

Washington State Forest Practices Board

Petition for New Forest Practices Rule (RCW 34.05.330; WAC 222-08-100)

Related to Notice and Disclosure for Aerial Spraying of Forest Chemicals

April 27, 2016

Responsible Agency:

Washington State Department of Natural Resources

Petitioners:

The Northwest Center for Alternatives to Pesticides, Skykomish Valley Environmental and Economic Alliance, and Defenders of Wildlife

I. Executive Summary

The Northwest Center for Alternatives to Pesticides, Skykomish Valley Environmental and Economic Alliance, and Defenders of Wildlife petition the Forest Practices Board for a new rule regarding the aerial application of forest chemicals. The Washington Forest Law Center prepared the petition with the assistance of the Regulatory Environmental Law and Policy Clinic at the University of Washington School of Law. We request that the Board provide time on the schedule at the May 11, 2016 meeting for us to present the petition and solicit feedback from the Board. The Board can then determine whether to make a decision on the petition at the meeting or at a later date. Forest chemicals include herbicides, fungicides, insecticides, rodenticides, and fertilizers. The use of forest chemicals has been a common issue before this Board, with concerns registered by representatives of hunting groups, environmental groups, and tribal governments.

The purpose of the petition is to improve notification and reporting of forest chemical spraying. Without warning, individuals living in rural Washington witness helicopters spraying chemicals across hundreds of acres near their homes and families. This is a truly frightening experience—many of the chemicals in common use have documented human health effects, and as science continues to develop we learn that chemicals previously thought to be safe are in reality hazardous. According to the World Health Organization and the State of California, glyphosate, one of the most common herbicides used in forestry, likely causes cancer. Atrazine, another herbicide commonly used in forestry, and chlorothalonil, a fungicide, have well-documented human health effects. Recent whistleblower accounts of reckless spray practices from chemical applicators in the region document heightened risk of exposure. When we have inquired to find out what chemicals were sprayed where and when, they have discovered that there is limited oversight, monitoring, and reporting of forest chemical use in the current regulatory regime.

The proposed rule seeks to increase transparency and facilitate better communication between landowners and the public through improved public notice and reporting. The rule proposes the following measures:

- Pre-spray notice to individuals living in close proximity to the planned spray location.
- Submission of a simple post-application report with the Washington State Department of Natural Resources (“DNR”) to be uploaded to DNR’s online Forest Practices Application Review System (“FPARS”).

We also request that the Board direct the DNR to add forest chemicals to their compliance monitoring program. The proposed rule change does not propose substantive changes to how chemicals are sprayed, and therefore does not function as any sort of ban on particular chemicals or chemical use. The proposed rule does not cover aquatic resources and therefore does not necessitate use of the adaptive management program.

The proposed measures are beneficial because they will provide advance warning to those most at risk of exposure. Better communication and information will allow landowners to take simple measures to avoid spraying in critical areas, and allow residents to take precautionary steps to protect themselves, their families, and their animals. Many forest chemicals are toxic at varying levels, mixtures, and concentrations to fish, wildlife, and humans, and the petitioners believe that it is fundamentally important to at least understand where, when, and in what quantities the chemicals are used. Reporting would enable residents to know what chemicals were used in the event that health effects do occur, and also will facilitate long-term study of chemical impacts.

The proposed measures are also beneficial because they will gather extremely useful data. If individuals in a given area fall sick or experience other health effects after spraying, those individuals and their medical care professionals will be able to quickly determine what chemicals they may have been exposed to and how to most effectively respond. If individuals would like to have their blood or urine tested for exposure, they will know what chemicals to test for. Similarly, comprehensive spray records would allow the State and other groups to monitor the aerial application of chemicals and assess the efficacy of current regulations.

The proposed rule achieves significant benefits with minimal burden imposed on landowners and DNR. The advance notice aspect of the proposed rule would build off of the existing regulatory framework. DNR Proprietary already voluntarily provides advance notification by letter of spraying on State trust lands, which has proven to be efficient and effective. Many forest landowners already send letters or are able to meet in person with adjoining landowners prior to spraying, meaning that for those landowners the notice requirements would pose no additional burden. The reporting aspect of the proposed rule is efficient because the existing rules already require recording of spray information and submission to the Department of Agriculture upon request. The new rule would require limited expenditure of agency time and resources because it builds on DNR’s existing FPARS system.

This Board has previously adopted rules regarding the handling, storage, and application of forest chemicals and the policy behind rules concerning forest chemicals under the statutory authority of Chapter 34.05 RCW, RCW 76.09.040, RCW 76.09.050, RCW 76.09.370, RCW 76.13.120.¹ The Board has the authority to adopt the proposed rule, and doing so is necessary to help protect public safety and improve communications between landowners and the public.

¹ See WAC 222-38-010, WAC 222-38-040.

II. Background and Current Rules

Forest chemicals include herbicides, fungicides, insecticides, rodenticides, biological agents, and fertilizers.² Spraying forest chemicals is standard practice the Washington State timber industry. Chemicals may be used at nearly every stage of growth. Herbicides facilitate site preparation. Fungicides attack pests that grow on densely-packed stands. Insecticides and biological agents, used less frequently than other chemicals, target damaging insects. Fertilizers facilitate regrowth after existing biomass is removed. For the sake of efficiency, landowners typically choose to spray large areas in short periods of time, generally using helicopters. While it is unknown exactly how many acres are sprayed per year, a recent Oregon report documented an 184,320 acre study area. In that area, approximately 18,000 pounds of pesticides were sprayed on forest land in a given year.³ While Oregon has weaker forest chemical prescriptions than Washington, given similar growing conditions and private landowners, it is reasonable to assume that the overall amount of chemicals used per acre is similar. If extrapolated across the roughly 8 million acres of private forest land in Washington, it is likely that hundreds of thousands of pounds of chemicals are used in forest management each year. Many of these private forest acres border residential communities, schools and other public buildings, and public lands used for hiking and hunting. While spraying also occurs on State trust lands, DNR has a strong track record of communicating with local residents about spraying issues and DNR's spray records are generally available through public records requests.

The aerial application of chemicals on forestland in Washington State is regulated under Chapter 76.09 RCW "Forest Practices," Chapter 222-20 WAC "Application and Notification Procedures" and Chapter 222-38 "Forest Chemicals." In order to spray forest chemicals, landowners are required to submit a Forest Practices Application ("FPA") to DNR's Forest Practices Division. The aerial application of chemicals is classified as a Class I, Class III, or Class IV forest practice depending on the nature of the chemical application. Class III and IV forest practices require DNR approval of an FPA. Washington forest practices rules require a 200-foot buffer around residences and a 100-foot buffer around agricultural lands.⁴ No forest practices rule requires buffers around schools or businesses. No forest practices rule restricts use of forest chemicals to protect domestic wells or groundwater. Approval of a spray FPA by DNR is effective for three years. Unlike other FPAs, spray permits are free and have no processing or other fees.⁵

Once a spray FPA is approved by DNR, it is valid for three years.⁶ Because the FPAs seek authorization for a wide range of chemicals over a long time span, the reviewing public does not know when spray will occur, which chemicals listed on a given application are sprayed, the amount sprayed, the chemical mix used, or the degree to which an applicator deviates from the

² As used in the forest practices rules, the term "pesticide" includes herbicides, fungicides, insecticides, and rodenticides. WAC 222-16-010. This petition does not focus on rodenticides, because our understanding is that those chemicals are rarely used and when used are not aerially applied.

³ Bernstein et al. 2013. *Oregon's Industrial Forests and Herbicide Use: A case study of risk to people, drinking water and salmon*. Beyond Toxics publication. <http://www.beyondtoxics.org/work/pesticide-reform/forestry-pesticide-project/oregons-industrial-forests-and-herbicide-use-dec-2013-report/>

⁴ WAC 222-38-020(4)(e).

⁵ http://www.dnr.wa.gov/publications/fp_form_fpanfees.pdf

⁶ The duration of a spray permit authorization was previously one year, and forest landowners typically submitted permits shortly before the spraying season. However, the duration for forest chemicals FPAs was lengthened along with other permits as part of a larger negotiation in June 2011.

permit terms. To the best of our knowledge, DNR has never taken enforcement action relating to spraying. The result is that there is very little information available regarding what chemical use is actually occurring across the Washington landscape.

Applicators are required to keep detailed records of each spray application of pesticides. These pesticide spray application records must detail which chemicals were applied, in what amount, and the area sprayed.⁷ The records are retained by the spray applicators for seven years, and are available only upon written request from the Director of Washington's Department of Agriculture.⁸ To the best of our knowledge, DNR is not conducting and has never conducted any compliance monitoring for forest chemical use on private lands and has not taken any enforcement actions regarding forest chemicals.

III. Request for Adoption of New Rule

The Washington Forest Law Center hereby submits this petition for rulemaking on behalf of the Northwest Center for Alternatives to Pesticides, the Skykomish Valley Environmental and Economic Alliance, and the Defenders of Wildlife, pursuant to the Washington Administrative Procedure Act ("APA"), chapter 34.05.330 RCW, Washington Administrative Code ("WAC") section 82-05, and WAC 222-08-100. This petition conforms to all rules governing rulemaking petitions before the Forest Practices Board.

IV. Weaknesses in the Current Rules

The current Forest Practices Rules provide inadequate notice and disclosure to nearby residents for the following reasons, set forth in further detail below:

- Although FPAs may be reviewed by members of the public, they are valid for three years, have very generalized lists of chemicals, and do not indicate when the listed chemicals will be sprayed.
- The posting of access points is insufficient because the location of signage is discretionary based on what the landowner deems to be a significant and regular access point, and the notice is focused on individuals who are attempting to access the specific spray unit. The notice does not directly address adjacent landowners via drift or entry into ground or surface water.
- There is ample evidence suggesting that the current rules are under-protective of public health, which makes transparency and data collection all the more important.

⁷ The following information is also required: The full name and address for whom the pesticides were applied, the date and exact start and stop time of application, the product name and EPA number of the applied pesticide, wind and temperature conditions at the time of application, the amount of pesticide applied per one acre, the concentration of pesticide applied, the apparatus license plate number, and the number of acres to which the pesticide was applied the licensed applicator's full name. WAC 16-228-1320(1).

⁸ WAC 16-228-1320(3).

- There is no comprehensive, public record of aerial chemical spray operations on privately-owned forest land. Neither the public nor DNR knows how much of which forest chemicals are sprayed where.

A. Current Rules Provide Insufficient Notice and Disclosure

Under current rules, public notice is provided via forest practices applications available on FPARS and public signage at the location of the spraying.

The FPARS system is a valuable tool for public review of FPAs, but it does not by itself provide adequate notice to the public for three reasons. First, approved FPAs are valid for a period of three years.⁹ They give no indication of when during that three-year period spray operations will be conducted.¹⁰ Chemically sensitive individuals or those with children, pets, or livestock cannot prepare ahead of time for a nearby chemical spray operation. With adequate notice, families could reduce the likelihood of exposure by keeping children and pets indoors and bringing livestock to sheltered areas. The three-year permit approval window does not allow nearby residents to prepare in real-time for personal safety.

Second, FPAs usually contain a long list of chemicals which could be applied. For example, a recent spray FPA located near Wallace Falls State Park authorizes the use of twenty-two (22) separate herbicides and two surfactants.¹¹ Later communications with the landowner established that the landowner actually used three (3) of the chemicals and one surfactant.¹² Nearby residents are given no indication of which chemicals will be applied in a given spray operation, when they will be applied, or where in the indicated application area they will be applied. A nearby resident has no way of knowing which chemicals listed in the FPA are being applied.¹³ Perhaps most critically, if there are any health effects, the individual will be unable to notify their health care provider of what chemicals they were potentially exposed to.

Third, many residents in nearby communities may have never heard of the FPARS system. The system only works if an individual knows about it and actively checks it. Members of the public who do not use the FPARS system do not even receive the limited notice provided in FPAs.

Posting access points is a useful but limited tool. Posting is targeted at individuals seeking to enter an area that will be or has been aerially sprayed with pesticides, but is ineffective for providing notice and disclosure to nearby landowners and residents. Posting rules do not apply to aerial applications of fertilizers or other forest chemicals, which may pose a health risk to the public individually, or as a mixture. More importantly, the aerial application of chemicals has the potential to create health risks outside of the immediate application area via chemical drift as well as both direct and indirect entry into surface water. Finally, posted signs are temporary and do not create any sort of easily distributed or lasting record.

⁹ Prior to June 20, 2011, approval of an FPA was valid for a period of two years. WSR 11-12-009. Effective June 20, 2011, the period was extended to three years further exacerbating the problem. WSR 13-01-007.

¹⁰ Oregon forest practices regulations, which generally are less protective than Washington's, have a 1-year authorization window.

¹¹ See FPA No. 2814793.

¹² <https://svena.org/current-projects/chemical-spraying/>

¹³ See, e.g., <https://svena.org/letter-of-protest-for-toxic-spray/>

B. Current Rules Provide No Post-Application Records of What Chemicals are Actually Sprayed

The current rules are also deficient in that they do not provide public post-application records of aerial chemical spray operations. As a result, neither the public nor the regulating agencies have knowledge of what chemicals, and what quantity of chemicals, are used in forestry in Washington.

The public may review FPAs, but there is no required post-application follow up. Members of the public have no way of confirming what was actually sprayed and when. There is also no way for the public to know the environmental conditions under which the spray was conducted as there is now way to find the date and time of a past spray. Nearby residents cannot adequately evaluate whether or not they might have been exposed to chemicals from a spray operation. Department of Agriculture regulations allow the director of the department to request spray records, but there is no means by which the public can do so.¹⁴

The lack of records on file with DNR hampers the agency's ability to conduct compliance monitoring for aerial applications of chemicals. Linking specific chemical applications to a date and time would allow DNR to conduct informed testing for water quality damage and chemical drift. Without easy and consistent access to this information it will be difficult for DNR, the Department of Ecology, or the public to evaluate the adequacy of the current rules. With other forestry operations, practices are easily viewable after the fact. Inspectors can view roads or measure buffers and determine whether or not rules were followed. However, because forest chemicals are largely invisible, especially in small quantities, meaningful assessment of the rules requires reporting on what is actually happening on the landscape.

C. Forest Chemicals Create Risk to Public Health

The use of forest chemicals in Washington creates risk to public health in a variety of ways. Individuals can be exposed via overspray, drift, or as particles settle out of the air onto objects that humans may come into contact with like cars, houses, playsets, and mailboxes. Exposure may occur by entry of chemicals into drinking water, either via shallow wells, groundwater, or surface water. Studies on chemical behavior indicate that exposure likely occurs. Anecdotal evidence confirms the likelihood that exposure occurs in forested communities in Washington. Studies in residential communities near industrial forest land in Oregon have revealed that forest chemicals become persistent in urine and blood samples of nearby residents.¹⁵ A thorough news report from the Center for Investigative Reporting, which aired on PBS NewsHour in 2012, describes common practices in the use of forest chemicals in Oregon, and sets forth citizen concerns relating to exposure and health effects.¹⁶ Similar exposure risk likely occurs in Washington. Common forest chemicals present persistent and serious human health risks.

¹⁴ WAC 16-228-1320. An individual who complains of direct damage from spraying violations has a right to obtain the Department of Agriculture's decision as to whether or not to pursue enforcement action. *See* WAC 16-228-1020.

¹⁵ U.S. Department of Health and Human Services 2012. *Health Consultation Exposure Investigation: Biological Monitoring for Exposure to Herbicides; Highway 36 Corridor, Lane County, Oregon.*

<http://www.atsdr.cdc.gov/HAC/pha/Hwy36CorridorEIReport/Highway36CorridorEI03052012.pdf>

¹⁶ *See* "Forests in Oregon at Risk from Timber Industry and Chemicals," PBS NewsHour 2012, available at <https://www.youtube.com/watch?v=E1L2ajli61M>.

1. The use of forest chemicals in Washington likely causes human exposure.

The most direct means of exposure is overspraying. Due in part to lack of reporting and enforcement, it is currently unknown how often overspray occurs. However, there is significant anecdotal evidence that it occurs periodically due to equipment malfunction or worker oversight. One monitoring study on DNR State Trust lands suggests that overspray may be a regular occurrence. During the spring 2012 Sustainable Forestry Initiative forest certification audit of DNR-managed lands, two instances of aerial herbicide overspray within type 5 stream buffers were discovered in the Pacific Cascade Region. These oversprays occurred during the summer 2011 aerial spray application. As part of the agency's corrective action plan, DNR committed to conduct periodic monitoring of its aerial herbicide program. Even where applicators knew monitoring was occurring, overspray occurred. On average, the herbicide effects were observed 14.78 feet outside of the spray unit boundaries, with a maximum average of 50.33 in one of the units. Repeated oversprays, even of protected areas, strongly suggests that overspray occurs onto properties near forestland.¹⁷ Whistleblower accounts from a worker at Applebee Aviation, which operates currently in Washington, have documented regular instances of overspray affecting workers and surrounding areas.¹⁸

Exposure also occurs via drift. The ability of aerially sprayed chemicals to drift from their intended target is well documented.¹⁹ Off-target chemical drift can pose health and environmental risks.²⁰ Chemical drift can occur due to operator error, failure to account for environmental factors such as unpredictable wind patterns, humidity, precipitation, and the elevation profile of the spray area.²¹ A report prepared by the Washington State Department of Ecology and the Timber/Fish/Wildlife Policy Committee clearly evidenced the inadequacy of the rules to safeguard against drift.²² According to the report, the rules and the Board Manual were not effective at preventing "drift causing direct entry" into water.²³ Testing revealed that aerial chemical spraying results in pesticide contamination that exceeds recommended water quality standards.²⁴ The report also noted that the current rules are not effective at achieving compliance with EPA and Washington State Department of Agriculture approved labels.²⁵ According to a thorough literature review by Dr. Ken Giles, in order to prevent drift in most instances, buffers would have to be at least 100 meters (328 feet).²⁶ Current buffers around homes are 200 feet, with no buffers prescribed for public roads, schools, parks, and other facilities. WAC 222-38-020(4)(e)(i). Chemicals can also volatilize into micro particles following spray application. The

¹⁷ See attached files.

