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ADDENDUM

March 11, 2024

TO: Coastal Commissioners and Interested Parties
FROM: Cassidy Teufel, Deputy Director
SUBJECT: Addendum to Draft Objection Letter in Response to Negative Determination No. ND-0008-24 (Federal Railroad Administration)

This addendum provides recommended modifications and additions to the draft objection letter prepared in response to the Federal Railroad Administration's Negative Determination No. ND-0008-24. Modifications and additions are provided in response to additional information provided by the Federal Railroad Administration via email dated March 5, 2024, and through correspondence received from interested members of the public.[1] Additions are also made to integrate into the response letter supplementary analysis carried out by the Commission's water quality specialist, Dr. Vannessa Metz. This analysis is attached to this addendum memo and will be included as an attachment to the response letter as well.

The recommended edits are shown below with proposed deletions marked as ~~strikethrough~~ and proposed additions marked as **<u>bold underlined</u>** text.

RECOMMENDED REVISIONS

a) Addressee

[1] The Mendocino Railway general counsel submitted a letter in opposition to the draft objection letter, largely making disputed jurisdictional arguments irrelevant to the Commission's authority under the CZMA to review the FRA's ND and unsubstantiated legal conclusions about the Project's consistency with enforceable policies of the California Coastal Management Program.

~~Lauren McAdams~~
~~Attorney-Advisor~~
~~Office of the General Counsel~~
~~US Department of Transportation~~
~~1200 New Jersey Avenue SE~~
~~Washington, DC 20590~~

Jamie Larkin
Environmental Protection Specialist
Federal Railroad Administration
1200 New Jersey Ave, SE Washington DC 20590
Via email to Jamie.Larkin@dot.gov

Dear Ms. ~~McAdams~~ **Larkin,**
…

b) Add footnote on page 2:

As a result of further discussions with Commission staff in early 2024, however, Ms. Larkin provided her request that the Commission accept the Categorical Exclusion Worksheet as a negative determination submittal.~~*~~

***FRA and Commission staff agreed that the ND submittal on January 12, 2024 constituted an "alternative notification schedule" under title 15 CFR section 930.35(c), enabling FRA to submit the ND even though it had already approved the subject RRIF loan.**

c) Additional text on page 4:

Since the partial collapse of a tunnel along the rail line in 2015, the rail line's use has been limited to two excursion trains: one that leaves from Fort Bragg and travels roughly 3.5 miles to Glen Blair and another, separate train that leaves Willits and travels roughly eight miles to Crowley before returning to Willits. The remaining 29 miles of the rail line have been **largely** out of service for nearly a decade**, although Mendocino Railway notes in its March 8, 2024, letter to the Commission that up to three trains per year may provide limited out-and-back service on it from Willits**.

d) Additional text on page 5:

In many years, the City of Fort Bragg draws more than half of its drinking water supply from the Noyo River, directly downstream from the proposed Project. As noted in correspondence received by the Commission, "Water users include both residences and businesses located both within the Coastal Zone. In the year 2023, the City of Fort Bragg drew almost 144 million gallons of water for drinking out of the Noyo River. Any contaminates carried by the Noyo River will be sucked up into

Fort Bragg's drinking water intake, a consequence totally missing from the CAT-X Worksheet."

As stated in Coastal Act Section 30231, "The *biological productivity and the quality of coastal waters, streams*, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and *for the protection of human health shall be maintained and, where feasible, restored…*" (emphasis added). As such, potential effects of the proposed Project on the water quality of the Noyo River also need to be considered in the context of the Coastal Act's requirement for the protection of human health.

e) Additional text on page 9:

As detailed further in the water quality analysis provided by the Commission's Water Quality Specialist, Dr. Vanessa Metz, and included as an attachment to this letter, a~~A~~ growing body of research is demonstrating that CCA and other toxic wood preservative compounds leach into the nearby environment at rates significant enough to have adverse effects. This is also true of similar treated-wood preservatives such as Ammoniacal Copper Zinc Arsenate (ACZA) that may be used as an alternative to CCA. As noted by Townsend et al (2001)…

d) Additional text on page 11:

Given the heavy rainfall that can occur within the project area and absence of commitment by Mendocino Railway or FRA for ground-disturbing work to be carried out only during drier months, water-borne erosion of excavated and disturbed sediments is very likely to occur. While the negative determination notes that a limited number of basic erosion-control BMPs would be used – placement of straw wattles and distribution of organic matter over disturbed surfaces – given the amount of proposed ground disturbance and close-proximity of the construction areas to the open waters and riparian habitat of Pudding Creek and Noyo River, flow of substantial amounts of sediment into these watercourses is reasonably foreseeable. **The statements in the negative determination regarding BMPs also provide no certainty that such BMPs would be implemented or that oversight would be provided as an additional assurance. In fact, Mendocino Railway has a history of Regional Water Quality Control Board violations**[2] **associated with unauthorized discharges of sediment and waste into waters of the state due to construction activities adjacent to Pudding Creek and a failure to implement standard BMPs such as covering and installing erosion controls around soil stockpiles and areas of ground disturbance.**

[2] **See page 9:** https://www.waterboards.ca.gov/northcoast/board_info/board_meetings/10_2016/items/08/161005_EOReport.pdf

e) Additional text on page 13:

If a derailment were to occur along the rail line, the effect on the environment could be significant, due to the line's location in close proximity to protected riparian areas for the majority of its length. A derailment could result in deposition of the train and/or its cargo into Noyo River or Pudding Creek. An accident of this nature would negatively affect water quality and aquatic life at the site and downstream. In addition to fuel and oil products, a spill could also discharge the freight loads proposed to be carried by Mendocino Railway (based on information in the negative determination), aggregate and municipal waste. Discharge of either of these materials into the creek or river would also generate effects far downstream, potentially to the coast and ocean, given the remote location of the line and expected difficulty completing an effective clean-up in a timely manner.

Spills and discharges of hazardous materials such as oil associated with standard train operations are also reasonably foreseeable. For example, a 2021 oil spill incident in Fort Bragg involving Mendocino Railway and reported by local press includes an acknowledgment by the Assistant General Manager of the Skunk Train "that diesel-electric locomotives from the time period of the one used for transporting tourists 'are designed to throw off excess oil as heat and pressure develop.'"[3] Given the close proximity to the train line to both Noyo River and Pudding Creek, such spills and releases of oil associated with operations would wash into these coastal watercourses and adversely affect their water quality and the species they support. While this may currently be occurring as part of the limited tourist excursion operation that Mendocino Railway currently provides, the proposed Project would expand train operations along Pudding Creek and the Noyo River from only a few miles to over 30, thus greatly exacerbating it and its effects on coastal resources.

[3] https://mendofever.com/2021/12/03/skunk-train-denies-county-environmental-health-access-to-oil-spill-at-fort-bragg-depot-claiming-federal-designation-exempts-railway-from-county-or-state-oversight/

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March 8, 2024

TO: Coastal Commissioners and Interested Parties

FROM: Vanessa Metz, Ph.D., Senior Environmental Scientist, Water Quality Program

SUBJECT: Supplemental Analysis of Foreseeable Water Quality Effects (Negative Determination ND-0008-24)

Wood used to build outdoor structures is typically pressure-treated with preservatives that include insecticides to protect against certain wood-boring insects (e.g., termites, powder-post beetles, carpenter ants, and marine borers) and antimicrobial fungicides to control decay, mold, rot, and mildew. Rainfall leaches these pesticides from preservative-treated wood ("treated wood') structures into soil and waterways, and these chemicals may accumulate in aquatic sediment. Sawdust and dislodged fragments of treated wood can also fall, blow, or be washed into waterways during construction and demolition activities, where preservative chemicals leach into the water. Because of their large surface to volume area, small particles of treated wood (such as sawdust) entering the water contribute a disproportionately large amount to the leaching of preservatives from the structure.

Many chemicals in wood preservatives are highly toxic to a broad range of aquatic species, especially fish and invertebrates. Toxic chemicals that leach from commonly used types of treated wood include polycyclic aromatic hydrocarbons (PAHs) from creosote; dioxins from pentachlorophenol; and copper, arsenic, zinc, and chromium from copper-based preservatives. The use of treated wood overwater or adjacent to waterways is of particular concern for aquatic toxicity in projects installing a large amount of treated wood, and where there are populations of especially sensitive aquatic organisms (such as copper-sensitive salmonid fish species). Both these factors are present for the proposed project.

The proposed project will install a substantial amount of treated wood for new or replacement components of structures that are overwater or adjacent to the Noyo River and Pudding Creek. Proposed infrastructure improvements likely to use treated wood include approximately 32,100 replacement railroad ties; repairs to 50 to 60 tunnel "sets" (i.e., wooden support beams) and "modernization" of other sets and temporary shoring to secure Tunnel #1; installation of up to 1,600 new power poles; and numerous repairs to bridges—including repairing or replacing bridge ties, caps, stringers, bents, guard timbers, chords, sills, and deck planks.

However, the Negative Determination Worksheet submitted for this project did not state what type(s) of wood preservative would be used for the replacement railroad ties, nor for any of the other wood components of the project. Although all wood preservatives used overwater or near aquatic environments pose a risk of toxicity to aquatic life, some preservatives pose a higher risk of aquatic toxicity than others. Identification of the type of wood preservative proposed for each element of the infrastructure improvements would enable a more thorough evaluation of the environmental impacts of this project. Without that information, however, an evaluation of all likely wood preservative options was completed and is summarized below. Varying levels of coastal effects are foreseeable from all options, in particular, creosote due to its high leach rate of PAHs and the known adverse effects of PAHs on water quality and aquatic and marine life.

The existing railroad ties are treated with Chromated Copper Arsenate (CCA). However, CCA is not currently approved for this use by the relevant industry trade group, the American Wood Protection Association (AWPA). The four preservatives that are currently AWPA-approved to treat wood crossties are creosote, Pentachlorophenol, Ammoniacal Copper Zinc Arsenate, and Copper Naphthenate.[1] Chemicals leached from each of these types of treated wood pose a risk of aquatic toxicity, as follows:

1. **Creosote.** Most railroad ties in the U.S. are made of treated wood, and over 90% are treated with creosote or a creosote/borate combination. Utility poles are another major use of creosote-treated products. Creosote is a mixture of hydrocarbon compounds distilled from coal tar, of which up to 80% is comprised of polycyclic aromatic hydrocarbons (PAHs). Some of the PAHs that leach from creosote are highly to very highly toxic to fish and invertebrates,[2] and other PAHs can be carcinogenic.[3] PAHs accumulate in the sediment of waterways, adversely impacting benthic organisms, aquatic invertebrates, and fish. A report prepared on creosote-treated wood for NOAA Fisheries (2006)[4] concluded that:

> Based on the forgoing review of toxicities, acute toxicity to sediment-inhabiting invertebrates, and chronic effects on reproduction, development, the immune system, and the liver (i.e., effects generally leading to liver cancer) in fish merit consideration as adverse effects thresholds (as concentrations in sediment or water)

[1] Webb, D.A. Webb and G.V. Webb. (2016). The Tie Guide: Handbook for Commercial Timbers Used by the Railroad Industry. Prepared for The Railway Tie Association. (See page 70 for the 2015 AWPA Standards for railroad ties.) (https://www.rta.org/assets/docs/TieGuide/2016_tie%20guide%20for%20web.pdf).

[2] U.S. Environmental Protection Agency. Reregistration Eligibility Decision for Creosote: Case 0139. (https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/red_PC-025004_25-Sep-08.pdf).

[3] Hutton, K.E. and S.C. Samis. (2000). Guidelines to protect fish and fish habitat from treated wood used in aquatic environments in the Pacific Region. Can. Tech. Rep. Fish. Aquat. Sci. 2314.

[4] Stratus Consulting. (2006). Creosote Treated Wood in Aquatic Environments: Technical Review and Use Recommendations. Prepared for NOAA Fisheries, Southwest Division. (https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=938b0bc77a3a1dd12f4fcf2f61a25f5f218a2639).

The U.S. EPA has also classified seven PAHs as probable human carcinogens; most of these PAHs have been identified in creosote.[5]

Creosote-treated wood can continue to leach substantial quantities of PAHs for many decades after installation. NOAA Fisheries (2009) determined that:[6]

> While the initial rate of leaching from creosote-treated pilings drops off rapidly, leaching stays elevated at easily detectable levels for many years and perhaps decades. The exact length of time this occurs is difficult to determine because the product loading and formulation of creosote utilized in the past was variable. PAHs from creosote also accumulate in sediments, where they are subject to degradation. However, the high molecular weight fraction can take a long time to degrade and contains known mutagens, teratogens, and carcinogens, which are most often associated with impacts to benthic species (e.g. tumors).

2. **Pentachlorophenol.** Pentachlorophenol has commonly been used for utility poles as well as railroad ties. Pentachlorophenol-treated wood leaches environmentally persistent contaminants such as dioxins and furans that bioaccumulate in organisms and persist in the sediment. The U.S. EPA stated that pentachlorophenol "is very highly toxic to aquatic non-target organisms and honey bees, and slightly toxic to avian species," and therefore EPA is now in the process of phasing out the use of pentachlorophenol.[7]

   Concerns about the potential for chronic impacts of dioxins, furans, and hexachlorobenzene at low pentachlorophenol levels has limited the use of pentachlorophenol in aquatic environments. Dioxins and furans have been found in drainage water from railway ballasts adjacent to railroad ties that had been treated with a combination of creosote and pentachlorophenol.[8]

3. **Ammoniacal Copper Zinc Arsenate (ACZA)**. ACZA is a copper-based preservative that was AWPA-approved to treat Douglas fir railroad ties in 2014. During rainfall events, wood treated with copper-based preservatives can leach copper, which may potentially be carried by runoff into nearby waterways.

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[5] Ibid.

[6] NOAA Fisheries, Southwest Region. (2009). The Use of Treated Wood Products in Aquatic Environments: Guidelines to West Coast NOAA Fisheries Staff for Endangered Species Act and Essential Fish Habitat Consultations in the Alaska, Northwest and Southwest Regions. (https://preservedwood.org/portals/0/documents/NOAA_guidelines.pdf).

[7] U.S. EPA. Webpage: Ingredients Used in Pesticide Products — Pentachlorophenol. (https://www.epa.gov/ingredients-used-pesticide-products/pentachlorophenol#:~:text=After%20that%20time%2C%20wood%20treatment,used%20primarily%20on%20utility%20poles).

[8] Hutton, K.E. and S.C. Samis. (2000). Guidelines to protect fish and fish habitat from treated wood used in aquatic environments in the Pacific Region. Can. Tech. Rep. Fish. Aquat. Sci. 2314. (https://www.publications.gc.ca/collections/collection_2014/mpo-dfo/Fs97-6-2314-eng.pdf).

The U.S. EPA (2008) stated that "Copper is highly toxic to most aquatic species."[9] Copper in small concentrations can impact the resistance of fishes to disease, cause hyperactivity, impair respiration, disrupt osmoregulation, and impact olfactory performance. Research has shown that dissolved copper damages the olfactory system of salmonids, especially juveniles, at very low concentrations, and that these effects can occur over a period of minutes or hours and can persist for weeks.[10,11]

NOAA Fisheries (2009)[12] stated that: "A large body of scientific literature has shown that fish behaviors can be disrupted at concentrations of dissolved copper that are at, or slightly above, ambient concentrations (i.e., background)." This report further described the adverse impacts of copper on salmonid species:

> Even transient exposure, lasting just a few minutes to copper at levels typical for surface waters from urban and agricultural watersheds, and within the U.S. Environmental Agency water quality criterion for copper, will cause greater than 50% loss of sensory capacity among resident coho in freshwater habitats (Baldwin et al. 2003). While that loss may be at least partially reversible, longer exposures (lasting hours) have caused cell death in the olfactory receptor neurons of other salmonid species (Julliard et al. 1996, Hansen et al. 1999b, Moran et al. 1992). Olfactory cues convey important information about habitat quality, predators, mates, and the animal's natal stream, thus substantial copper-induced loss of olfactory capacity will likely impair behaviors essential for the survival or reproductive success of salmon and steelhead (Baldwin et al. 2003).

Nonetheless, NOAA Fisheries (2009) determined that copper poses less environmental risk than the PAHs that leach from creosote.

The existing railroad ties are treated with a similar copper-based preservative, CCA. CCA and ACZA both contain arsenic, which has high mammalian toxicity and is a known human carcinogen, and thus raises human health concerns where frequent human contact is expected. CCA was phased out for residential uses in 2004 due to human health concerns about its arsenic content, but it is still approved for certain commercial and industrial uses where little human contact will occur.

4. **Copper Naphthenate.** Oil-based copper naphthenate is another copper-based wood preservative. It is AWPA-approved, but no longer commonly used, to treat railroad ties,

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[9] U.S. EPA. (2008) Copper Facts. (https://archive.epa.gov/pesticides/reregistration/web/pdf/copper_red_fs.pdf).

[10] Hecht, S.A., et al. (2007). An overview of sensory effects on juvenile salmonids exposed to dissolved copper: Applying a benchmark concentration approach to evaluate sublethal neurobehavioral toxicity. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-83. (http://www.nmfs.noaa.gov/pr/pdfs/consultations/copper_salmon_nmfsnwfsc83.pdf).

[11] U.S. EPA. (2016). Draft Aquatic Life Ambient Estuarine/Marine Water Quality Criteria for Copper – 2016. EPA-822-P-16-001. (https://www.epa.gov/wqc/aquatic-life-criteria-copper).

[12] NOAA Fisheries, Southwest Region. (2009). The Use of Treated Wood Products in Aquatic Environments: Guidelines to West Coast NOAA Fisheries Staff for Endangered Species Act and Essential Fish Habitat Consultations in the Alaska, Northwest and Southwest Regions. (https://preservedwood.org/portals/0/documents/NOAA_guidelines.pdf).

and is also used to treat utility poles. The U.S. EPA (2017)[13] modeled leaching of copper into the water from copper naphthenate-treated wood used in an overwater dock, and found that the leached copper was very highly toxic to aquatic organisms:

> Copper naphthenate dissociates to copper ion and naphthenic acid in aquatic environments. Copper is classified as very highly toxic to aquatic taxa… The dock scenario, which resulted in higher exposure, resulted in risks above the level of concern (LOC). Residue quotients (RQs) from high leach rate scenarios ranged from 0.12- 24.4, which exceed the LOCs for all freshwater and saltwater taxa except for non-listed vascular plants.

EPA's report (2017) further stated that the very high toxicity of copper naphthenate to aquatic organisms is typical of the toxicity of other copper-based wood preservatives:

> The results from testing nontarget organisms for toxicity to copper naphthenate demonstrated that copper ion was very highly toxic to aquatic organisms. When normalized and adjusted for water hardness, the freshwater endpoints indicate that copper ions released from the copper naphthenate molecules are no more toxic or even a little less toxic to aquatic organisms than other copper containing pesticides assessed in the copper registration review document (US EPA, 2016). Therefore, copper naphthenate would be considered to be typical of other already assessed copper containing pesticides as far as toxicity to nontarget organism is concerned.

Overwater Use of Treated Wood

Overwater use of large quantities of treated wood such as proposed for this project's railroad bridges over the Noyo River and Pudding Creek poses a risk for aquatic toxicity. The Western Wood Preservers Institute (2012) stated that:[14]

> "While the greatest potential environmental exposure is with in-water use of treated material where direct contact and higher retention levels exist, the large volume of wood used in above-water structures and decking also merits risk consideration and sound chemical management."

NOAA Fisheries (2009) also concluded that:[15]

> Overwater uses of treated wood products can also contribute contaminants into the aquatic environment and may be used at a high enough volume to warrant examination in a project. Copper-treated products are expected to

[13] U.S. Environmental Protection Agency. (2017). Copper Naphthenate Registration Review Preliminary Risk Assessment: DP No. 438501. (https://www.regulations.gov/document/EPA-HQ-OPP-2010-0455-0009).

[14] Western Wood Preservers Institute, et al. (2012). Treated Wood in Aquatic Environments: A Specification and Environmental Guide to Selecting, Installing and Managing Wood Preservation Systems in Aquatic and Wetland Environments. (https://preservedwood.org/portals/0/documents/TW_Aquatic_Guide.pdf).

[15] NOAA Fisheries, Southwest Region. (2009). The Use of Treated Wood Products in Aquatic Environments: Guidelines to West Coast NOAA Fisheries Staff for Endangered Species Act and Essential Fish Habitat Consultations in the Alaska, Northwest and Southwest Regions. (https://preservedwood.org/portals/0/documents/NOAA_guidelines.pdf).

leach most of their contamination during the first year as a result of rainfall. Creosote-treated wood will also leach in this manner, but may be expected to discharge PAHs for a longer period of time. Exposure to direct sunlight may result in the discharge of contaminants, even during the dry season, from creosote-treated products. Both categories of products may contribute additional contaminants through wear of their exposed surfaces

Construction-phase Best Management Practices

During construction and demolition of treated wood structures over or adjacent to coastal waters, wood preservatives may enter the water via releases of sawdust or wood debris, spills of field-applied preservatives, or leaching by rainfall. Small wood particles allowed to enter the water, such as sawdust and wood fragments, contribute a disproportionately large amount to the leaching of preservatives from the structure. The amount of copper, chromium, and arsenic released from treated wood construction debris that has fallen into the water may be 30 to 100 times greater per wood weight than from decking exposed to rainfall, due to the combination of the small particles' greater surface area for leaching and their immersion in water.[16]

Furthermore, if applied overwater, drips or spills of copper naphthenate—the most common field-applied preservative used to treat cut ends and drilled holes in treated wood—can release copper directly into the aquatic environment. Field-applied copper naphthenate does not bond as strongly to wood compared to pressure-treatments and may release more than 20 times greater copper compared to pressure-treated deck boards.[17]

In this proposed project, removal and replacement of existing treated wood railroad ties, repairs to tunnels, replacement of bridge elements, and installation of power poles may result in the discharge of treated-wood fragments and sawdust into coastal waters. