

Humboldt
Baykeeper

April 29, 2011

Inland Empire
Waterkeeper

Notice of Call for Public Comment on Fumigant Iodomethane Petition (Methyl Iodide)
Environmental Protection Agency
1200 Constitution Ave., NW, Mailcode: 4503-T
Washington, DC 20460
VIA ELECTRONIC MAIL

Klamath
Riverkeeper

Monterey
Coastkeeper

**RE: Protect California communities and ecosystems from methyl iodide
(Docket ID No. EPA-HQ-OPP-2010-0541)**

The California Coastkeeper Alliance represents 12 Waterkeeper organizations spanning the coast from the Oregon border to San Diego. The Alliance and its member Waterkeepers work daily to protect and enhance clean, abundant water flows throughout the state, for the benefit of Californians and California ecosystems. On behalf of our Alliance, we urge the Environmental Protection Agency to repeal the Bush Administration's approval of iodomethane (methyl iodide).

In 2005, the United States Environmental Protection Agency (EPA) banned methyl bromide as a pesticide in strawberry fields due to its significant contribution to the destruction of the ozone layer.¹ Methyl iodide has been used as methyl bromide's replacement since it performs similarly as a fumigant, but does not persist in the atmosphere the way that methyl bromide does.² However, in approving methyl iodide as a replacement for methyl bromide, EPA is addressing one narrow set of environmental harms caused by methyl bromide, but is triggering an entirely new set of environmental and public health dangers specific to the application and dissipation of methyl iodide.

In 2007, EPA registered the fumigant methyl iodide. During the course of California's subsequent review process, the Scientific Review Committee on Methyl Iodide identified a "palpable lack of sufficient data [which raised] serious doubts about the adequacy of any risk assessment."³ Despite this patently insufficient analysis, and despite grave concerns raised about the human health dangers posed by methyl iodide by numerous scientists, methyl iodide was approved for use in California and 47 other states.

The Alliance respectfully request that EPA immediately cancel and suspend all registrations of methyl iodide because:

- methyl iodide poses significant human health dangers;
- methyl iodide endangers surface and ground water quality;
- proposed safety measures are inadequate to protect ecosystems and communities.

¹ United States Environmental Protection Agency, Webpage: The Phaseout of Methyl Bromide, see <http://www.epa.gov/ozone/mbr/>.

² California Department of Pesticide Regulation, About DPR's Proposed Decision to Register Methyl Iodide 1 (May 2010).

³ Scientific Review Committee on Methyl Iodide, Report of the Scientific Review Committee on Methyl Iodide to the Department of Pesticide Regulation 2 (Feb. 2010), *available at* http://www.panna.org/sites/default/files/SRC_methyl_iodide_peer_review_report.pdf.

I. EPA SHOULD CANCEL ALL REGISTRATIONS OF METHYL IODIDE BASED ON THE FUMIGANT'S HARM TO HUMAN HEALTH.

Methyl iodide is a drift-prone, volatile organic compound that reacts with air and water before it is transported into the ozone layer. This puts people who breathe the air or drink the water in the vicinity of a methyl iodide application at risk of serious health impacts. The peer-reviewed *Report of the Scientific Review Committee on Methyl Iodide* to the California Department of Pesticide Regulation (DPR) declared a “high likelihood that methyl iodide is a developmental neurotoxicant.”⁴ The toxin has been identified as being four times more neurotoxic than the methyl bromide it replaces.⁵

One of the most severe threats to human health derives from the fumigant's ability to chemically alter DNA and gene expression according to Robert G. Bergman, an organometallic chemist at the University California Berkeley and the Chemical Science Division of the Lawrence Berkeley National Laboratory.⁶ This characteristic led methyl iodide to be listed in 1988 as a known carcinogen on California's Safe Drinking Water and Toxic Enforcement Act.⁷ In addition to causing cancer, exposure to methyl iodide has been associated with autoimmune thyroid disease, the impairment of childhood cognition, postpartum depression, permanent neurological damage, vertigo, weakness, and visual and psychological disturbances.⁸