¹⁸ *BLM Investigates After Company Sprays Pesticide On Public Land Without License*, Earthfix, OPB, October 27, 2015, <http://www.opb.org/news/article/blm-investigates-after-company-sprays-pesticide-on-public-land-without-license/>

¹⁹ United States Environmental Protection Agency 2009. *Introduction to Pesticide Drift*, <http://www.epa.gov/reducing-pesticide-drift/introduction-pesticide-drift>; Washington State Department of Health 2013. *2013 Pesticide Data Report*; Washington State Department of Health 2009. *2009 Annual Report: Pesticide Incident Reporting and Tracking*.

²⁰ *Introduction to Pesticide Drift, supra*; *2013 Pesticide Data Report, supra*; *2009 Annual Report, supra*.

²¹ *Effectiveness of Best Management Practices, supra*.

²² *Id.* at 76.

²³ *Id.* at 58.

²⁴ *Id.* at 55.

²⁵ *Id.* at 60.

²⁶ See declaration of Ken Giles.

volatized particles transport easily and create inhalation exposure for surrounding landowners. “Even when sprayer equipment nozzles and line pressures are carefully selected and calibrated, a proportion of the pesticide spray will invariably exist in smaller spray droplets...and stay suspended in the air mass” (Ramaprasad 2004).²⁷ The impacts of volatilization can persist for weeks, but are strongest immediately after application, particularly on hot days. *Id.*

A variant of drift is movement of chemicals that attach to soil. Erosion then delivers the soil, via wind or runoff, onto surrounding property or into water. This phenomenon has caused widespread exposure in the agricultural context, suggesting that the same occurs in forested areas.²⁸ Similarly, contaminated dirt and dust can cling to clothes of individuals or pets that travel through recently sprayed areas, and extend exposure into the home. For instance, research has shown detectable levels of pesticides in house dust of agricultural workers (Rohlman et al. 2005).²⁹ “Take-home” exposure is particularly concerning because children are at much higher risk of neurological and developmental impacts from pesticides. *Id.* Because replanting and road maintenance activities can occur after forest chemical use, forestry workers and their families likely bear risk of exposure.

Direct and indirect entry of aerially sprayed chemicals into groundwater, shallow wells, and surface water is also a cause of concern for nearby communities. Water contamination may still occur due to inadvertent buffer violations, operator error, unaccounted for environmental factors, chemical runoff into surface water, or a failure to identify all bodies of water such as small seasonal streams.³⁰ Testing by the U.S. Department of Agriculture in 2011 found imazapyr, a common forest herbicide, in the well water at a public school in the Triangle Lake area, west of Eugene, Oregon. Several tests have found imazapyr to be highly mobile in soil and groundwater, with resulting detectable concentrations 10 feet deep in soil and in surface and groundwater following spraying. Between 2002 and 2010, the U.S. Geological Survey took samples from Oregon’s McKenzie River Basin, an area dominated by timberland, and found that nearly half of all samples included the herbicides hexazinone, 2,4-D, atrazine and glyphosate, which rank among the most frequently used herbicides in forestry.³¹ Given the potential for aerially applied chemicals to drift as well as to enter bodies of water, posting access points to spray areas provides insufficient notice and disclosure for nearby residents.

The proposed rule change does not propose substantive changes to how chemicals are sprayed, and therefore will not directly change forest practices. But given the evidence that the current rules do not prevent exposure, it is all the more important that the public receive adequate notice and disclosure of aerial spray operations. The current lack of transparency prevents the public from taking measures to protect themselves or monitor impacts to their neighborhoods.

²⁷ See Ramaprasad et al. 2004. *The Washington Aerial Spray Drift Study: assessment of off-target organophosphorus insecticide atmospheric movement by plant surface volatilization*. *Atmos Environ*: 38: 5703–5713.

²⁸ *Hundreds of farmers face BLM in lawsuit over herbicide, lost crops*, *The Oregonian*, June 7, 2009, http://www.oregonlive.com/environment/index.ssf/2009/06/hundreds_of_farmers_face_blm_i.html *Oregonlive 2009*.

²⁹ See Rohlman et al. 2005. *Neurobehavioral Performance in Preschool Children from Agricultural and Non-Agricultural Communities in Oregon and North Carolina*. *Neurotoxicology* 26(6): 589-98.

³⁰ *Effectiveness of Best Management Practices*, *supra*.

³¹ See *Timberland herbicide spraying sickens a community*, *High Country News*, November 10, 2014, <https://www.hcn.org/issues/46.19/timberland-herbicide-spraying-sickens-a-community>.

2. Exposure to forest chemicals can cause significant health problems including cancer.

Herbicides, fungicides, insecticides, fertilizers, and chemicals used along with active ingredients to facilitate spraying, such as surfactants and adjuvants, can all have serious health effects. Areas near industrial forests are likely exposed to these chemicals repeatedly over many years, creating risk of both high-dosage exposure from overspray and chronic long-term exposure via drift, entry into groundwater, inhalation, and mobility in soils. Children in particular are highly susceptible to the impacts of even low levels of pesticide exposure.³² Children have a higher inhalation rate to body weight ratio than adults, and may have comparatively immature detoxification and clearance systems, and therefore are at higher risk than adults to adverse effects of airborne toxicants (Ramaprasad et al. 2004).

