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June 11, 2009

Ms. Leslie Markham
California Department of Forestry and Fire Protection
135 Ridgeway Ave.
Santa Rosa, CA 95401

Re: THP 1-08-116 MEN

Dear Ms. Markham:

I write this letter on behalf of Mendocino County Railway Society, Willits Environmental Center, and Sierra Club Mendocino Group regarding the above-referenced THP.

The Plan Fails Again to Adequately Consider Alternatives

In response to criticism, the landowner made changes to the THP's section on alternatives. None of those changes address the fundamental flaws that were identified.

For the most part, the landowner simply deleted inaccurate statements of law or phrases indicating that a particular alternative was more damaging than the proposed project. It also removed irrelevant boilerplate, such as the consideration of alternative locations when there are none. But these changes are cosmetic. Removing a previously-made statement that a particular alternative, say residential development, is more damaging actually increases the inadequacy of the analysis, because it is misleading: It is contrary to CEQA to consider more damaging alternatives; it is worse to try to cover-up that fact in response to criticism.

The revised section adds several sentences here and there explaining why various silviculture methods, most of them more damaging or infeasible, were not utilized. But, again, only by comparing *feasible, less damaging* alternatives with the project can the decision-maker and the public appreciate the environmental consequences of the latter.

What is remarkable about the latest revision is that it still refuses to consider the alternatives proposed by DFG, namely low thinning and upper diameter limit. As DFG said, “In the LSF and LS stands, there are at least of (sic) few silvicultural alternatives which should be analyzed. Silvicultural alternatives such as low thinning or an upper diameter harvest limit on conifers in the LS and LSF stands are feasible and less damaging than current alternatives.” Yet two revisions later, the landowner refuses to do what CEQA requires and what DFG has requested. The revised THP does not consider a single alternative along the lines suggested by DFG, involving lighter harvests of smaller trees; nor does it consider smaller harvests in terms of acreage.

The revised THP also continues to fail to identify the legally-required environmentally superior alternative. This is not surprising since no superior alternative is discussed.

The THP Fails to Consider the Project’s Greenhouse Gas (GHG) Impacts

In response to criticism for omitting consideration of GHG emissions, the revised THP includes a page and a half devoted to the issue. (THP 220.1-220.2.) It does not begin to comply with CEQA. It does not attempt to identify or quantify GHG emissions. Nor does it attempt to establish a framework for evaluating their effects.

Instead, the THP appears to reason as follows: Because the present project will not produce as many GHG emissions as larger or more damaging logging operations, it will not have an individual or cumulative impact on the environment. (THP 220.1-220.2.) This is an obvious non sequitur. Because other projects are worse does not mean this project will not have a negative impact. In addition, the THP’s conclusion regarding GHG emissions is not based on evidence. Instead, it is based on a number of unsupported assumptions, many of which, as we will show, are scientifically incorrect. (THP 220.1-220.2.)

For example, there is no question that the project will result in a net production of GHG emissions, which the THP does not deny. Yet the THP incorrectly assumes that these GHG emissions will be offset by continued growth of the forest. (THP 220.1-220.2.) This is not true. As we will show, logging produces GHG emissions in a variety of ways, and the removal of trees reduces carbon sequestration. These effects are not obviated merely because other unharvested trees are allowed to grow. If the present project did not occur, GHG emissions would not be produced and carbon sequestration would not be reduced, period.

It is settled that GHG emissions must be considered under the California Environmental Quality Act (CEQA) and the Forest Practice Act. (Pub. Res. Code,

§ 21083.05.) In considering GHG emissions under CEQA, the Attorney General's Office recently stated:

Lead agencies should make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO₂ and other GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities. (Exh. A, California Attorney General's Office: *Climate Change, the California Environmental Quality Act, and General Plan Updates: Straightforward Answers to Some Frequently Asked Questions*, p. 2 [Rev. 3/06/09].)

