepares annual Pesticide Use Reports using the data from these permits. DPR assigns full-time staff for the ongoing maintenance of the county computer systems.³¹

On January 1, 1994, DPR issued "Suggested Permit Conditions" which imposed new permit conditions for methyl bromide use in field fumigations, including equipment modifications and restrictions on work hours, reductions in application rates, limits on acreage treated, and

²⁸Department of Pesticide Regulation, "Consumer Fact Sheet: About Methyl Bromide", web site: <http://www.cdpr.ca.gov/docs/factshts/methbro.htm>.

²⁹Department of Pesticide Regulation, *Review of Restrictions on the Use of Methyl Bromide: a Report to the Legislature*, at 3 (November 1996) (hereafter DPR, *Review of Restrictions*.)

³⁰DPR, *Review of Restrictions*, at 2.

³¹DPR, Pesticide Use Reporting: An Overview of California's Unique Full Reporting System (June 1995), web site: <http://www.cdpr.ca.gov/docs/dprdocs/userptng/purhtm.htm>.

establishment of buffer zones.³² In theory, this 400-page document must be followed by all CACs. "Suggested Permit Conditions" has been updated a number of times since its initial publication.

From December 1996 through February 1997, DPR conducted monitoring studies to validate the effectiveness of its restrictions on methyl bromide field fumigations. The results showed that the buffer zones were unprotective, and in November 1997, DPR updated "Suggested Permit Conditions" to increase the minimum required buffer zone from 30 feet to between 100 feet and 300 feet depending on the application rate, the application type, and the number of acres treated.³³ DPR subsequently back-pedaled, reducing the minimum worker buffer zone to 30 feet and decreasing the buffer zone to 50 feet for parcels of up to five acres where methyl bromide is applied at rates up to 235 pounds/acre.³⁴

Although individual counties serve as the local enforcement agents of the DPR, because DPR itself establishes the permit conditions for methyl bromide it is ultimately responsible for the impacts of methyl bromide used under those conditions.

B. Schools within 1.5 miles of fields treated with methyl bromide should be considered to be within a "zone of impact," given methyl bromide's extreme toxicity, the elevated susceptibility of children, and controversy over what standard and distance from exposure is protective of health.

To determine the impact of methyl bromide use, one need consider the toxicity of the pesticide, its method and location of application, its potential to drift from site of application, and its health effects, particularly on children. Consideration of all of these factors leads us to use a 1.5 mile radius from fields treated with methyl bromide as the "zone of impact" of the pesticide's use.³⁵

³²California Environmental Protection Agency, "Questions and Answers on Methyl Bromide" in Cal/EPA Access, Library: CALEPA, Library File Name: METHYL.FS, web site: <http://www.calepa.cahwnet.gov/epadocs/methyl.txt>.

³³Letter from DPR to County Agricultural Commissioners, November 26, 1997.

³⁴Letter from DPR to County Agricultural Commissioners, October 16, 1998 (ENF-042).

³⁵Methyl bromide has had effects at demonstrably longer distances, but for purposes of this complaint we will only consider impact to those who attend school within 1.5 miles of methyl

Methyl bromide is a Category I Acute Systemic Poison, the most dangerous and deadly class of toxic chemicals. The adverse health effects of methyl bromide exposure are well documented. While no studies have directly addressed methyl bromide's effects on children, children are considered particularly susceptible to exposure and health impacts from exposure to neurotoxic and teratogenic pesticides and many other toxic substances.³⁶

Methyl bromide is applied as a gas, and thus naturally off-gasses and drifts from fumigated fields into the surrounding community. Pesticide drift is an uncontrollable and inevitable aspect of pesticide use on agricultural fields, especially when a gaseous fumigant like methyl bromide is used. Off-gassing and drift is governed by wind speed, wind direction, and other environmental conditions. The major route of exposure to methyl bromide is inhalation.³⁷

Most of the methyl bromide applied in soil fumigations drifts off the treated fields. As reported by EPA, between 50 and 95 percent of the methyl bromide applied enters the atmosphere in drift after application.³⁸ A U.S. Department of Agriculture study estimates total emission losses of between 56 and 68 percent of original amount applied, where methyl bromide is applied at a rate of 250 lbs./acre, a depth of 1 foot, and covered with a high-density polyethylene (HDPE) tarp for 2 to 5 days.³⁹ These conditions are standard for use of methyl bromide on California fields, and the results indicate that thousands of pounds of methyl bromide are off-gassing each fumigation season.

1. Exposure to methyl bromide has acute, sub-chronic and chronic health impacts.

bromide application.

³⁶See National Research Council, *Pesticides in the Diets of Infants and Children* (1993).

³⁷Brodberg, Robert K., *et al.*, Department of Pesticide Regulation, Worker Health and Safety Branch, *Draft Report: Estimation of Exposure of Persons in California to Pesticide Products Containing Methyl Bromide* (June 1992) (hereafter Brodberg *et al.*, 1992).

³⁸EPA web page <http://www.epa.gov/spdpublic/mbr/mbrqa.html>.

³⁹U.S. Department of Agriculture, *Methyl Bromide Alternatives*, Vol. 4, No. 2, April 1998.

Exposure to methyl bromide by inhalation has serious acute, sub-chronic and chronic health impacts.⁴⁰ The acute effects of methyl bromide exposure include headaches, drowsiness, lethargy, nausea, vomiting, dizziness, blurred vision, twitching and convulsions, seizures, psychosis and death. Many of these effects may persist after a single poisoning incident.⁴¹ The known effects of repeated sub-lethal or chronic exposure include damage to the brain, peripheral nervous system, respiratory system, kidneys, liver, eyes, nose, throat, lungs and skin. Methyl bromide is also a "direct acting mutagen" that is toxic to DNA.⁴² Methyl bromide also causes "treatment related," "biologically significant" developmental birth defects including the absence of gall bladders, fused *sternebrae* (spine), and decreased fetal weight.⁴³

At least 19 people have died from exposure to methyl bromide since 1982, and hundreds more have been sickened or poisoned. During the past decade, thousands of people have been evacuated because of methyl bromide accidents, including 1200 in Fresno in 1987 and 1599 in Fresno in 1984. In 1996, a day care center in Ventura relocated after neighbors complained of

⁴⁰Acute exposure is generally defined as exposure to a chemical for less than 24 hours (and by the federal Agency for Toxic Substances and Disease Registry (ATSDR) as exposure for 14 days or less). Sub-chronic exposure is defined as exposure over 1 to 3 months. (Intermediate, or sub-chronic exposure is defined by ASTDR as exposure for 15 days to 365 days.) For simplicity and as a health conservative approach, in this document we define sub-chronic exposure as including exposure greater than 24 hours and less than 3 months. Chronic exposure is defined as exposure over an extended period of time, 3 months or more. See, e.g., Curtis D. Klaassen, *Casaret and Doull's Toxicology: The Basic Science of Poisons* (McGraw Hill, 5th Edition 1996); Agency for Toxic Substances and Disease Registry, *Minimal Risk Levels for Hazardous Substances* (1996).

⁴¹Department of Pesticide Regulation, *Methyl Bromide*, Prepared for the Developmental and Reproductive Toxicant Identification Committee for Consideration of Methyl Bromide as a Developmental Toxicant under Proposition 65 (March 1994) (hereafter DPR, Consideration of Methyl Bromide as a Developmental Toxicant); Hazard Evaluation System and Information Service (HESIS); California Department of Health Services, *Methyl Bromide Fact Sheet* (May 1990); Brodberg, et al., 1992.

⁴²DPR, Consideration of Methyl Bromide as a Developmental Toxicant.

⁴³DPR, Consideration of Methyl Bromide as a Developmental Toxicant.

illnesses from methyl bromide use in a nearby strawberry field.⁴⁴ In 1997, about 265 Amesti Elementary School children in Watsonville stayed home from school in September as a precaution after the strawberry farm across the street was sprayed with methyl bromide.⁴⁵

2. Children are likely to be more susceptible to the harmful impacts of pesticides, and DPR has recognized this possibility as evidenced in its concern over the use of pesticides in California schools.