Herbicides are the most commonly used forest chemical in Washington. For example, we analyzed a recent FPA authorizing spraying near Goldbar, Washington. That FPA authorizes spray of the active chemicals imazapyr, glyphosate, and triclopyr, among others, in close proximity to residential areas. Four peer-reviewed studies demonstrate the ability of glyphosate-containing herbicides to cause genetic damage to DNA (mutagenicity), even at very low concentration levels.³³ According to the World Health Organization, glyphosate “probably” causes cancer in people.³⁴ In 2015 the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment issued a notice of its intent to list glyphosate as a chemical “known to the state” to cause cancer.³⁵ Triclopyr is highly mobile in groundwater and somewhat persistent, and has been found in surface water after forestry spraying.³⁶ Triclopyr significantly increases the frequency of breast cancer (mammary adenocarcinomas) in rats and mice.³⁷ More than 30 studies show associations with insecticide and herbicide use and leukemia (McCauley 2006).³⁸

Fungicides also can have human health impacts. For example, a recent FPA in Southwest Washington allows the spraying of chlorothalonil. Chlorothalonil is a probable human carcinogen.³⁹ The label of chlorothalonil products states that it is “toxic to aquatic invertebrates and wildlife,” that “[c]hlorothalonil degradates are known to leach through soil into ground water under certain conditions as a result of label use” and advises “[d]o not use on home lawns and turf sites associated with apartment buildings, daycare centers, playgrounds, recreational park athletic fields, athletic fields located on or next to schools (ie., elementary, middle and high

³² *Children and Lawn Chemicals Don’t Mix*, Beyond Pesticides 2005.

<http://www.beyondpesticides.org/assets/media/documents/lawn/factsheets/Pesticide.children.dontmix.pdf>.

³³ *Children and Lawn Chemicals Don’t Mix*, Beyond Pesticides 2005.

³⁴ *Weed Killer, Long Cleared, Is Doubted*, The New York Times, March 27, 2015,

http://www.nytimes.com/2015/03/28/business/energy-environment/decades-after-monsantos-roundup-gets-an-all-clear-a-cancer-agency-raises-concerns.html?_r=0.

³⁵ See California Environmental Protection Agency, *Office of Environmental Health Hazard Assessment Notice of Intent to List Chemicals By the Labor Code Mechanism: Tetrachlorvinphos, Parathion, Malathion, Glyphosate* (September 4, 2015),

http://oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/pdf_zip/090415NOIL_LCSet27.pdf.

³⁶ Fact sheet.

³⁷ *Id.*

³⁸ McCauley et al. 2006. *Effectiveness of cleaning practices in removing pesticides from home environments*. *J Agromedicine*: 112 81-88.

³⁹ See State of New Jersey chlorothalonil fact sheet.

schools), campgrounds, churches, and theme parks.”⁴⁰ Chlorothalonil also causes skin rashes. When people are exposed repeatedly, their skin can become sensitized so that they develop allergic reactions to the fungicide. Greenhouse workers, nursery workers, field workers on banana plantations, workers in chlorothalonil manufacturing plants, painters, and home gardeners have all developed skin rashes and sensitivities.⁴¹ Insecticides are less commonly used, but also have some of the most severe health risks.

The active ingredients in herbicides and fungicides are registered with the EPA under the Federal Insecticide, Fungicide, and Rodenticide Act. However, registration focuses on short-term acute exposure with severe impacts, and it is harder to quantify the risks posed by longer term, chronic exposure and less severe impacts. Studies demonstrate that outside of the laboratory setting, chronic low level exposure creates long-term impacts to human health (particularly to children) that are not captured in the laboratory setting.⁴² Also, commercial forest chemical products contain far more than the listed active ingredient. A given product will contain the active ingredient and a host of other chemicals, which are not disclosed to the public because they are trade secret. Furthermore, companies often spray herbicides in cocktails of various chemicals at different concentrations. It is unknown how the various products behave when mixed. Some studies strongly indicate that there are adverse synergistic effects to chemical cocktails that exceed that of any of the individual products used in isolation (Relyea 2009).⁴³

Fertilizers, and in particular the chemicals used to deliver them, also have human health risks. For example, a recent FPA authorizes the spraying of fertilizers across approximately 10,000 acres of property in southwest Washington.⁴⁴ The fertilizer of choice is named “Agrotain,” and according to its warning label the product “[c]auses serious eye damage. Suspected of damaging fertility or the unborn child.”⁴⁵ Often fertilizers are sprayed in pellet form, which reduces risk of drift and volatilization and resulting human exposure.

In order to reduce drift and volatilization, companies often mix chemicals with adjuvants or surfactants. These products also have potential human health impacts and receive far less scrutiny from regulating authorities because they are not the active ingredient in a pesticide. According to Bakke 2007, a paper assessing various commonly used adjuvants and surfactants in Washington, some of the chemicals are rated by the EPA as a “Danger,” and the majority are rated as deserving “Caution.”⁴⁶ The ratings are due to skin and eye irritation and corrosiveness.

3. Forest chemicals can harm domestic and wild animals, and the humans that interact with those animals.

Exposure to herbicide-treated lawns has been associated with significantly higher bladder cancer risk in dogs. Research found herbicide presence in the urine of dogs that travel through areas

⁴⁰ See Primera One label.

⁴¹ Fact sheet.

⁴² See Rohlman et al., *supra*.

⁴³ See Relyea 2009. *A cocktail of contaminants: how mixtures of pesticides at low concentrations affect aquatic communities*, *Oecologia* 159:363–376.

⁴⁴ FPA No. 2929540.

⁴⁵ *Id.* (warning appended to FPA).

⁴⁶ See Bakke 2002; Revised 2007. *Analysis of Issues Surrounding the Use of Spray Adjuvants With Herbicides*. Prepared for U.S. Forest Service, Pacific Southwest Region, Vallejo, CA. 61 pp.

treated with herbicides such as 2, 4 D, an herbicide also common to forestry (Knapp et al. 2013). Dogs also can serve as vectors for herbicide exposure, by travelling through treated areas and then returning to human homes.⁴⁷ The study suggested that exposure decreases relatively quickly following treatment, and that homeowners could take simple safety measures such as cleaning animals' feet when they return home from treated areas.