The serious public health danger posed by the use of the fumigant was not lost on the California media. A *Ventura County Star* article published prior to DPR's approval of the fumigant reported that California state regulators were appalled and “dumbfounded” that DPR sought the registration of methyl iodide since it has been known to cause cancer (and has even been used to *induce* cancer), neurological damage, brain and cervical tumors, and birth defects in laboratory animals.⁹

II. EPA SHOULD RECONSIDER ITS APPROVAL OF METHYL IODIDE BECAUSE IT ENDANGERS SURFACE AND GROUND WATER QUALITY.

Methyl iodide endangers the ecosystems and communities the Alliance and its members work daily to protect. According to the California Strawberry Commission, there are nearly 35,000 acres of strawberry fields in California; mostly located in San Diego, Orange County, Oxnard, Santa Maria, Watsonville/Salinas, and San Joaquin.¹⁰ In 2010, Monterey County produced 41 percent of all the strawberries grown in California.¹¹ The Alliance has local Waterkeepers in San Diego, Orange County, Santa Monica, Ventura, Santa Barbara, San Luis Obispo, and Monterey, all of which are concerned with existing contamination due to ongoing and legacy pesticide use in agricultural areas.

Methyl iodide's reactive qualities make it prone to react with groundwater before it dissipates into the air. A risk assessment performed by DPR concluded that the application of methyl iodide in field

⁴ *Id.* at 4.

⁵ Susan E. Kegley, Pesticide Action Network, Comparison of Toxicity for Methyl Iodide and Methyl Bromide, available at <http://www.panna.org/methyl-iodide>.

⁶ Britt E. Erickson, Methyl Iodide Saga Continues, Chemical & Engineering News, (October 17, 2008) available at <http://pubs.acs.org/cen/government/86/8643gov2.html>

⁷ California Office of Environmental Health Hazard Assessment, Safe Drinking Water and Toxic Enforcement Act of 1986.

⁸ <http://monographs.iarc.fr/ENG/Monographs/vol71/mono71-106.pdf>.

⁹ Timm Herdt, Scientists tell state regulators methyl iodide is too toxic to be used on fields, *Ventura County Star*, Jun. 17, 2010, available at <http://www.vcstar.com/news/2010/jun/17/scientists-tell-state-regulators-methyl-iodide/>.

¹⁰ California Strawberry Commission, 2010 Acreage Survey, available at <http://www.calstrawberry.com/commission/asurvey.asp>.

¹¹ *Supra* note 1.

fumigation “could result in significant health risks for workers and the general population.”¹² The general population was considered at risk because “there is a potential for iodide contamination of the ground water where the soil is known to be vulnerable to ground water contamination and the ground water is shallow.”¹³ Groundwater sampling results estimate that iodide exposures in the drinking water could far exceed established iodide intake standards.¹⁴ The U.S. Geological Survey detected iodide in 234 of 256 wells in California.¹⁵

One of the most alarming findings of the Scientific Review Committee is the fact that “there were no reliable data on the potential of methyl iodide to contaminate groundwater.”¹⁶ The Committee also found that the “model calculations we reviewed indicated the potential for unacceptably high levels of iodide to accumulate in water supplies.”¹⁷ Studies done by the Pan North American Pesticide Action Network likewise show that the continued use of methyl iodide in soils will have a cumulative negative effect.¹⁸ The regulatory uncertainty regarding the impact of a known carcinogen and neurotoxin on water quality and high value crops throughout the county is a factor to be emphasized, not one to be easily ignored.