Children may be especially vulnerable to pesticides because of both greater exposure to pesticides and greater physiological susceptibility. On a body-weight basis, children consume more food and water and breathe more air than adults. The skin surface of a child per unit of body weight is greater than that of an adult. In addition, the normal respiratory volume of a child is greater than that of a resting adult.⁴⁶

In 1993, the National Academy of Science ("NAS") issued a report documenting that children are uniquely vulnerable to pesticides, and that government standards for residues in food do not adequately protect children.⁴⁷ Available human and experimental data suggest that children are more vulnerable than adults to the neurotoxic effects of pesticides. According to the NAS, concern about children's exposure to pesticides is valid because "exposure to neurotoxic compounds at levels believed to be safe for adults could result in permanent loss of brain function if it occurred during the prenatal and early childhood period of brain development."⁴⁸

⁴⁴Pesticide Action Network North America Regional Center, Pesticide Fact Sheet "Methyl Bromide Use in California" (1998) (hereafter PAN, Pesticide Fact Sheet).

⁴⁵PAN, Pesticide Fact Sheet. Amesti is 82 percent students of color.

⁴⁶Lawrie Mott, Natural Resources Defense Council, *Our Children at Risk: The 5 Worst Environmental Threats to Their Health*, at 52 (November 1997); Farmworker Justice Fund, "Ten Commitments to Protect Farmworker Children from Pesticide Exposure" (October 1998).

⁴⁷National Research Council, *Pesticides in the Diet of Infants and Children*, Washington D.C.: National Academy Press, 1993, (hereafter NRC, *Pesticides in the Diet of Infants and Children*).

⁴⁸NRC, *Pesticides in the Diet of Infants and Children*, at 61.

The NAS recommended the inclusion of a 10-fold safety factor to account for children's increased susceptibility and potential for exposure to pesticides.⁴⁹ Significantly, Congress adopted the NAS recommendation in the Food Quality Protection Act of 1996 ("FQPA")⁵⁰ and directed EPA to use an additional 10-fold safety factor to protect infants and children unless EPA determines that a different margin will be safe.⁵¹ Similarly, by Executive Order 13,045, President Clinton has ordered the EPA to regulate environmental hazards in a manner which is adequately protective of infants and children.

In toxicological studies of methyl bromide, neurobehavioral effects were seen at the lowest dose tested in mice, leading DPR scientists to state that the "goal for human exposure would be in the range of the limits of detection for methyl bromide."⁵² Exposure to substances which cause neurobehavioral effects is particularly detrimental to children because it can interfere with cognitive and motor development.

The DPR has acknowledged that schools are "sensitive" areas, but has not given adequate attention to the use of pesticides near schools. In its official documents, the DPR states that the use of methyl bromide around schools is of "special concern." It notes that some CACs have imposed additional restrictions and states that "DPR recommended recently to the CACs that they require stricter controls of methyl bromide use around schools to provide an extra measure of protection. In addition, DPR has instructed the commissioners not to consider backyards and schoolyards to be

⁴⁹John Wargo, *Our Children's Toxic Legacy: How Science and the Law Fail to Protect Us from Pesticides* (New Haven: Yale University Press, 1996), at 262.

⁵⁰Pub. L. No. 104-170 110 Stat. 1489.

⁵¹U.S. Environmental Protection Agency, *1996 Food Quality Protection Act Implementation Plan*, March 1997, at 12.

⁵²Memorandum from Gary Patterson, DPR Medical Toxicology Branch, to Rob Oshima, Assistant Director, regarding "Methyl Bromide Chronic Dog Study" (January 12, 1995), attached as Exhibit B.

part of a buffer zone."⁵³ This "recommendation" and minimal alteration in the calculation of buffer zones is not an adequate response, however, given the magnitude and severity of the problem.

Notably, DPR has given considerably more attention to the relatively limited use of pesticides by California schools themselves than to the extensive agricultural use of pesticides in the neighborhood of California schools. Noting that "[t]here has been increasing public concern regarding the potential for exposure of children to pesticides in school," in 1994 DPR sent each of the state's 1,064 school districts a booklet to help schools set up an integrated pest management (IPM) program to reduce reliance on toxic chemical pesticides.⁵⁴ In 1996, DPR reported on its two-year survey of the state's school districts about their pest management practices, policies, and programs.⁵⁵ In December 1997, DPR announced plans to expand IPM outreach to schools, supported by \$100,000 in special funds from the legislature.⁵⁶

DPR's minimal attention to the issue of agricultural pesticide use near schools indicates a willful disregard of the potential dangers associated with the high volumes of toxic pesticide use.⁵⁷

⁵³DPR, *Review of Restrictions*, at 11.

⁵⁴DPR, Release No. 94-12, "Cal/EPA's Department of Pesticide Regulation Supports IPM Use in Schools" (4/20/94), web site: <http://www.cdpr.ca.gov/docs/archives/pressrls/1994/94-12.htm>

⁵⁵Simmons, Sewell E., Timothy E. Tidwell, and Terrell A. Barry, *Overview of Pest Management, Policies, Programs, and Practices in Selected California Public School Districts*, DPR Pest Management Analysis and Planning Program, (March 1996).

⁵⁶DPR press release, "Department of Pesticide Regulation Opposes Bureaucracy to Dictate School Pesticide Policy" (1/7/98), web site: <http://www.ca.gov/docs/pressrls/calpirg.htm>.

⁵⁷DPR's disregard of the potential dangers of high volumes of toxic pesticide use will lead to greater negative impact in the coming years due to the pressures of population growth in the state. Many school districts in California agricultural areas are faced with an immediate need to construct new schools due to an increasing student population juxtaposed with a state mandate of class size reduction. These agricultural communities typically have high percentages of Latino residents. Lack of other affordable land has led to the frequent siting of new schools on agricultural land directly adjacent to existing agricultural operations. For example, in Ventura County, many of the new schools which the Oxnard Elementary School District has built or is planning to build are on agricultural land. The problems associated with the current agricultural practices in regards to the use of pesticides near schools will continue to affect the students,

While DPR may have recognized the importance of maintaining a pesticide-free, healthy school environment, it has failed to address one of the most important parts of the problem: the drift of a deadly, neurotoxic gaseous pesticide into the school environment.

3. There is great controversy over what level of methyl bromide exposure can be considered "safe," particularly for children.

DPR's 24-hour standard of 210 ppb is significantly less protective than many other standards that have been suggested or adopted by other agencies, including recommendations made by DPR's own scientists. As a result, this standard cannot be relied upon to determine whether a health impact is present.

a. The 210 ppb safety standard used by DPR is not protective of human health.

DPR's 24-hour standard of 210 ppb is outdated. Set in 1992, the standard has not been revised despite more recent studies accepted as valid by DPR itself which indicate adverse health effects at even lower levels of exposure to methyl bromide. In two January 1995 memoranda, toxicologists from the Medical Toxicology Branch of the DPR concluded,

There is currently enough information to conduct a risk assessment on methyl bromide that would include acute, sub-chronic, and chronic exposure. The assessment of chronic effects would be driven by nasal degeneration and behavioral effects. If a margin of safety of 100 is applied to these effect levels the goals for human exposure would be in the range of the limits of detection for methyl bromide.⁵⁸

primarily Latino, attending these new schools. *See, e.g.,* Kate Folmar, "Many Oppose New School Planned for Farm Site," *Los Angeles Times* (Ventura County Section)(February 15, 1999) at B1; Kate Folmar, "Under SOAR, Farmland May Sprout Schools," *Los Angeles Times* (Ventura County Section)(March 14, 1999), at B1; Anna Gorman, "Duarte Picked as Oxnard's Schools Chief," *Los Angeles Times* (Ventura County Section)(April 2, 1999) at B3.

⁵⁸Memorandum from Joyce Gee, DPR Medical Toxicology Branch to Gary Patterson, regarding "Methyl Bromide: Dog Inhalation Study" (January 10, 1995), attached as Exhibit C. *See also* Memorandum from Gary Patterson, DPR Medical Toxicology Branch, to Rob Oshima, Assistant Director, regarding "Methyl Bromide Chronic Dog Study" (January 12, 1995), attached as Exhibit B.

Recent air monitoring studies conducted by DPR have utilized a detection limit of 5 ppb.⁵⁹

b. In 1992, DPR's own scientists suggested a standard of 60 ppb to protect children.