EPA registration labels for many common forest chemicals do not allow exposure to livestock. For example, the label for atrazine⁴⁸ warns:

- Do not feed treated grass hay to livestock.
- Do not graze treated areas.
- Do not use seeds for bird food.
- Do not dump or spill product or dispose of containers within reach of livestock.

The label for chlorothalonil also advises “DO NOT apply this product in a way that will contact workers or other persons, or pets, either directly or through drift.”⁴⁹ These restrictions raise concerns for the many areas where agriculture and commercial forestry interface, as well as for wild species similar to livestock and poultry that thrive in the brushy post-logging environment, such as ungulates and wild birds. Again, animal exposure can result in human exposure. Finally, forest chemicals pose risks to aquatic ecosystems including game species such as salmon and trout.⁵⁰ Fishermen may be exposed via ingestion of fish.

In sum, forest chemicals can have a variety of human health impacts as demonstrated in laboratory studies and anecdotal accounts. While there is a contentious field of science in which there are many perspectives on the relative toxicity of different chemicals at different exposure levels, there is little question that aerial spray of chemicals increases risk of nearby residents' risk of exposure, and that exposure generally elevates risk of human health effects. Less is known about the mix of various chemicals, because those mixes vary with each application and have received little formal scrutiny. Evidence indicates that cocktails of chemicals have adverse human health effects that are not fully understood.

With better notification, individuals could manage their own level of risk by restricting access to sprayed areas on days of spraying and immediately thereafter. Individuals could also limit risk by restricting domestic animal access to sprayed forestland and not ingesting wild species from sprayed areas. The proposed rule would allow residents to communicate with forest landowners to express concerns, avoid areas on days of spraying, and provide information to healthcare providers in the event of exposure. Each of these measures would reduce the human health risk created by the use of forest chemicals.

⁴⁷ See Knapp et al. 2013. *Detection of herbicides in the urine of pet dogs following home lawn chemical application*. *Science of the Total Environment* 456-457: 34-41.

⁴⁸ See Atrazine 4L label.

⁴⁹ See Primera One label (emphasis in original).

⁵⁰ See Gilliom 2006, Gomi 2002, Relyea 2005, Relyea 2009.

VI. Proposed New Forest Practices Rule

The new rule would be an additional requirement within the current chapter of the forest practices rules dedicated to forest chemicals.

A. Text of Proposed Rule

WAC 222-38-050

(1) The permittee must give notice to the public and to the department of the intended aerial application of forest chemicals. The permittee must provide the notice at least 10 days prior to the planned date of application. Updated notice must be provided if the planned spraying is delayed by more than 5 days.

(a) Public notice requires:

(i) A physical letter to all people within a 1 mile radius of the planned location of application; and

(ii) An additional method, such as local broadcast or print media, reasonably calculated to reach residents within 5 miles of the forest land to be treated.

(b) The public notice must include the following information:

(i) The names of the landowner, timber owner, and operator;

(ii) The purpose of the application;

(iii) The name, EPA or State registration number, FPA number, and active ingredient(s) of each chemical to be applied;

(iv) The planned location and map of the area to be treated;

(v) The planned date and time the chemical is to be applied;

(vi) Any potential risks to animal or human health, as well as a number to call for accidental drift or health emergencies; and

(vii) A list of state Species of Greatest Conservation Need (SGCN) located within the permit area.

(2) Within 10 days of aerial application of forest chemicals, the permittee shall submit a post-application report (“report”) to DNR, which DNR shall make publically available without redaction through FPARS within 30 days of receipt. The report must use the form specified by the Department.⁵¹ The report must include the following information:

(a) The Forest Practices Application/Notification Number under which the aerial application of chemicals was authorized;

(b) Legal names of the Landowner, Timber Owner and Operator;

(c) Actual date of the aerial chemical application;

(d) The time at which the application started and the time at which the application stopped;

(e) The wind speed and direction at the time of application;

(f) The Name and EPA/State registration number of each chemical applied, the actual amount of each chemical applied, and the total actual acreage treated;

(g) A map indicating the actual areas where chemicals were applied;

(h) An explanation of any deviations from the authorized Forest Practices Application/Notification.

(i) A statement of whether the authorized forest practices are completed, and if not, when the permittee reasonably expects to recommence spraying.

⁵¹ An example form is attached to this petition under Appendix A.

B. The Proposed New Rule is Necessary and Practical

The proposed rule is necessary because individuals in rural areas are likely regularly exposed to forest chemicals that can cause serious and persistent human health effects. The proposed rule's notice provisions allow individuals at risk of exposure to forest chemicals to notify landowners and applicators of specific concerns, such as well sources, livestock areas, or areas often used for hunting or recreation. Better communication would allow affected communities and landowners to work collaboratively to minimize risk.

The new rule is also necessary to provide data on what is being sprayed where. Under current rules, there are no directly available public records of chemical use, which creates near total absence of regulatory oversight. Public records are imperative in the event of health impacts. If an individual suspects that he or she is exposed to chemicals, he or she must the nature of those chemicals in order to have effective testing and/or treatment. Systematic, comprehensive reporting is also fundamental to any monitoring and long-term research into environmental impacts of chemical use in forestry. By creating a mechanism that requires applicators to check back in with their FPA and note any variations, the DNR and affected individuals will have a means to assess the effectiveness of forest practices rules.

The proposed rule is practical and doable, as demonstrated by practices on State lands and in other jurisdictions. We have designed the rule to follow existing models and where possible, to build off of existing regulatory infrastructure, such as FPARS and already required spray records.

The use of letters to notify nearby landowners is already in place on State lands in Washington and has proven practical and relatively effective. In a work session before the Washington Senate Natural Resources Committee on January 20, 2016, DNR staff explained their regular practice of sending letters to bordering residents as well as those in immediate proximity when appropriate.⁵² Similarly, the Department of Ecology requires that “[e]very residential and business occupant within or abutting a proposed treatment area will receive a mailing explaining the project and providing agency contact information” as part of general permit conditions for certain spraying.⁵³ The Department of Ecology further requires that “[t]he permittee shall publish a notice in the legal notices section of a local newspaper of general circulation (or nearest regional paper if a local paper does not exist) and/or in the State Register for the insecticide application in each management area during the pending treatments,” as well as comprehensive, multilingual sign notification.⁵⁴

The notice aspects are also similar to those provided for in South Carolina Pesticide Control Act § 46-13 and California Food and Agricultural Code § 5265. The South Carolina statute authorizes that the regulating agency “may by regulation require that notice of a proposed application of a restricted use pesticide be given to landowners adjoining the property to be treated or in the immediate vicinity thereof, if he finds that such notice is necessary to carry out the purpose of this chapter.”⁵⁵ In California, if a pesticide is used in certain areas to remove invasive species, the

⁵² <http://www.tvw.org/schedule-main/?category=1&start=01%2F20%2F2016+1%3A30pm> (work session at 1:30 PM)

⁵³ <http://www.ecy.wa.gov/programs/wq/pesticides/insect/index.html> (see Invasive Moth Control Permit as example).

⁵⁴ *Id.*

⁵⁵ S.C. Code § 46-13-30.

applicator must provide notice to affected local governments and the public, and the notice must include “The implications of the use of the pesticide and the inert materials on human health, domestic animals, fish and wildlife, and the environment.”⁵⁶ There must also be a public hearing prior to spraying.⁵⁷ A separate provision requires notices to physicians and residents in the area via local broadcast and print media.⁵⁸ Furthermore, in California it is illegal to spray known carcinogens such as glyphosate and chlorothalonil in such a way that would cause exposure to residents. Cal. Health & Safety Code § 25249.6 (“No person in the course of doing business shall knowingly and intentionally expose any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual, except as provided in Section 25249.10.”). The notice to the department 10 days prior to spraying of forest chemicals mirrors recent legislation proposed in Oregon.⁵⁹

The rule’s requirements for what must be included in the notice given to the public largely mirror those required for applicators through the Environmental Protection Agency’s (“EPA”) Workers Protection Standard.⁶⁰ With further public information focused on alerting the majority of individuals in the area, the problems in the current rules would be better addressed. By aligning the requirements with models from the EPA and other states’ rules, Washington is meeting the standards already set around the United States.

The post-application reporting requirements would be cost effective because the reporting form would draw from the information in existing spray records and the forest practices permit. For most chemicals, applicators are already required to keep records of information relating to the chemicals sprayed, the date and time of application, and the weather conditions at that time.⁶¹

By combining stronger notice requirements and a post-application reporting requirement, this new rule would help fix current weaknesses in the Forest Practices Rules. The rule does so while taking into consideration the regulatory burden placed on permittees.

VII. Legal Authority for a New Forest Practices Rule

The Board has the authority to adopt a new or proposed rule into the Forest Practices Board Manual per RCW 76.09.040, which looks at RCW 76.09.010. The Board has the authority to adopt a new or amended rule if it affects public health and safety pursuant to RCW 76.09.300 and RCW 76.13.120. The Board has adopted rules regarding the handling, storage, and application of forest chemicals and the policy behind rules concerning forest chemicals under the statutory authority of Chapter 34.05 RCW, RCW 76.09.040, RCW 76.09.050, RCW 76.09.370, and RCW 76.13.120.⁶²

⁵⁶ Cal. Food & Agric. Code § 5265.

⁵⁷ *Id.*

⁵⁸ Cal. Food & Agric. Code § 5771.

⁵⁹ *New pesticide regulations for Oregon timber companies*, High Country News, March 2, 2015, <https://www.hcn.org/issues/47.4/latest-new-pesticide-regulations-for-oregon-timber-companies>.

⁶⁰ Environmental Protection Agency, Workers Protection Standard, <http://www.epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wps> (last visited February 18, 2016).

⁶¹ WAC 222-38-020(9).

⁶² See WAC 222-38-010, WAC 222-38-040.

A. The Proposed New Rule Does Not Require the Adaptive Management Process

RCW 76.09.370(6) specifies which rules are required to go through adaptive management. The statute states that “[a]fter the board has adopted permanent rules . . . changes to those rules and any new rules covering aquatic resources may be adopted by the board but only if the changes or new rules are consistent with recommendations resulting from the scientifically based adaptive management process.”⁶³ In other words, for a rule to avoid the adaptive management process it cannot: 1) amend a rule that was adopted pursuant to RCW 76.09.370(2) or 2) cover aquatic resources.

This petition requests a new rule, and therefore does not amend any rule. The Washington Code Reviser’s Office defines a “new rule” as one that would be given a brand new section number. For example, if RCW 111-11-111 is a permanent rule, a new rule would be RCW 111-11-222. The proposed new rule also does not cover aquatic resources, because it does not change any substantive prescriptions or attempt to protect water quality. Rather, the proposed new rule is procedural. The rule is similar in function to DNR’s recent amendment to WAC 222-10-030, which stated the nature of DNR’s ability to require information from landowners relating to steep and unstable slopes and did not go through adaptive management. Because the proposed rule does not amend a rule and does not affect aquatic resources, it does not require adaptive management.

B. The Board Has the Authority to Adopt the New Proposed Rule

The proposed new rule falls squarely within the Board’s rulemaking authority. The provisions of the proposed rule are merely a necessary expansion of the existing procedural rules for aerial chemical applications. The proposed rule is similar in function to the existing requirements to post signage regarding what chemicals are sprayed in a given location. WAC 222-38-020(4)(g).

The proposed rule does not infringe on the Washington State Department of Agriculture’s authority to regulate pesticides. Recently the Board denied a petition requesting that it ban the aerial application of certain herbicides.⁶⁴ The Board noted that it lacks the authority to ban the use of specific chemicals or chemical mixes and that such concerns fall within the purview of the State Department of Agriculture.⁶⁵ In contrast, our proposed rule would not ban or restrict any chemicals. The proposed rule also does not seek disclosure of trade secrets or proprietary information, but rather information available in records that are already retained under State law.

VIII. Compliance Monitoring

In addition to the proposed rule, we also request that the Board direct the DNR to add forest chemicals to their compliance monitoring reports. The Board already possesses the regulatory authority to make this request under WAC 222-08-160. WAC 222-08-010(4) states:

Compliance monitoring. The department shall conduct compliance monitoring that addresses the following key question: “Are forest practices being conducted in compliance with the rules?” The department shall provide statistically sound,

⁶³ RCW 76.09.370(6).

⁶⁴ Washington State Forest Practices Board. *Re: May 2014 Petition for Rulemaking to Change Aerial Application Rules and Eliminate the Use of Certain Herbicides* (2014).

⁶⁵ *Id.*

biennial compliance audits and monitoring reports to the board for consideration and support of rule and guidance analysis. Compliance monitoring shall determine whether forest practices rules are being implemented on the ground. An infrastructure to support compliance will include adequate compliance monitoring, enforcement, training, education and budget.

To the best of our knowledge, DNR has never conducted compliance monitoring for aerial application of forest chemicals.⁶⁶ Under the Board's authority, we request that DNR be directed to add forest chemicals to the department's compliance monitoring reports. Specifically, we believe that DNR should inquire as to whether landowners comply with buffers around residences and riparian areas, actually screen for flowing water in seasonal streams prior to spraying, correct the often inaccurate DNR hydrolayer in order to fully protect public resources, and test water following spraying to determine if contamination occurs via point or non-point source entry.

DNR currently monitors riparian protection, wetland protection, road construction and abandonment, and haul routes for sediment delivery.⁶⁷ DNR cannot monitor all Forest Practices Rules due to budget and staffing concerns; they have prioritized the four categories they currently monitor as the most important rules.⁶⁸ Given the importance of the timber industry in the state of Washington, the overlapping concerns of forest chemical application with wetland and riparian zones, and the concerns of the many individuals living and working in areas where forest chemicals are regularly applied, the DNR should conduct compliance monitoring for aerial application of forest chemicals. If necessary to accommodate budget needs, DNR could identify other rule areas with typically high compliance and reallocate resources from those rules to forest chemicals. To generate oversight funds for spraying, DNR could also charge a \$150 fee for spraying application as it does for other FPAs.⁶⁹ Given DNR's ability to conduct compliance monitoring of the Forest Practices Rules, they are the best department to receive the post-application reports suggested by the proposed rule and to use these reports to further monitor forest chemicals and ensure compliance.

IX. Conclusion

Forest landowners spray thousands of pounds of herbicides, fungicides, and fertilizers across Washington every year. Inevitably, rural residents in industrial logging areas are exposed to those chemicals and the health risks they create. In the proposed rule, we seek to reduce health risks for rural residents and their loved ones.

Greater communication and transparency regarding spraying would facilitate trust between local communities and forest landowners. Reporting requirements would for the first time provide the public and the regulating agency, DNR, with comprehensive information regarding what

⁶⁶ See Obermeyer et al., 2014. *2012-2013 Biennium Forest Practices Compliance Monitoring Report*, Washington State DNR; Andrews and Shelley 2015. *2014 Interim Forest Practices Compliance Monitoring Report*, Washington State DNR.

⁶⁷ *2012-2013 Biennium Forest Practices Compliance Monitoring Report*, *supra* at 1.

⁶⁸ *Id.* at 10.

⁶⁹ The Forest Practices Act allows a fee for "applications and notifications relating to the commercial harvest of timber." RCW 76.09.065. Because spraying of forest chemicals relates to commercial timber harvest, DNR could likely elect to charge an application fee but currently does not.

chemical use is occurring as part of forest practices. The rule places a minimal burden on landowners. The flexible public notice requirement allows landowners to choose the method, and the post-application report form is straightforward and requires only basic information. Finally, we also ask the Board to direct DNR to conduct compliance monitoring for aerial applications of forest chemicals. Aerial chemical application compliance monitoring should be prioritized to ensure that the Forest Practices Rules are being followed.

The purpose of the new rule and compliance monitoring is to protect public health and promote better forestry through better access to information. We welcome your input and questions and hope that the Board moves forward on this pressing public and environmental health issue. Please feel free to contact me to discuss any questions or concerns you might have about this petition.

Sincerely,

A handwritten signature in black ink, appearing to read "Wyatt Golding". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Wyatt Golding
Washington Forest Law Center
Phone: 206.223.4088 x. 7
Email: wgolding@wflc.org

*On behalf of the Northwest Center for Alternatives to Pesticides, Skykomish Valley
Environmental and Economic Alliance, and Defenders of Wildlife*

Appendix A-
Proposed Post-Application Report Form

**WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES**

**Forest Practices Report Form
Post Application Report for Aerial Chemicals**

TYPE OR PRINT IN INK:

1. FPA/N #, Landowner, Timber Owner and Operator

FPA/N #:
Name of Landowner:
Name of Timber Owner:
Name of Operator:

2. Date and Time of Application

Date of Application:	Start Time:	End Time:
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3. Conditions at Time of Application

Wind Speed	Wind Direction
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4. Chemicals Applied

Chemical Name	EPA or State Registration #	Amount Applied and Acres Treated

5. Please Answer the Following Questions:

a. Yes No **Did you apply the above chemicals to the entire area indicated in the Forest Practices Application/Notification? If you answered NO, please attach a map indicating the areas where chemicals were applied.**

b. Yes No **Did you deviate from the Forest Practices Application/Notification in any other way? If you answered YES, please attach an explanation of the deviation(s).**

6. I hereby certify that the above information is true correct to the best of my knowledge.

<u>Signature of Landowner</u> <u>Print Name:</u> <u>Date:</u>	<u>Signature of Timber Owner</u> <u>Print Name:</u> <u>Date:</u>	<u>Signature of Operator</u> <u>Print Name:</u> <u>Date:</u>
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