The question for the lead agency is whether the GHG emissions from the project . . . are considerable when viewed in connection with the GHG emissions from past projects, other current projects, and probable future projects. (*Id.* at p. 4.)

Unlike more localized, ambient air pollutants which dissipate or break down over a relatively short period of time (hours, days or weeks), GHGs accumulate in the atmosphere, persisting for decades and in some cases millennia. The overwhelming scientific consensus is that in order to avoid disruptive and potentially catastrophic climate change, then it's not enough simply to stabilize our annual GHG emissions. *The science tells us that we must immediately and substantially reduce these emissions.* (*Id.* at p. 3, emphasis added.)

The decisions that we make today do matter. Putting off the problem will only increase the costs of any solution. Moreover, delay may put a solution out of reach at any price. The experts tell us that the later we put off taking real action to reduce our GHG emissions, the less likely we will be able to stabilize atmospheric concentrations at a level that will avoid dangerous climate change. (*Ibid.*)

Like CEQA, the Forest Practice Act mandates protection of the environment: "[T]he plain intent of the Legislature in enacting the [Forest Practice Act] was to require the Board to view the forests of the state as a complete working ecosystem, and not only as a producer of high quality timber, but also as forestlands valuable in their own right as a public resource." (Exh. M, Attorney General's Office, *Advice Regarding Board of Forestry's Regulatory Authority to Provide for the Restoration of Resources* at p. 4.)

Timber Harvesting Produces GHG Emissions

According to the California Climate Action Registry Forest Protocols Overview,

the forest sector is the second-largest global source of anthropogenic GHG emissions, contributing roughly 23% of total emissions. The Climate Action Team Report to Governor Schwarzenegger and the Legislature estimates that the forest and agriculture sector contributes 8% of GHG emissions in California. (Exh. B.)

A forest can act as a sink for carbon dioxide as its biomass increases. If forests are allowed to flourish they can sequester significant amounts of carbon. Numerous studies make this point.¹

Logging and its many related activities, on the other hand, remove carbon from long-term storage, release it to the atmosphere and contribute to climate change. In short, logging reduces the benefit of carbon sequestration and thereby adversely affects the environment.

Timber harvest, clear cutting in particular, removes more carbon from the forest than any other disturbance (including fire). The result is that harvesting forests generally reduces carbon stores and results in a net release of carbon to the atmosphere.

(Exh. C, Harmon (2007) Letter to California Air Resources Board. *Comment on Forest Protocols.*)

The forest sector produces GHG emissions in a variety of ways. When trees are cut down, they become a source of CO₂ emissions. Although wood products may store carbon for a time, large quantities of GHG emissions are also released to the atmosphere “immediately through the disturbance of forest soils, and over time through the decomposition of leaves, branches, and other detritus of timber production.” (Exh. D, *Recognizing Forest’s Role in Climate Change*, Union of Concerned Scientists; http://www.ucsusa.org/global_warming/solutions/forest_solutions/recognizing-forests-role-in.html#20.)

Forests store enormous amounts of carbon in their soils that are released when disturbed by timber harvests. Research estimates that of the carbon stored in forests in the coterminous United States half of that is in the soil, one-third in trees, ten percent in woody debris, six percent in the forest floor, and one percent in the understory. (Exh. E, Turner et al. (1995).) The carbon contained in soil can

¹ E.g., EPA (U.S. Environmental Protection Agency). 2008. Inventory of U.S. Greenhouse gas emissions and sinks: 1990-2006. EPA 430-R-08-005. Washington, DC.; Pacala et al. 2001. Consistent Land and Atmosphere Based U.S. Carbon Sink Estimates. *Science* 292: 2316-2320; Peters et al. 2007. An atmospheric perspective on North American carbon dioxide exchange: CarbonTracker. *PNAS* 104 (48): 18925–18930.

be greatly reduced by logging. (Exh. F, Jandl et al. (2007).)