In 1992, DPR's own scientists recommended lowering the 24-hour methyl bromide safety standard to 60 ppb, more than three times more protective than the current standard, to protect children from permanent nervous system and brain damage that might be caused by sub-chronic exposure to methyl bromide. This recommendation was not adopted by the agency, and the current methyl bromide safety standards contain no special protection for children.⁶⁰ While this 60 ppb level was set with sub-chronic exposure after re-entry into fumigated structures in mind, children attending schools bearing heavy methyl bromide impact from field fumigation can also be exposed sub-chronically to the pesticide over a number of weeks each spray season.

DPR acknowledges that its 210 ppb level was "calculated based on potential adult exposure." DPR also stated that this safety standard would protect children,⁶¹ despite the fact that in many other cases of exposure to toxics it is widely accepted that levels protective of children must be lower than those protective of adults.

DPR does not follow the 1993 NAS recommendation, now incorporated into federal law through the FQPA, to include a 10-fold safety factor to account for children's increased

⁵⁹See e.g., DPR, *Monitoring Methyl Bromide Fumigations During Winter Months* (July 1997).

⁶⁰Memorandum from Lori O. Lim, DPR Staff Toxicologist, to Larry Nelson, Chief, with subject "Methyl Bromide- Preliminary risk assessment for inhalation exposure in structural fumigations" (February 11, 1992). A margin of safety of 100 is widely used when setting human exposure limits based on animal studies: a 10-fold margin is required for interspecies differences and an additional 10-fold safety factors is used for intraspecies differences. To adequately protect infants and children, however, the National Research Council report *Pesticides in the Diet of Infants and Children* recommends adding an additional 10-fold safety factor, and thus, using a margin of safety of 1,000.

⁶¹DPR, "Consumer Fact Sheet: Correcting some Misconceptions About Methyl Bromide Use in California" (October 1997), web site: <http://www.cdpr.ca.gov/docs/factshts/methmis.htm> (hereafter DPR, "Correcting Some Misconceptions").

susceptibility and potential for exposure to pesticides.⁶² DPR explains that it set its level as follows: "The dose which did not cause any effect in animal studies [the NOAEL]⁶³ was lowered 10-fold to account for differences between animals and humans, and another 10-fold to account for individuals who may be more sensitive to methyl bromide due to various factors."⁶⁴

Historically, EPA has divided the NOAEL by one hundred to account for the fact that humans may be more sensitive than test animals and that some humans may be especially sensitive. The FQPA, however, directs EPA to use an additional 10-fold safety factor to protect infants and children unless EPA determines that a different margin will be safe.⁶⁵ The FQPA applies to all pesticides used on food crops, including methyl bromide. Despite the FQPA, DPR has not incorporated this safety factor to protect children into its standard.

c. DPR recently drafted a seasonal screening level of 26.3 ppb for methyl bromide.

In January 1999, DPR published a draft seasonal screening level of 104 ug/m³ (=26.3 ppb) for methyl bromide. DPR represents this as an "air concentration health protective for all individuals including sensitive populations," using a six-year-old child's breathing rate and body weight in its calculation.⁶⁶ However, DPR has failed to use this 26.3 ppb level for setting buffer zones or in any other regulatory measure.

⁶²John Wargo, *Our Children's Toxic Legacy: How Science and the Law Fail to Protect Us from Pesticides*, New Haven: Yale University Press, 1996, at 262.

⁶³This level is referred to as the No Observed Adverse Effect Level, or NOAEL.

⁶⁴DPR, "Correcting some Misconceptions."

⁶⁵U.S. Environmental Protection Agency, *1996 Food Quality Protection Act Implementation Plan*, March 1997, at 12.

⁶⁶Memorandum from Paul H. Gosselin, DPR to Lompoc Interagency Workgroup, regarding Lompoc Exposure Data (January 12, 1999).

d. EPA's Reference Concentration for methyl bromide is 1 ppb.

EPA's Reference Concentration ("RfC") is .005 mg/m³, which is equivalent to 1.26 ppb. The RfC is the level at which the "EPA estimates that inhalation of this concentration or less, over a lifetime, would not likely result in the occurrence of chronic no-cancer effects." EPA states that the "RfC is not a direct estimator of risk but rather a reference point to gauge potential effects. Exceedence of the RfC does not imply that an adverse health effect would necessarily occur. As the amount and frequency of exposures exceeding the RfC increases, the probability of adverse health effects also increases."⁶⁷

e. The target level for methyl bromide under Proposition 65 is 21 ppb.

Under California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), the state's main toxics law, the warning level for methyl bromide exposure is 21 ppb. This standard was set by California Environmental Protection Agency's Office of Environmental Health Hazard Assessment ("OEHHA"). Proposition 65 requires a 1000-fold margin of safety, but as currently implemented applies only to methyl bromide when used in structural fumigations. California thus has a double standard -- when methyl bromide is used in indoor fumigation, the warning standard of 21 ppb is 10 times more protective than the exposure standard for agricultural use, 210 ppb.

The State of California considered making all uses of methyl bromide subject to Proposition 65, but ultimately only the use of methyl bromide in structural fumigations was included. Methyl bromide was added to the Proposition 65 list of reproductive toxicants on January 1, 1993. On January 1, 1994, the use of methyl bromide as a structural fumigant became subject to Proposition 65 warning requirements. Despite DPR's research into the size of the warning zone that would be required for agricultural applications, agricultural usage never became subject to Proposition 65.⁶⁸

⁶⁷U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Unified Air Toxics Website, "Methyl Bromide", web site: <http://www.epa.gov/ttnuatw1/hlthef/methylbr.html>.

⁶⁸The listing of methyl bromide as a reproductive toxicant for structural uses but not for agricultural uses is scientifically indefensible as the same chemical is used for both situations.

f. The Agency for Toxic Substances and Disease Registry has established a Minimum Risk Level of 50 ppb.

The Agency for Toxic Substances and Disease Registry ("ATSDR"), an agency of the U.S. Department of Health and Human Services, has established an acute inhalation Minimum Risk Level ("MRL") of 50 ppb for exposure periods of 1 to 14 days, and a chronic inhalation MRL of 5 ppb for periods of 365 days and longer. MRLs are used by regulators to determine whether a hazardous waste site may pose a risk to public health.⁶⁹

The agency says the MRL is set "below levels that might cause adverse health effects in the people most sensitive." If levels exceeding the MRL are detected coming from a Superfund site, regulators may order a study of the risk to the public, including air monitoring and health surveys. While ATSDR states "exposure to a level above the MRL does not mean adverse effects will occur," the agency endorses a conservative approach to setting exposure levels, "consistent with the public health principle of prevention."⁷⁰

g. DPR has not established a chronic or sub-chronic exposure safety level despite the potential for chronic exposure among farm workers, nearby residents, and school children.

DPR's 210 ppb standard is an acute exposure level, inappropriate to the type of sub-chronic and chronic exposure suffered by school children, residents, and farm workers in communities where large quantities of methyl bromide are routinely applied, year after year. The standard is premised on an isolated, seldom-occurring, single field fumigation event, rather than multiple methyl bromide applications occurring throughout the season or year in a given neighborhood or community and continuing from year to year. A protective sub-chronic exposure safety standard would be significantly lower than the acute standard. DPR has stated that "DPR scientists typically estimate different exposure levels based on various potential exposure scenarios. Lower exposure

See Liebman, Rising Toxic Tide, at 7.

⁶⁹Agency for Toxic Substances and Disease Registry, Division of Toxicology, *Minimum Risk Levels for Hazardous Substances, December 1997*, web site: <http://atsdr1.atsdr.cdc.gov:8080/mrls.html>

⁷⁰*Id.*

target levels were calculated for longer-term exposures of 1 to 2 weeks, several hours per day.⁷¹ A chronic standard could be applicable to pesticide workers, as well as a sub-chronic standard applicable to the residents and schoolchildren who live and attend school within close proximity to many fields being sprayed consecutively throughout the year.

4. The distance of 1.5 miles provides a reasonable indicator of the zone of impact.

The amount of usage in proximity to California schools serves as a reasonable proxy for impact. Further, the distance of 1.5 miles is a reasonable distance within which to calculate methyl bromide usage, and thus serves to define a "zone of impact." (Given the controversy and uncertainty over the level of exposure to methyl bromide that can be considered "safe," DPR's own relatively unprotective standard of 210 ppb cannot be relied upon to determine the presence of health impacts. Almost every other agency to evaluate methyl bromide, from the U.S. EPA to the Agency for Toxic Substances and Disease Registry, and even DPR's own scientists, has set the safe level far below 210 ppb.)

