

plan. The Department has listed and commented on those it is aware of. The products have been in common use for forestry applications for years and in some cases decades. The method of application has also been common practice for more than a decade. Effects of the past applications have been evaluated through sample monitoring as well as through casual observation by CAL FIRE inspectors when they have done stocking inspections on treated stands, preharvest inspections on adjacent stands, and other inspections in or near treated stands in the course of their regular duties. This plan submitter also has a very active wildlife and sensitive plant programs which keep careful track of certain indicator species on the ownership.

Concerning an analysis of cumulative effects from past land use within the assessment area, all of the past land use has consistently been for production of timber within areas owned by various private industrial forest timberland owners. On USFS lands nearby, the use has generally been for production of timber, but has changed over time to a maintenance condition with the only timber harvests being related to sanitation-salvage or fuel hazard reduction methods. (see discussion in the BACKGROUND section.) There are areas of conifer plantations as a result of earlier even aged logging. The entire assessment area is about 10, 217 acres in size. The USFS owns 69% of the watershed and SPI owns 26% with other private landholdings representing the remainder. There is no evidence from past THP records on file with CAL FIRE that herbicides were used for reforestation on the other private landholdings. However, these records show that there were about 500 acres of regeneration logging in the assessment area on SPI lands that probably would have been the subject of either herbicide site preparation or release spraying. Most of these areas were harvested five to seven years ago, but spraying would have occurred within the past three years or so. Given the amount of regeneration harvest that is being proposed with the current plan (158 acres), along with past and probable future regeneration harvest as expressed in the THP, CAL FIRE would estimate a potential for the purpose of addressing this concern that about 900 acres of the 10,217 acre assessment area could be the subject of one or two herbicide treatments within a ten year period. Therefore, approximately 10% of the total assessment area could be treated with herbicide within a ten year period.

Areas subject to treatment are somewhat spread out over the landscape as the regulations require spacing between regeneration units until such time that planted trees are five years old or five feet in height. Given the relatively short lived nature of the products being used as discussed in the "Background" section of this Official Response above, it does not seem likely that any significant amount of residual material (including inerts and surfactants) would linger in the environment. (see also the discussion about monitoring samples being taken that have detected no residual for chemicals tested.) CAL FIRE finds that there is no likelihood of probable significant adverse environmental impacts, either individually or cumulatively, from the use of these chemical tools, including the other ingredients, given the nature of the products used (including their wide exposure to the public) and the space and time between applications. Once planted trees are released from any brush competition, there would likely be many decades before any of these regeneration areas would require herbicide treatment.

Surfactants that contain NPE's (nonylphenol ethoxylates) are used in some herbicide applications. However this chemical is more commonly used as laundry detergent (reported that in 2004 over 80% of the 260 million pounds of nonylphenol was used in cleaning products, most notably laundry detergents) and therefore enters public waters through wastewater treatment plants at concentrations far above amounts emanating from forest application (no detectable amounts have left the forest sites in tests). Concentrations of NPE's from urban use have been shown to cause harmful effects to aquatic biota in laboratory studies. (Sierra Club, 2005) However, as we have explained, as used in forestry applications these NPE's will not leave the treatment site in measurable quantities much less in harmful quantities and, it should be noted, will be subject to fairly rapid decay into benign substances. See response 12 for additional discussion of nonylphenol ethoxylate. Also see other responses.

The issue of the spread of noxious weeds, specifically cheatgrass, is addressed in response 21 below. It should be noted that the area of the Cottonwood Fire (46,800 acres that burned in 1984) that was being proposed for herbicide treatment was in the thousands of acres (up to 20,000 acres). Brush stands that had been established after the fire (over 20 years ago) were being proposed for blanket treatment. What is proposed in the current THP and cumulatively in past or probable future projects within the assessment area as defined in the FPA would, if undertaken at all, be applied to a significantly smaller and non-contiguous area or areas. Plants that would be treated, and planted seedlings, on this THP would not, as in the case of the Cottonwood Fire rehabilitation, be competing with brush that has established itself over 20 years. The intensity and volume of the application on the cotton fire brush fields was much greater than in the proposed THP. Court decisions specific to the Cottonwood area of the Tahoe National Forest are dealing with herbicide applications on thousands of acres and therefore a much greater scale than those proposed in this THP, which are on the order of 20 acres, and in that sense could be misleading for this THP.