Nor can it be argued that logging stores more carbon in forest products than it releases. Research shows that from 1910 to 1990 in the United States seventy-four percent of the carbon harvested was released into the atmosphere while the remainder was stored in wood products and added to landfills. (Exh. G, Skog and Nicholson (2000).) Thus, only a small percentage of carbon logged is stored in stable forest products after logging: “[D]espite the large mass of carbon (1,692 Tg) harvested in Oregon and Washington, only a small fraction (23%) is currently stored in forest products.” (Exh. H, Harmon et al. (1996).) Most is left to decompose, burned on site, or transported to a mill for fuel.

What is more, forest products decay over time, releasing carbon into the atmosphere. Half of the carbon in lumber gets released in the first 100 years. (Exh. G, Skog and Nicholson (2000).) Forest products like pallets and paper decay far more quickly. (Exh. G, Skog and Nicholson (2000).) Thus there is no comparison between a forest product and a living conifer. The latter stores carbon indefinitely, far longer than forest products, *and* it continuously removes carbon from the atmosphere.

Besides release of GHG emissions from logging itself, there is another major source of emissions, namely equipment operations and facilities management.

The THP Fails to Identify and Quantify the Project’s Production of GHG Emissions

Before the THP can assess the individual and cumulative impacts of GHG emissions, it must first identify and quantify them. Logging causes release of CO₂ in numerous ways. So-called green carbon is released from the removal of living trees and plants (live biomass), disruption to the soil, and removal of dead biomass. (Mackey et al. 2008, http://epress.anu.edu.au/green_carbon/pdf/whole_book.pdf.)

So-called gray carbon is released as a result of the burning of fossil fuels to accomplish logging operations and processing forest products. Gray carbon is produced by a wide range of activities, including road construction and maintenance, harvesting, transportation of logs, and manufacturing. (Mackey et al. 2008.) Then there are the energy inputs sourced from fossil fuels that are required to regenerate the forest after logging, e.g., the planting of seedlings, site preparation, and ongoing maintenance. (*Ibid.*)

In the present case, the THP makes no attempt whatsoever to “calculate, model, or estimate the amount of CO₂ and other GHG emissions from the project, including the emissions associated with [logging and related activities.]” (Exh. J,

Governor's Office of Planning and Research Technical Advisory (2008), *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*.) There is no attempt to measure green or gray carbon. There is no measurement of carbon emissions from the cutting of trees, biomass decomposition, and soil disturbance. Nor is there measurement of emissions from myriad logging-related activities, such as transportation, equipment operation, milling, site preparation, road maintenance, site regeneration, and the like. And there is no comparison between those measurements and the baseline set by the historical pattern of logging, or the even lower baseline required by AB 32.

The California Air Pollution Control Officers Association (CAPCOA) recently set forth methodologies for analyzing greenhouse gas pollution. (*CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (Jan. 2008), <http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>.)

The CAPCOA white paper mostly addresses gray carbon. As for green carbon, a number of studies provide guidance. (E.g., Exh. K, Hamburg (2000); Exh. L, Harmon and Marks (2002).)

In a presentation to the Board of Forestry, the California Resources Agency addressed GHG emissions from logging and made clear that the following must be considered:

- Type of Forest Management (Clear Cutting or other types of logging management)
- Age of forest at issue, tree type
- Store of Carbon in Bio Mass, Soil, and Old Growth
- Rate new growth sequesters carbon
- Changes to system overall
- Reduction of carbon stores v. rate of carbon uptake
- Increases and Decreases in Carbon to Environmental Setting
- Cumulative Impacts

(Exh. Q, PowerPoint Presentation of Resource Agency (presented at February, 2009, Board of Forestry meeting.) None of these variables was considered here.

Since the THP fails to identify and quantify the project's GHG emissions, it cannot begin to assess their impacts and mitigate them. This oversight is especially alarming in the context of CO₂ emissions and climate change, since *any* new emissions must be considered significant. This argument is consistent with the "zero emission threshold" identified by CAPCOA. (*CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (Jan. 2008), <http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>.)² Recent scientific studies point to the need to reduce existing emissions levels, even beyond AB 32 targets. (Exh. O, Matthews et al. (2008); Exh. P, Hansen et al.)

The THP Fails to Assess the Individual and Cumulative Impacts from the Project's Production of GHG Emissions

An THP must analyze the significant adverse impacts of all timber harvesting activities and must impose mitigations to eliminate or reduce them to a level of insignificance. (Pub. Res. Code, § 21080.5, subd. (d)(2)(A), (d)(3)(A); e.g., *Sierra Club v. Board of Forestry* (1994) 7 Cal.4th 1215, 1230.)

The THP must also consider the project's cumulative effects. (*Environmental Protection Information Center, Inc. v. Johnson* (1985) 170 Cal. App. 3d 604, 624-625.) "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts Cumulative impacts can result from individually *minor* but collectively significant projects taking place over a period of time." (CEQA Guidelines, Cal. Code Reg., Tit. 14, § 15355, subd. (b) [emphasis added]; *accord EPIC, supra*, 170 Cal. App. 3d at 625.) "[A]n agency may not ... [treat] a project as an isolated 'single shot' venture in the face of persuasive evidence that it is but one of several substantially similar operations.... To ignore the prospective cumulative harm under such circumstances could be to risk ecological disaster." (*Whitman v. Board of Supervisors* (1979) 88 Cal. App. 3d 397, 408.)

A THP's GHG emissions are a quintessential cumulative impact. The present project will increase the amount of CO₂ in the atmosphere even as California struggles to reduce it under AB 32's mandate:

[W]e cannot afford to ignore even modest contributions to global

² This threshold was used in the California State Lands Commission's Draft EIRs for the Venoco Ellwood Full Field Project and Venoco Ellwood Marine Terminal.

warming. If global warming is the result of the cumulative contributions of myriad sources, any one modest in itself, is there not a danger of losing the forest by closing our eyes to the felling of the individual trees?

(Center for Biological Diversity v. Nat'l Highway Traffic Safety Admin. (9th Cir. 2008) 538 F.3d 1172, 1221 [“the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”].)

The Office of Planning and Research recently underscored the importance of a thorough analysis of a project’s cumulative impacts regarding GHG emissions:

When assessing whether a Project’s effects on climate change are cumulatively considerable, even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects Lead agencies should not dismiss a proposed project’s direct and/or indirect climate change impacts without careful consideration, supported by substantial evidence. Documentation of available information and analysis should be provided for any project that may significantly contribute new GHG emissions, either individually or cumulatively, directly or indirectly (e.g., transportation impacts).

(Exh. I, Office of Planning and Research Technical Advisory (2008), CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review.)

The failure to consider cumulative GHG impacts in this case would set a terrible precedent. Research shows that more carbon will be produced as the century progresses while increased logging is expected to decrease the amount of forest available as a carbon sink. (Exh. E, Turner et al. (1995); Exh. N, Turner et al. (1995b).)

The THP Fails to Analyze The Effect of Climate Change on the Project

Climate change is already being blamed for an increase in mortality in conifers in the western United States, including California. (Exh. R.) It is predicted that redwoods will be forced to migrate north to cooler regions. (Exh. R, “California’s native plant species are so vulnerable to global climate change that two-thirds of them could suffer 80 percent reduction in their geographic range by the end of the 21st century.”)

Since climate change is forecast to impact the project, that change must be analyzed in conjunction with the GHG impacts of the project.

In sum, by any measure, a 426-acre logging operation is a significant project that will produce substantial amounts of CO₂. Yet the THP does not attempt to identify and quantify, let alone assess, the project's individual and cumulative CO₂ impacts on the environment. It therefore satisfies neither CEQA nor the Forest Practice Act.

Thank you for your consideration of this letter.

Very truly yours,

Paul V. Carroll