Because DPR's buffer zones for agricultural applications are based on an unprotective safety standard, they do not serve as an accurate indicator of the area of impact. Rather, the area of impact is suggested by the results of air dispersion models to determine methyl bromide risks under California's Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65")⁷² and the California Air Toxic Hot Spot Information and Assessment Act of 1987 ("Air Toxic Hot Spot Act").⁷³ Ironically, DPR itself determined that a warning zone of up to four miles would be necessary under Proposition 65 if the use of methyl bromide in agriculture had been made subject to this state law.⁷⁴ Additionally, modeling conducted to comply with the Air Toxic Hot Spot Act

⁷¹DPR, "Correcting Some Misconceptions."

⁷²Cal. Health & Safety Code, Chapter 6.6, §§ 25249.5 - 25249.13.

⁷³Cal. Health & Safety Code §§ 44300 - 44384 (West Supp 1995).

⁷⁴DPR set the warning zone for typical strawberry fumigation conditions at 0.25 to 1.0 mile. However, DPR used flawed methodology in modeling the Proposition 65 warning zones, in which atmospheric stability was assumed as neutral rather than highly stable and windspeed was assumed to be 3 mph rather than the 1 mph speed recommended by the California Air Resources

predicted unacceptable levels of methyl bromide at a school two miles away from a fumigation facility.

a. DPR's buffer zone distance is not protective of human health.

Based on its safety standard of 210 ppb, the DPR developed the concept of the "buffer zone" to require a certain distance between fields treated with methyl bromide and nearby homes and other occupied structures. DPR's buffer zones have been repeatedly called into question and monitoring studies conducted by DPR and the Environmental Working Group ("EWG") have consistently shown that the buffer zone model is flawed. Children in schools and day care centers have been subject to exposure as a result.

In November 1996, after EWG monitoring found excessive levels of methyl bromide in the backyard of a Ventura County daycare center, DPR conceded that buffer zones could no longer include backyards or schoolyards.

A study conducted by EWG in October 1997, revealing peak levels among the highest measured by EWG in almost two years of methyl bromide monitoring in California, clearly illustrates the inadequacy of DPR's buffer zones. In order to monitor methyl bromide drift from a fumigated strawberry field next to Salsipuedes Elementary School in Watsonville, EWG placed monitoring equipment on private property bordering the school, located 250 to 300 feet from the fumigated field. This distance was over eight times further away from the field than the then-mandated 30-foot buffer zone required by DPR. Using 24-hour averages, EWG's monitors detected 2,115 ppb of methyl bromide in the first 24 hours, and 585 ppb for the second 24 hours.⁷⁵

Board. DPR, Information Sheet discussing size of warning zone, "Prop. 65 - Safe Use Determination for Methyl Bromide" (November 30, 1993); Memorandum of Genevieve Shiroma, Toxic Air Contaminant Branch, California Air Resources Board, to John Saunders, Environmental Monitoring and Pest Management Branch, DPR, regarding "Comments on Draft DPR Methyl Bromide Buffer Zone Analysis" (January 23, 1993). Since these warning zones were proposed, DPR has more than tripled the buffer zone for fumigations similar to the typical strawberry fumigations discussed here, from 30 feet to 100 feet; thus, the 0.25 to 1.0 mile warning zones would reasonably be expected to be at least 1.5 miles, even for small acreages.

⁷⁵EWG, "High Levels of Methyl Bromide Discovered Near Elementary School" (November 1997), web page: <http://www.ewg.org/pub/home/reports/salsipuedes/salsipuedes.html>. See also EWG, "Air Monitoring Detects High Levels of Methyl Bromide Near Elementary School in

The level detected during the first 24 hours was more than 10 times DPR's safety standard of 210 ppb over 24 hours; the level in the second 24 hours was 2.5 times the safety standard – measured from a distance 220 to 270 feet further away than the exposure buffer zone mandated by DPR.

DPR's buffer zones were established by computer modeling using flawed parameters combined with limited data of questionable quality from experimental field monitoring. The Industrial Source Complex-Short Term ("ISCST") Model was used by DPR in the early 1990s to predict air concentrations. However, DPR used the model incorrectly, by failing to use an adequate set of weather data (rather than using several years of actual measurements of wind speed, stability and other weather data, DPR instead used theoretical wind speed and stability later determined to be erroneous). DPR also failed to adequately consider the use of methyl bromide on multiple farms in a small area. In fact, DPR erroneously assumed that summer conditions provided the worst-case scenario for methyl bromide emissions from treated fields. A January 1993 California Air Resources Board memorandum highly critical of DPR's methods was made public in 1997. The memo concludes, "without the appropriate meteorological data for each site, we do not believe the approach used by DPR is based upon sound scientific principles."⁷⁶

In the winter of 1996-97, DPR finally conducted a winter monitoring project that resulted in finding exceedances of DPR's standards at four of six locations, and for three of the four application methods examined. In its July 1997 report on the study, DPR stated "[h]igher air concentrations may occur during winter months due to more stable atmospheric conditions."⁷⁷ In November 1997, DPR increased its wintertime buffer zones from a minimum of 30 feet to a minimum of 100 to 300 feet depending on the application rate, type, and number of acres fumigated, then back-pedaled, allowing 50 foot buffer zones on parcels of five acres or less at

Watsonville" (November 17, 1997); EWG, "California Study Admits Methyl Bromide Safety Standard Inadequate" (July 24, 1997).

⁷⁶Memorandum of Genevieve Shiroma, Toxic Air Contaminant Branch, California Air Resources Board, to John Saunders, Environmental Monitoring and Pest Management Branch, DPR, regarding "Comments on Draft DPR Methyl Bromide Buffer Zone Analysis" (January 23, 1993).

⁷⁷DPR, *Monitoring Methyl Bromide Fumigations During Winter Months* (July 1997), at 1.

typical strawberry application rates. DPR subsequently reduced the worker buffer zone back to 30 feet.

DPR's buffer zones have also been set and checked using charcoal tube samples. DPR now acknowledges that measurements of methyl bromide concentrations using charcoal tubes are almost 30 percent lower than more accurate SUMMA canister measurements.⁷⁸ Thus, measurements of methyl bromide concentrations made with charcoal tubes are known to be about 30 percent less than actual air levels of the pesticide; a charcoal tube measurement of 210 ppb may actually be more than 270 ppb.

DPR's models, based on faulty assumptions and unsound science, have consistently failed to accurately predict the degree of methyl bromide drift. As stated by EWG, "[h]ighly variable weather conditions - particularly prevalent along the California coast - make any given use of methyl bromide akin to playing Russian roulette with wind, temperature, and humidity."⁷⁹ Thus, DPR's 30 to 50 foot buffer zone are far too small, particularly around schools.

b. The Proposition 65 warning zone for agricultural applications of methyl bromide would extend up to 4 miles.

When methyl bromide use in agriculture was considered for regulation under Proposition 65, a warning zone of up to 4 miles was considered necessary. This indicates further controversy and uncertainty around the distance required to ensure safety, and supports the use of the distance of 1.5 miles as a reasonable estimate of the zone of impact on the schools attended by the complainants.

In November 1993, DPR drafted a Safe Use Determination for Methyl Bromide setting the appropriate radius of the "warning zone" for methyl bromide use in soil fumigation at agricultural sites. Employing the warning safety standard of 21 ppb over 24-hours of exposure, the size of the warning zone was computed using field monitoring data in conjunction with the

⁷⁸Heinz W. Biermann and Terrell Barry, "Evaluation of Charcoal Tube and SUMMA Canister Recoveries for Methyl Bromide Air Sampling" (DPR 1999), at 1.

⁷⁹EWG, "Air Monitoring Detects High Levels of Methyl Bromide Near Elementary School in Watsonville" (November 17, 1997).