- 3. Concern:** Californians for Alternatives to Toxics (CATs) caution against relying on USEPA data as DPR does. In 1996, under the Food Quality Protection Act, Congress gave the USEPA 10 years to complete its assessment of the health impacts of hundreds of pesticides. One of the key components was the expressed need to address numerous health concerns that were not currently being addressed, including neurotoxicity and endocrine toxicity.

The most acutely hazardous neurotoxic pesticides, the organophosphates (OPs) and carbamates, were the first group to be evaluated under EPA's review process. August 3, 2006 marked the end of that 10-year period. Although the review of OPs and most of the carbamates was completed by this date, unions representing more than 9,000 EPA scientists made public their serious concerns that the evaluations are incomplete and that the EPA is threatening to allow the continued use of toxic pesticides despite ample information showing that they are too hazardous to be used safely. They further state that pressure from pesticide manufacturers was directly responsible for EPA administrators' actions to compromise the Agency's regulatory responsibilities. The scientists assert that it is a "perversion of the constitutional process and betrayal of the public trust for the Agency to fail to adhere to the mandates of the Food Quality Protection Act." They also state that under priorities of EPA management, "the concerns of agriculture and the pesticide industry come before our responsibility to protect the health of our nation's citizens." (UCS 2004)

In 2004, more than 60 leading scientists, including 20 Nobel laureates, leading medical experts, former federal agency directors and university chairs and presidents, issued a statement calling for regulatory and legislative action to restore scientific integrity to federal policymaking. According to the scientists, the Bush administration has, among other abuses, suppressed and distorted scientific analysis from federal agencies, and taken actions that have undermined the quality of scientific advisory panels.

"Across a broad range of issues, the administration has undermined the quality of the scientific advisory system and the morale of the government's outstanding scientific personnel," said Dr. Kurt Gottfried, emeritus professor of physics at Cornell University and Chairman of the Union of Concerned Scientists. "Whether the issue is lead paint, clean air or climate change, this behavior has serious consequences for all Americans."

Other toxic substances still await their re-registration, and many will never have to undergo their mandated analysis and review because of budget cuts and other constraints. At its best EPA was only moderately successful at protecting the environment. It is now the courts, and not the EPA, that decides the key issues of environmental safety.

CATs will help CDF in its analysis of potential effects from the full tank mixture. However, we will need to know which products are commonly being used including surfactants, colorants etc., and notified of new products considered for use.

**Response:** The Department's review has not relied on U.S. Environmental Protection Agency data alone. As indicated in the "Background" section, the contents of the current THP, past use of herbicides on the subject property area and other responses there is considerable information and years of experience dealing with herbicide use on nearby and other similar mixed conifer forest lands and to California that support the conclusion that herbicide use (if it should take place) will not have a significant cumulative impact on the environment. See other responses.

In reviewing the substance of the concern it appears that the material quoted is specific to review of neurotoxic pesticides (organophosphates and carbamates). These are insecticides and the chemicals that are stated for possible use on the THP are herbicides. None of the products routinely used for vegetative management in a commercial forest setting are organophosphates or carbamates. Hence the simple answer is that these two chemicals will not be used in this forest application. A statement in the concern (with a "UCS 2004" citation) is that "...the concerns of agriculture and the pesticide industry come before our responsibility to protect the health of our nation's citizens." A Union of Concerned Scientists [UCS] 2006 article summarizing the debate ([http://www.ucsusa.org/scientific\\_integrity/interference/epa-and-pesticides.html](http://www.ucsusa.org/scientific_integrity/interference/epa-and-pesticides.html)), uses this same quote and also states; "Ultimately, the EPA did recommend new restrictions on thousands of uses of pesticides, including most uses of carbofuran, a member of the carbamate family ..." Actions were apparently taken by the U.S. Environmental Protection Agency in the intervening two year period to further restrict use of the chemicals in question.

**4. Concern:** Since timber companies place great faith in the "extensive testing and research" done by DPR, a quick review of the registration process is necessary. The only toxicological testing currently needed for approval is acute toxicity, chronic toxicity (rat, dog), oncogenicity (rat, mouse), reproduction (rat), teratology (rat, rabbit), gene mutation, chromosome effects, and DNA damage. These tests are only intended to identify and avert potential effects to humans, and not flora, wildlife or aquatic species. Though labeling will identify, and possibly mitigate, some potential environmental toxicity, it is not a serious concern during the approval process.

There are also numerous effects to both humans and wildlife that are not a part of the registration process (including immunotoxicity, neurotoxicity and endocrine toxicity, as mentioned above). These health concerns are of great importance and the endpoints associated with these concerns are endless, and new ones are being discovered.

The importance of understanding the registration process is paramount to understanding the lack of protections afforded by pesticide labeling. All of the initial data that is submitted by the applicant for registration, is also produced by the applicant. This conflict of interest has in the past produced highly questionable results that are later shown to be invalid by independent testing. Independent testing also commonly uncovers numerous other health and environmental concerns that are not needed for registration. These concerns highlight the fact that the approval process is not based on a wide spectrum of sound science.

A case in point is atrazine, the most commonly used herbicide. Though atrazine is now seldom used for forestry purposes in California, its widespread use has made it, or its metabolites, ubiquitous in the environment in many areas. At the time of its approval, it was touted as perfectly safe. Now, after extensive independent testing for a wide range of health effects and endpoints, the dangers of atrazine are becoming clear, and it is now banned from use in several European countries.

In the US, the EPA has dragged its feet, even though it's own testing has shown oncogenic and endocrine disrupting effects. EPA testing has also shown that there is widespread atrazine contamination in US waterways, and has concluded that atrazine may harm endangered fish, reptiles, amphibians, mussels, and the aquatic plant life that provides habitat for endangered species. Yet atrazine is still allowed for use, and upwards of 70 million pounds of atrazine is applied in the US annually. And applicators still claim that it is safe if used accordingly.

Californians for Alternatives to Toxics (CATs) are aware of the fact that atrazine may not be used and only use it as an example. Common use surfactants and other components in the final mix of herbicides have shown even greater toxicity and endocrine effects than atrazine.

**Response:** Mitigation for the use of herbicides on the harvest units associated with this plan, if any herbicide use takes place in the next 10 years, exceeds the label restrictions and the measures recommended by the California Department of Pesticide Regulation. The plan area is largely located in an area that is not heavily traveled or used by the public. It is not near large population centers and is on private land. (see also the discussion analyzing other potential exposures in the "Background" section above.) Previous monitoring samples have indicated that application methods in conformance with label requirements have provided adequate protection and no herbicides have been detected following applications for samples taken. The buffer zones (watercourse and lake protection zones), where no herbicide application is proposed provide protection for riparian areas and the species that live there as well as for the watercourses. Aquatic species and persons living downstream would not be expected to be exposed because of these buffers. The plan submitter's botany department will review all proposed applications and rare plants shall be protected. Only relatively small and widely scattered areas would be expected to be treated in any given year. Some wildlife may be exposed and could be affected. However, wildlife would tend to leave the area when people and application equipment were present applying the herbicide so direct contact would be minimized. Treated vegetation would soon wilt and not be attractive to herbivorous animals. Carnivores would be even less likely to eat the treated vegetation. Vegetation actually treated would not be likely to subsequently sprout or emerge (germinate) and would not become forage.

The impact of the best management practices currently in use and proposed for future use on SPI lands as described in the plan and as will later be required by DPA when the Pest Control Advisor (PCA) issues written recommendations for herbicide application is to prevent the movement of materials used in herbicide treatments from the harvest units. This helps to avoid the potential for contamination of waterways and harm to endangered fish, reptiles, amphibians, and the aquatic plant life that provides habitat for endangered species. The THP itself states that the FPA WLPZ widths will be observed when applying chemicals around watercourses. An examination of the product labels for both triclopyr and hexazinone show that chemical application would be legally permitted to occur right up to the high water mark of such watercourses in a forested situation. The plan submitter therefore has exceeded label restrictions by providing extra mitigation to avoid the potential for contamination of waterways and harm to aquatic plant and animal life.

The example given in the concern, atrazine, is not ubiquitous in the environment in Calaveras County. There are many watercourses in these two counties listed under section 303(d) of the federal Clean Water Act but none are listed for presence of atrazine or any other chemical substances. Review of the most recent listing (October 26, 2006) revealed that the pollutants/stressors of concern in forested central Sierra watersheds (region 5) are exotic species and heavy metals (possibly associated with past mining activities). In the lower reaches of many of the central Sierra watercourses where heavy agriculture use is common, specific pesticides and other chemicals are listed as pollutants/stressors.