Discharges of pesticide laden irrigation flows and storm water flows from agricultural fields located in the Oxnard Plain and the Santa Clara River watershed have led to numerous inland and coastal Clean Water Act 303(d) Impaired Waterbody listings in Ventura County.¹⁹ In the Calleguas Creek watershed, eight reaches of the Calleguas Creek and its tributaries, including Mugu Lagoon, an Area of Special Biological Significance (“ASBS”), are 303(d) listed for toxicity or sediment toxicity.²⁰ Historical and current Ventura County Agricultural Irrigated Lands Group (“VCAILG”) Annual Monitoring Reports verify that pesticides discharged from Ventura County’s agricultural fields have impaired and continue to impair the County’s inland and coastal waterbodies.²¹ In 2008-2009, monitoring data from samples collected at 17 of 21 VCAILG monitoring sites discharging from agricultural landscapes exceeded the water quality benchmarks contained in the Los Angeles Regional Water Quality Control Board’s Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Irrigated Lands WDR). In the Santa Clara River, Calleguas Creek, and Oxnard Coastal watersheds, Irrigated Lands WDR water quality benchmark exceedances (“exceedances”) for Organochlorine Pesticides occurred at 17 of 21 sites, exceedances for Organophosphorus Pesticides occurred at 12 of 21 sites, and 3

¹² Department of Pesticide Regulation, Methyl Iodide Risk Characterization Document for Inhalation Exposure 10 (February 2010), available at http://www.cdpr.ca.gov/docs/risk/mei/mei_vol1_hra_final.pdf.

¹³ *Id.* at 8-9.

¹⁴ *Id.* at 9, 171 (“the exposures to iodide in the ground water far exceeded the ATSDR acute and chronic minimal risk levels of 0.01 mg iodide/kg/day”)

¹⁵ *Id.*

¹⁶ *Supra* note 3 at 5.

¹⁷ *Id.*

¹⁸ Available at: http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC38191 (last visited April 27, 2011).

¹⁹ Available at: http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/303d_list.shtml (last visited April 27, 2011).

²⁰ Mugu Lagoon and these reaches of Calleguas Creek and its tributaries are also 303(d) listed for various pesticides including Organophosphorus Pesticides, Chlordane (tissue), DDT (tissue & sediment), Dieldrin, Endosulfan (tissue), Toxaphene (water column, tissue, sediment), Chlordane (tissue), Chlorpyrifos (tissue), Diazinon, and Dacthal (sediment). In the Santa Clara River Watershed, the Santa Clara River Estuary is listed for toxicity and toxephene; reaches upstream of the estuary are listed for toxicity, Chlorodibromomethane, DDT, Dichlorobromomethane, Bis(2ethylhexyl)phthalate (DEHP), Chlorpyrifos, Diazinon; and McGrath Lake, a coastal lagoon that receives agricultural discharges, is listed for Chlordane (sediment), DDT (sediment), Dieldrin (sediment), and Sediment Toxicity.

²¹ Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/waivers/8_17_10/VCAILG/VCAILG%202009%20AMR%202-15-10%20submitted.pdf (last visited April 27, 2011).

out of 5 sites exceeded the Irrigated Lands WDR's toxicity standards.²² Data collected pursuant to the promulgation of pesticide Total Maximum Daily Loads for Mugu Lagoon and reaches of Calleguas Creek and its tributaries also demonstrate the historical and ongoing impact that pesticide discharges from agricultural fields in Ventura County have on inland and coastal waterbodies.²³

According to the United States Department of Agriculture, Oxnard, located in the Santa Clara River and Calleguas Creek watersheds in Southern California, supplies about one-third of the State's annual strawberry volume.²⁴ The addition of methyl iodide to the Santa Clara River and its Estuary, Mugu Lagoon, McGrath Lake, and Calleguas Creek and its tributaries would amplify toxicity impacts on aquatic life, such as the Southern California Steelhead and Tidewater Goby which are listed as endangered species under the Federal Endangered Species Act. Not only would the presence of methyl iodide in these waterbodies pose stand-alone toxicity threats to aquatic life, but the synergistic effect of discharged pesticides combined with methyl iodide could cause toxicity impacts never before experienced in Ventura County's inland and coastal waterbodies.

The health and environmental impacts associated with the application of methyl iodide on commercial strawberry crops is not limited to Ventura County. Urbanized Orange County is home to a significant amount of commercial strawberry growers producing nearly 26 thousand tons of strawberries annually.²⁵ Orange County residents are particularly vulnerable to human health impacts from methyl iodide because of the close proximity of commercial strawberry farms to metropolitan areas and suburban communities. Many of the remaining Orange County commercial farms are located in communities such as Santa Ana, Irvine, Tustin, Brea, Anaheim, Buena Park, and Cerritos where residential housing surrounds existing agricultural fields. Exposure to a newly approved fumigant with a predilection for migration and proven deleterious environmental and health consequences is a real danger for residents of heavily urbanized areas such as Orange County.

Methyl iodide impacts to groundwater, surface water, and ultimately human health, are not merely speculative. In 2008, Florida approved the use of methyl iodide pursuant to the use of certain safety measures. As a condition to the fumigant's certification, the manufacturer of the fumigant is required to conduct air and groundwater monitoring in the vicinity of the treated fields.²⁶ Recent monitoring of these fields detects methyl iodide in groundwater at levels ranging from 0.12mg/L to 0.15mg/L.²⁷ According to the Center for Disease Control and the National Academy of Sciences, these levels are 1.2 times the level of methyl iodide exposure deemed safe for children.²⁸ Additional Florida studies have found levels of methyl iodide concentrations between 6 and 1,500 times what is typically found in freshwater.²⁹

²² *Id.*

²³ Available at: http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/tmdl/tmdl_list.shtml (last visited April 27, 2011).

²⁴ Available at: <http://www.ers.usda.gov/Briefing/FruitAndTreeNuts/fruitnutpdf/Strawberries.pdf>; See also; <http://www.nal.usda.gov/pgdic/Strawberry/ers/ers.htm> (last visited April 27, 2011).

²⁵ Data for 2009. Available at: <http://egov.ocgov.com/ocgov/Agricultural%20Commissioner/Agricultural%20Services/Orange%20County%20Yearly%20Crop%20Report/Tree%20Fruit%20&%20Berry%20Crops>.

²⁶ Pesticide Action Network, Florida Evidence Shows Groundwater Contamination by Methyl Iodide (September 13th, 2010), available at <http://www.panna.org/press-release/florida-evidence-shows-groundwater-contamination-methyl-iodide>.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

III. PROPOSED SAFETY MEASURES AND BUFFER ZONES ARE INADEQUATE TO PROTECT CALIFORNIA'S ECOSYSTEMS AND COMMUNITIES.

The California Department of Pesticide Regulation approved registration of the pesticide because DPR staff believes proper precautions, such as an increased number and size of buffer zones, can be taken to prevent the harmful effects of the pesticide. One example of such a precaution is a virtually impermeable film (VIF) – a tarp that covers a field once it has been chemically treated.³⁰ Tarps are proven only to address the threat of air exposure, and do not work as intended if they are damaged or moved by the natural elements. The attached image of a strawberry field near the Salinas River shows several large tears and rips in the plastic tarp that is supposed to be containing applied pesticides; a common malfunction of these intended safety measures.³¹ The California Department of Pesticide Regulation has stated that the use of VIF could *increase* the amount of methyl iodide in treated soil causing higher groundwater concentrations than originally estimated.³² The Department's study shows that while contamination might not be readily apparent, contamination could occur over time—an unacceptable outcome.³³

With the majority of the nation's strawberry fields in California, our waterways and people are highly vulnerable to the impacts of this dangerous fumigant. Accordingly, we urge EPA to repeal methyl iodide and help safeguard the ecosystems and communities we work daily to protect.

Sincerely,



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³⁰ *Supra* note 1.

³¹ See Attachment 1, a Google Earth Image of a strawberry field approximately four miles inland and less than a mile northeast of the Salinas River.

³² Letter from the Department of Pesticide Regulation, Methyl Iodide Mitigation Evaluation and Options 7 (April 29th, 2010), available at http://www.cdpr.ca.gov/docs/registration/mei_pdfs/mitigation_options_4-29-10.pdf.

³³ *Id.*

Attachment 1



Credit: Google Earth Image, all rights reserved.

Caption: A ripped plastic tarp covering a strawberry field approximately four miles inland and less than a mile northeast of the Salinas River.