DPR's computer model (again, with less weather data than appropriate). Depending on the application rate, from 250 to 450 lbs./acre, and the size of the area treated in a 4-day period, from 1 to 80 acres, the required warning zone ranged from 0.25 miles to 4 miles. For example, a soil application in which 20 acres are treated at the standard rate of 250 lbs./acre would require a warning zone of 1.5 miles.⁸⁰

c. A risk assessment completed in 1993 for emissions from methyl bromide fumigation facility showed unacceptable health risks at a school 2 miles away from the facility.

An assessment of risks posed by a methyl bromide fumigation facility was conducted in 1993 to ensure compliance with the Air Toxic Hot Spot Act. The health risks from methyl bromide emissions at the San Diego Unified Port District's Tenth Avenue Marine Terminal Methyl Bromide Fumigation Facility (the "Port facility") were characterized for two schools, one about one mile away, the other about two miles away. At the time, the Port facility was permitted to apply a maximum of 40,000 pounds of methyl bromide annually. The assessment, made using EPA and state-approved air dispersion models, indicated unacceptable risks for both schools. Notably, the school farther away was at greater risk from methyl bromide emissions than the closer school.⁸¹ This study clearly indicates the potential for similarly unacceptable risks from fields where more than 40,000 pounds of methyl bromide are used annually at distances from schools of 1.5 miles and less.

Under California law, people living near methyl bromide fumigation facilities such as the Port facility receive more protection from methyl bromide emissions than people living near fields

⁸⁰DPR, Information Sheet Discussing Size of Warning Zone (November 30, 1993) at 5.

⁸¹As discussed in Environmental Working Group (EWG), "Regulatory Double Standard in California" (February 9, 1996), web site: <http://www.ewg.org/pub/home/reports/MBCalifornia/CARegs.html> (hereafter EWG, "Regulatory Double Standard"), citing San Diego Port Risk Assessment 1993, Draft and Final Risk Assessments done for San Diego Unified Port District's Tenth Avenue Marine Terminal Methyl Bromide Fumigation Facility pursuant to lawsuits *Environmental Health Coalition v. S.D. County Air Pollution Control Authority*, *San Diego Unified School District v. Harbor Fumigation Facility*.

that are also treated with methyl bromide. Fumigation facilities are regulated as point sources under the Air Toxic Hot Spot Act. As a result of the 1993 risk assessment, the Port facility installed methyl bromide recapture equipment and took other measures to mitigate emissions. There are no similar remedies imposed for agricultural applications even though there are many California schools (and thousands of homes) within two miles of agricultural operations that use as much or more methyl bromide as the Port facility.⁸²

Further, modeling conducted to comply with the Air Toxic Hot Spot Act predicted unacceptable levels of methyl bromide at a school two miles away from a fumigation facility permitted to use a maximum of 40,000 pounds of methyl bromide annually. Greater amounts of methyl bromide are used in agricultural operations which are in closer proximity (within 1.5 miles) to five of the six California schools attended by the children filing this complaint. Given the uncertainty surrounding the appropriate safety standard and the need to ensure the safety of children, the distance of 1.5 miles provides a reasonable estimate of the zone of impact.

B. Of children most exposed to methyl bromide at school, a disproportionate number are non-white.

The EPA *Interim Guidance For Investigating Title VI Administrative Complaints Challenging Permits* ("Interim Guidance") sets out five steps for determining disparate impact. These include (1) identifying the affected population; (2) determining the demographics of the affected population; (3) determining the universe of facilities and total affected population; (4) conducting a disparate impact analysis; and (5) determining the significance of the disparity. These five steps, as addressed below, show that significant disparate impact on non-white school children is present in the permitting of methyl bromide use in California.

1. The affected population is those students in the schools with the most methyl bromide sprayed within a 1.5 mile radius.

For the purposes of this complaint, we define the "affected population" as those students attending schools located within 1.5 miles of more than 35,000 pounds of methyl bromide application annually. A total of 15,548 students attend 21 California public schools which are

⁸²EWG, "Regulatory Double Standard."

located within 1.5 miles of fields where over 35,000 pounds of methyl bromide are applied in a year; all six complainant families have children attending one of the 21 such schools. The Interim Guidance states, "proximity to a facility will often be a reasonable indicator of where impacts are concentrated. Accordingly, where more precise information is not available, OCR [Office of Civil Rights] will generally use proximity to a facility to identify adversely affected populations."⁸³ In the present case more precise information is not available and, for the reasons discussed above, the distance of 1.5 miles is a reasonable indicator of impact.

Table 1 identifies the schools, their enrollment, and the amount of methyl bromide applied in 1995 within a 1.5 mile radius of the school. These students are considered to be the affected population for the purpose of the present complaint. Given that up to 68 percent of the methyl bromide applied to agricultural fields is known to be released from a treated site in the form of off-gassing, from 23,000 to 54,000 pounds of methyl bromide may annually enter the air within 1.5 miles of the schools which these students attend. They may be exposed when at school and also when being transported between their homes and their school in the morning and afternoon. Many also reside in the 1.5 mile zone of impact.

⁸³*Interim Guidance* at 9.

TABLE 1:
California Public Schools Within 1.5 Miles of
the Application of 35,000 Pounds of Methyl Bromide, 1995

<u>School</u>	<u>City</u>	<u>County</u>	<u>Enrollment</u>	<u>Percent non-Anglo</u>	<u>Methyl bromide use within mile, 1995</u>
Rio Plaza Elementary	Oxnard	Ventura	476	88%	79,517
Rio Mesa High	Oxnard	Ventura	2,169	75%	67,492
Pajaro Middle	Pajarro	Monterey	524	94%	67,354
Suisun Valley Elementary	Suisun	Solano	279	25%	59,988
Frank Paul Elementary	Salinas	Monterey	881	97%	59,725
Barton Elementary	Salinas	Monterey	1,025	98%	59,725
Mt. Toro High (Cont.)	Salinas	Monterey	327	80%	59,725
Rio Lindo Elementary	Oxnard	Ventura	496	73%	55,569
Santa Rita Elementary	Salinas	Monterey	807	80%	50,667
Gavilan View Middle	Salinas	Monterey	769	68%	50,667
Alisal High	Salinas	Monterey	1,910	97%	49,410
La Joya Elementary	Salinas	Monterey	750	64%	47,702
Renaissance High (Cont.)	La Selva Beach	Santa Cruz	235	77%	47,565
Macquiddy (T.S.) Elemen.	Watsonville	Santa Cruz	850	90%	47,506
Salsipuedes Elementary	Watsonville	Santa Cruz	707	88%	42,579
Tunnell Elementary	Santa Maria	Santa Barbara	713	54%	40,425
Rio Del Valle Elementary	Oxnard	Ventura	560	81%	39,525
Rio Real Elementary	Oxnard	Ventura	659	92%	39,525
Union Elementary	Visalia	Tulare	369	79%	38,980
Ohlone Elementary	Pajaro	Monterey	518	96%	36,198
Great Western Elementary	Reedley	Fresno	<u>524</u>	<u>54%</u>	35,581
		Total	15,548	82%	

Source: Environmental Working Group, *Methyl Bromide Use Near California Schools, 1995* (1998).

Table 2 shows the time of year that methyl bromide is sprayed within a 1.5 mile radius of nine of the ten public schools with over 50,000 pounds applied annually (data from the 10th was not available). Over 75% of the methyl bromide is sprayed from mid-August through late May, when California schools are likely to be in session. Further, the methyl bromide used near each school is sprayed over the course of several months of the year at various farms. As such, students may be exposed to at least low levels throughout several months of the year, constituting a chronic or sub-chronic exposure. DPR's acute standard is not adequately protective for chronic or sub-chronic exposure.

TABLE 2:
Amount of Methyl Bromide Sprayed During
the School Year, for California Public Schools Within 1.5 Miles of
the Application of 50,000 Pounds of Methyl Bromide, 1995

<u>School</u>	<u>August 16 to May 31 (in pounds)</u>	<u>June 1 to August 15 (pounds)</u>	<u>Total (pounds)</u>
Rio Plaza Elementary	79,517		79,517
Rio Mesa High	53,920	13,572	67,492
Pajaro Middle	52,320	15,035	67,354
Frank Paul Elementary	28,517	31,208	59,725
Barton Elementary	28,517	31,208	59,725
Mt. Toro High (Cont.)	28,517	31,208	59,725
Rio Lindo Elementary	31,205	24,364	55,569
Santa Rita Elementary	47,179	3,488	50,667
Gavilan View Middle	<u>47,179</u>	<u>3,488</u>	<u>50,667</u>
Total	536,680	169,814	706,494
Total percentage	76%	24%	100%

Additionally, it is very likely that the affected population includes students who attend schools where the amount of methyl bromide used within a 1.5 mile radius is less than 35,000 pounds. For the purpose of this complaint, however, we choose 35,000 pounds as a threshold and as a rough estimation of those at greatest risk of methyl bromide poisoning among California school children.

2. The affected population is disproportionately non-white.

The students at California public schools with over 35,000 pounds of annual methyl bromide use within a 1.5 mile radius are 82 percent non-white⁸⁴ (see **Table 1**). Of the 21 public schools in this category, seven have a non-white population of over 90 percent; five have a non-white population between 80 and 90 percent; four have a non-white population between 70 and 80 percent; two have a non-white population of between 60 and 70 percent; and only three (14% of the most heavily burdened schools) have a non-white population of less than 60 percent. For comparison, the statewide average is 59 percent students of color.

Table 3 illustrates that at lower levels of impact, non-whites are also disproportionately affected. Schools which are within a 1.5 mile radius of fields where over 25,000 pounds of methyl bromide are applied have an average non-white student population of 80 percent. The amount of methyl bromide sprayed within a 1.5 mile radius correlates positively with the percentage of non-white students in the nearby California public school. As the amount of methyl bromide applied rises, so does the non-white student population in the school.

⁸⁴Based on the 98.2% of students for whom racial composition data was available. There are also three private schools in California which are within a 1.5 miles radius of 50,000 pounds of methyl bromide annual use; because racial composition data was not available for these schools they are not included in this complaint.

TABLE 3:
Correlation of Methyl Bromide Use with
Non-white Student Population in California Schools

<u>Methyl bromide use within 1.5 miles in pounds (>=)</u>	<u>Total No. of Schools</u>	<u>Total Number of Students</u>	<u>No. Students With racial Information</u>	<u>No. of Students Non-white</u>	<u>% Students w/ Racial Information</u>	<u>% of Students Non-white</u>
(All schools)	9,689	5,741,850	5,324,146	3,167,105	93%	59%
10,000	107	73,220	71,842	47,032	98%	65%
15,000	80	53,866	52,670	36,907	98%	70%
20,000	56	38,174	36,978	27,433	97%	74%
25,000	39	28,753	27,623	22,106	96%	80%
30,000	29	18,218	17,497	14,552	96%	83%
40,000	21	13,639	12,918	10,530	95%	77%
50,000	13	7,948	7,753	6,246	98%	79%
60,000	3	3,169	3,169	2,527	100%	80%
70,000	1	476	476	419	100%	88%

Source: Environmental Working Group, unpublished data.

3. The children at California schools who are within a 1.5 mile radius of agricultural operations using over 35,000 pounds of methyl bromide also tend to be within a 1.5 mile radius of the usage of other highly toxic pesticides.

Children who attend schools within a 1.5 mile radius of agricultural use of over 35,000 pounds of methyl bromide use are often also in the closest proximity to the greatest agricultural usage of pesticides overall. Moreover, as residents of communities of color, many of these same children are exposed to elevated levels of air pollution generally. The *Interim Guidance* states,

[P]ermits that satisfy the base public health and environmental protections contemplated under EPA's programs nonetheless bear the potential for discriminatory effects where residual pollution and other cognizable impacts are distributed disproportionately to communities with particular racial or ethnic characteristics.⁸⁵

The use of methyl bromide in proximity to predominantly non-white California schools compounds a preexisting burden being shouldered by children at these schools – the use of many other highly toxic pesticides in close proximity to these educational institutions. As such, the cumulative burden on non-white children is disproportionate when compared with that of white school children. The permitting of methyl bromide is thus part of a broader pattern in which the agricultural use of many highly toxic pesticides, with accompanying adverse health and safety consequences, is permitted in communities with particular racial or ethnic characteristics.

The schools located in closest proximity to the greatest amount of methyl bromide use are also in closest proximity to the greatest amount of total agricultural pesticide use.⁸⁶ **Table 4** shows the quantity and state rank for the ten California public schools with the greatest annual methyl bromide use within a 1.5 mile radius of each school, as well as the quantity and state rank for overall agricultural pesticide use within 1.5 miles. It is evident that the children in these schools are at high risk of exposure not only to methyl bromide, but also to other highly toxic pesticides permitted by DPR. Eight of the ten public schools most exposed to methyl bromide ranked among the ten schools most exposed to *all* pesticides in California (another was 12th -most exposed). The students at these schools bear the greatest burden of California agriculture's chemical dependency, and DPR's failure to protect California's schoolchildren in its pesticide permitting program.⁸⁷

⁸⁵*Interim Guidance* at 10-11.

⁸⁶Environmental Working Group, *@risk: California Schools Most Exposed to Pesticides*, web site: <http://www.ewg.org/@risk> (1997).

⁸⁷Many of these children live near the schools and the fields in question, ensuring that they face exposure to methyl bromide for longer, and more often, than other California students.

TABLE 4:
**Comparison of State Rankings for Highest Methyl Bromide Use and
 Highest Overall Pesticide Use for the 10 California Public Schools Within
 1.5 Miles of the Greatest Application of Methyl Bromide, 1995**

<u>School</u>	<u>Methyl bromide use within mile, 1995</u>	<u>Methyl Bromide Rank</u>	<u>Total pesticide use within 1.5 mile, 1995</u>	<u>Total Pesticide Rank</u>
Rio Plaza Elementary	79,517	1	120,864	1
Rio Mesa High	67,492	2	104,799	3
Pajaro Middle	67,354	3	111,730	2
Suisun Valley Elementary	59,988	4	64,867	24
Frank Paul Elementary	59,725	5	91,168	5
Barton Elementary	59,725	5	91,168	5
Mt. Toro High (Cont.)	59,725	5	91,168	5
Rio Lindo Elementary	55,569	8	80,119	12
Santa Rita Elementary	50,667	9	100,683	4
Gavilan View Middle	50,667	9	86,073	10

Source: Environmental Working Group, *Methyl Bromide Use Near California Schools, 1995* (1998); Environmental Working Group, *@risk: California Schools Most Exposed to Pesticides* (1997).

The usage of methyl bromide and other highly toxic pesticides in large quantities in proximity to schools attended by students of color represents a burden in addition to others already borne by these students. A recent study found that residents of communities of color in California have a 54 percent chance of breathing unsafe levels of airborne toxic particles and gases, compared to a 19 percent chance in predominantly white communities. Thus, residents of communities of color are nearly three times more likely to breath dangerous levels of air pollution.⁸⁸

⁸⁸Environmental Working Group, "People of Color in California Breathe the Most Heavily Polluted Air" (6/11/97).

4. There is a disparate impact on school children of color as a result of DPR's permitting of methyl bromide.

In 1995, the student population in California schools averaged 59.5 percent non-white. The schools within a 1.5 mile radius of 35,000 pounds of annual methyl bromide use had a student population that was 82 percent non-white.

5. The disparity is significant.

As detailed in section C.4, the population of California school children most exposed to methyl bromide is *38 percent more* people of color than the overall student population. This disparity is significant.

D. The pattern in methyl bromide exposure is found with other pesticides, which disproportionately affects people of color in California.

Unfortunately, as shown in Table 4, above, the example of methyl bromide is not anomalous, but is in fact replicated in the use of most other highly toxic pesticides in California. DPR's policies disproportionately expose people of color to pesticides in California. Pesticides frequently drift offsite one-half mile or more from their target. Even under ideal conditions, a study found that only about half of the pesticides applied aerially reach their target area.⁸⁹ In general, applications by aircraft result in five times more drift than most forms of ground spray. Over 46 million pounds of pesticides were sprayed by aircraft in California in 1995. Significant pesticide drift also occurs when pesticides, like methyl bromide, are applied in a gaseous state, release a gas upon contact with water as metam sodium does, or are applied by airblast sprayer (commonly used in orchards).

Many pesticide-related illnesses are caused by drift. From 1991-95, approximately 44 percent of all reported agricultural pesticide-related illnesses in California were caused by the drift of pesticides onto people in adjacent communities, roads or fields.

In the period 1991-95, the number of pounds of pesticides used in California increased 31 percent, from 161 million to 212 million pounds. During that time period, use of cancer-causing

⁸⁹D. Pimentel & L. Levintin, "Pesticides: amounts applied and amounts reaching pests," 36 *Bioscience* 90 (1986).

pesticides more than doubled, rising 129 percent. Use of nerve toxins increased by 52%. Monitoring under the Toxic Air Contaminant Program in California detected at least nine pesticides at distance of half a mile or more from their point of use. Nearly 30 million pounds of these nine pesticides were used in California in 1995.

Dangerous pesticides of high acute and chronic toxicity have drifted offsite and been detected in communities near their application sites. These include:

- Metam sodium, a known carcinogen and reproductive toxin, of which 15,274,166 pounds were used in California in 1995, was detected at two Kern County schools among other sites.⁹⁰ The schools, Vineland Elementary and Mountain View School, are 94.7 and 93.0 percent students of color, respectively.⁹¹ Metam sodium releases the toxic gases methyl isothiocyanate (MITC), hydrogen sulfide and carbon disulfide upon contact with water. MITC is known to aggravate asthma and cause the respiratory illness Reactive Airways Disorder Syndrome (RADS).⁹² On May 19, 1999, Cuyama Elementary School in northern Santa Barbara County was evacuated when scores of students and staff became ill due to offgassing from an application of metam sodium to a field adjacent to the school, the student body of which is 67.1 percent students of color.

- Azinophos methyl, a Toxicity Category 1 organophosphate, of which 434,0098 pounds used in 1995, was found in two schools, also in Kern County:⁹³ Pond School (56.8 percent students of color) and Browning Road School (99.5 percent students of color).

The disproportionate impact of pesticide use on people of color in California is exacerbated by occupational patterns. Periods of high pesticide usage often correspond to periods of intense

⁹⁰W.S. Kollman, *Summary of Assembly Bill 1807/3219 Pesticide Air Monitoring Results Conducted by ARB 1986-95* (1995), DPR publication EH 95-10.

⁹¹All demographic data for schools in the section is from the California Department of Education website.

⁹²J.E. Cone, et al., "Persistent Respiratory Effects after a Metam Sodium Pesticide Spill," 106 *Chest* 500 (August 1994).

⁹³W.S. Kollman, *Summary of Assembly Bill 1807/3219 Pesticide Air Monitoring Results Conducted by ARB 1986-95* (1995), DPR publication EH 95-10.

agricultural production when farmworkers and their families, approximately 80% of whom are Latino, migrate to agricultural areas to cultivate or harvest crops. While the adults are in the fields, their children live and play in adjacent farm labor camps or attend schools which are near the fields. Because of inadequate regulation of aerial and other application methods, Latino children, many the children of farmworkers, are put at great risk due to the drift of pesticides onto their homes or schools. As a recent study found, "children living in farming areas or whose parents work in agriculture are exposed to pesticides to a greater degree, and from more sources than other children."⁹⁴

Because they live in close proximity to areas of heavy agricultural use, farmworker children have often been exposed to pesticides which drift from nearby fields onto outdoor play areas and end up in household dust. For example, a study in Washington State tested soil from outdoor play areas and dust from indoor play areas of 26 farming families, 22 farmworker families and 11 non-agricultural families, each of which had at least one child less than seven years old.⁹⁵ An analysis was performed to detect the presence and concentration of four organophosphate insecticides: azinphos-methyl, phosmet, chlorpyrifos and ethyl parathion. Residues found in household dust and soil were almost exclusively due to agricultural use, rather than home use. One or more of the four pesticides was found in 58% of the soil samples outside the homes of agricultural families as compared to 18% of non-agricultural homes. Household dust in 100% of the homes of farm children had at least one of the four target pesticides and all four target pesticides were found in 62% of these households. By comparison, only 9% of non-agricultural homes had all four pesticides. Concentrations of pesticides were also higher in farm households as compared to non-farm households.

Exposure to pesticides through drift can also lead to serious adverse health effects. A Minnesota study found that families living in regions of high agricultural pesticide use had a

⁹⁴Gina Solomon, *Trouble on the Farm: Growing Up With Pesticides in Agricultural Communities* (1998), at ix.

⁹⁵N.J. Simcox *et al.*, "Pesticides in Household Dust and Soil: Exposure Pathways for Children of Agricultural Families," 103 *Environmental Health Perspectives* 1126 (1995).

significantly higher rate of birth defects than did urban dwellers and nearly as high a rate as did pesticide applicators.⁹⁶

Thus, the disproportionate impact of methyl bromide use detailed in this complaint is part of a statewide pattern of the disproportionate impact of all pesticide use permitted by DPR.

IV. REMEDIES

EPA regulations authorize EPA to use any means authorized by law to obtain compliance with Title VI. 40 C.F.R. Section 7.130(a). The regulations also require any recipient of EPA assistance that has previously discriminated to take affirmative action to remedy the effects of the discrimination. 40 C.F.R. 7.35(a)(7). In order to provide effective remedies for the patterns of discrimination set forth in this Complaint, EPA should require that methyl bromide be banned and less toxic alternatives employed in its place. Further, EPA should require that all Category 1 toxic pesticides be banned from use within five miles of California schools.

There are alternatives to the present usage of methyl bromide that are less discriminatory. The EPA has published three volumes of case studies presenting alternatives to methyl bromide.⁹⁷ In response to the question "Are there alternatives to methyl bromide?" EPA states:

Yes. ...There is no one alternative for all of the uses of methyl bromide, but there are several pest control tools which can manage the pests currently controlled with methyl bromide.⁹⁸

A professor of plant pathology at Auburn University, Rodrigo Rodriguez-Kabana, recently reported to a House Agriculture Subcommittee that "there is no single crop that cannot be produced successfully without methyl bromide." He stated that alternatives are known to work, but are

⁹⁶V. Garry, *et al.*, "Pesticide Applicators, Biocides, and Birth Defects in Rural Minnesota," 104 *Environmental Health Perspectives* 394 (1996).

⁹⁷U.S. Environmental Protection Agency, Office of Air and Radiation, *Alternatives to Methyl Bromide: Ten Case Studies*, Volume One (July 1995), Volume Two (December 1996), and Volume Three (September 1997).

⁹⁸U.S. Environmental Protection Agency, Methyl Bromide Home Page, <http://www.epa.gov/spdpublic/mbr/mbrqa.html>.

considered "inconvenient compared with methyl bromide."⁹⁹

If EPA chooses not to require that methyl bromide be banned, DPR should be required to impose changes in the permitting procedures of methyl bromide such that predominantly non-white schools and communities are no longer subject to a disproportionate burden of exposure to this deadly pesticide. If the use of methyl bromide is to be continued in California fields, DPR must be forced to enact and enforce regulations that truly protect California children. Changes would include much larger buffer zones based on a target exposure level more protective than 210 ppb, a buffer zone that is designed specifically to protect children from adverse chronic health impacts and to protect those children exposed on a sub-chronic level throughout the fumigation season. In addition, permitting of methyl bromide should be conducted with attention to the permitting of other highly toxic pesticides and the total presence and combined health impacts of other pesticides and other environmental contaminants present in and near non-white communities and schools.

Similar remedies should be explored for DPR's other actions in permitting pesticides that have a disproportionate impact on people of color in California, including but not limited to metam sodium and 1,3 dichloropropene (Telone II) and extremely high toxicity organophosphates. Such remedies could include banning the most toxic pesticides, and prohibiting or requiring reduced use of the most acutely and chronically toxic pesticides on fields close to human habitation, schools and work sites.

V. CONCLUSION

As this complaint makes clear, the students of California who experience a greater potential for exposure to methyl bromide are overwhelmingly students of color. At the 21 public schools in closest proximity to the most intensive methyl bromide use, 82 percent of students are non-white. This clearly discriminatory impact is a direct result of DPR's methyl bromide permitting actions, in violation of Title VI as implemented by EPA regulations. DPR receives federal funding from EPA and is thus subject to Title VI.

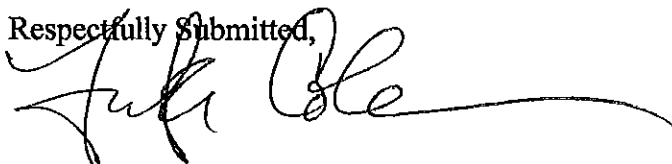
DPR most recently took action on methyl bromide on January 5, 1999, and this complaint is

⁹⁹James Kennedy, "EPA Still Favors Methyl Bromide Phaseout by 2001 Deadline, Official Tells Hearing," Bureau of National Affairs, 29 *Environment Reporter* 356 (June 12, 1998).

timely. We look forward to an active, collaborative investigation by EPA, and we stand ready to provide EPA with complete documentation of all claims made in this complaint, as well as further evidence of discrimination by the agencies involved. Please notify us promptly of the schedule for EPA's investigations. We request that you direct all written responses to all of the advocates listed below.

Date:

Respectfully Submitted,



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Gray Davis
Governor

California Notice 99-2

POST UNTIL February 12, 1999

NOTICE OF PROPOSED DECISION TO RENEW REGISTRATION OF PESTICIDES

The Director of the Department of Pesticide Regulation (DPR), pursuant to Title 3, California Code of Regulations (CCR) section 6253, herein notices the proposed decision to renew the registration for the calendar year 1999 of those pesticide products registered in 1998. In reaching the proposed decision to renew registrations, the Director of DPR presents the following findings:

1. Food and Agricultural Code (FAC) section 12812 sets the annual fee for each pesticide product submitted for registration at two hundred dollars (\$200);
2. FAC section 12817 requires that the registration of every pesticide expire on December 31 of each calendar year, except when renewal is applied for within one calendar month thereafter;
3. FAC section 12819 provides for penalty fees should an application for renewal of registration not be made within one calendar month after expiration of registration. Such penalties shall not exceed 50 percent of the original amount due;
4. FAC section 12819 also provides that the penalties shall not be collected for renewals of registration if no business was done during the period of nonregistration;
5. CCR section 6215 requires the Director to renew the registrations of pesticide products within 60 days after receiving an accurate and complete application for renewal, except when the Director, after hearing, has canceled the registration, or taken action to refuse to register the product;
6. DPR notices proposed decisions pertaining to registrations for 30 days to provide for public comment before final decisions are made. DPR submits notices of final registration decisions to the Secretary for Resources to be posted for 30 days;
7. The provisions of CCR section 6220 provide individuals and organizations with an opportunity to submit information indicating possible adverse effects from the use of a pesticide to DPR at any time;
8. DPR posts notices of proposed reevaluations for 30 days to provide for public comment. DPR submits notices of final reevaluation decisions to the Secretary for Resources to be posted for 30 days. DPR prepares and makes available to the public semiannual reports on pesticide products reevaluated, under reevaluation, or for which factual information has been received. For products that were not reevaluated in 1998, are not under reevaluation, and are not under consideration for

reevaluation, the Director has determined that sufficient information has not been received necessitating reevaluation pursuant to CCR sections 6220 and 6221. DPR is currently conducting risk assessments of certain pesticides, including methyl bromide, pursuant to the Birth Defect Prevention Act and the Pesticide Contamination Prevention Act. A risk assessment is more comprehensive than a reevaluation under CCR section 6220 and 6221;

9. DPR consults with state agencies that have legal jurisdiction over resources that may be affected by the use of pesticides in a timely manner on both registrations and reevaluations. DPR consults with these agencies both directly and during regularly scheduled meetings of DPR's Pesticide Registration and Evaluation Committee;

10. FAC section 12825.5 requires that registrants submit adverse effects disclosures to DPR any time they have factual or scientific evidence of any adverse effect or risk to human health, livestock, crops, or the environment that has not been previously submitted to DPR. The information mandated on adverse effects by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) section 6(a)(2) is included in this requirement. Upon application for renewal of registration, the registrant must certify under penalty of perjury to the accuracy and completeness of all information submitted. Failure to report adverse effects may result in cancellation of the pesticide product as allowed by FAC section 12825 (g)

Pesticides proposed for registration renewal pursuant to this notice can be found in a DPR database on the Internet at <http://www.cdpr.ca.gov/docs/label/labelque.htm>. There are approximately 11,000 registered pesticides in this database. A current listing of California-registered pesticide products can also be downloaded from the same Internet address.

DPR registers additional products throughout the year. Notices of registration decisions on these pesticide products are posted for public comment for 30 days prior to registration. These Notices of Proposed and Final Decisions can be found on the Internet at <http://www.cdpr.ca.gov/docs/nod/nodmenu.htm>.

Other databases that may be accessed via DPR's Internet site (<http://www.cdpr.ca.gov/dprdatabase.htm>) include:

Chemical Ingredient Queries - searches can be made by common, technical, synonym, or trade name; or by chemical abstracts service numbers. Additional queries yield products, registrants, etc.

Product/Label Database Queries - searches of this database may be made by Company Name/Number or Product Name/Number. In addition, multiple variable queries on a number of different criteria, yield specific product matches. DPR updates these databases nightly.

Section 18 Emergency Exemptions - Copies of current California FIFRA section 18 Emergency Exemptions are also available via a database query.

U.S. Environmental Protection Agency (U.S. EPA) Office of Pesticide Programs (OPP) Databases - include DPR's implementation of U.S. EPA's OPP chemical dictionary and product databases.

As required by CCR section 6254, DPR prepares a public report entitled "Public Report Relating to Renewal of Pesticide Registrations." Upon written request, DPR

will send individuals and organizations a copy of the public report, free of charge.

Requests for the Public Report Relating to Renewal of Pesticide Registrations and comments on this proposed decision should be mailed to:

Mr. Van Cheney
Department of Pesticide Regulation
Pesticide Registration Branch
830 K Street, 9th St.-L/L
Sacramento, California 95814-3510

original signed by Barry Cortez

January 5, 1999

Barry Cortez, Chief
Pesticide Registration Branch
(916) 445-4377

Date

California Environmental Protection Agency

M e m o r a n d u m

To : Gary Patterson, Acting Supervising Toxicologist
Medical Toxicology Branch

Date : January 10, 1995

Place : Sacramento

Telephone: 324-3465

From : Department of Pesticide Regulation

Joyce Gee, Senior Toxicologist
Medical Toxicology Branch

Subject : Methyl Bromide: Dog Inhalation Study

A meeting was held January 9, 1995, in the Medical Toxicology Branch to discuss the requirement for a dog chronic study by the inhalation route with methyl bromide. Present were 5 members of the staff. Below are the results of the discussion.

At the present time, chronic effects are based on estimated no effect levels (ENELs). The low doses in the rat oncogenicity study and the mouse NTP oncogenicity study are judged to be lowest observed effect levels (LOELs) and an added factor of 10 is used to estimate the ENEL. The end points are nasal epithelial degeneration/hyperplasia for the rat study and neurobehavioral effects for the mouse. The data for both of these endpoints can be used in a risk assessment. According to the memorandum from Lori Lim to Keith Pfeifer, dated December 1, 1994, (see attachment) these values are as follows:

Rat: LOEL = 3 ppm, ENEL = 0.3 ppm (nasal pathology)

Mouse: LOEL = 10 ppm, ENEL = 1 ppm (neurobehavioral effects)

The chronic neurotoxicity of methyl bromide has not been adequately characterized. The recently submitted and reviewed data with the dog suggests such a chronic study can be conducted but at relatively low dose levels. The data also suggest that the no observed effect level (NOEL) could be in the range of the ENELs.

* If the generally utilized margin of safety (MOS) of 100 were applied to the NOEL from the dog study, as well as to the above ENELs from rat and mouse, then the regulatory goals would be similar and in the area of the current limits of detection for methyl bromide. This suggests that, even though the dog study would better characterize the chronic neurotoxicity of methyl bromide, the outcome of the risk assessment would not be significantly altered. If, however, a smaller MOS is to be utilized for the ENELs, if additional studies or data indicate that the NOELs for nasal degeneration/hyperplasia and neurobehavior are higher than the ENELs, or if the limits of detection are lowered, then the results of the dog chronic inhalation study could drive the risk assessment and the study would be required.

CC: K. Pfeifer
J. Schreider
S. Rinkus
L. Lim
R. Oshima, Assistant Director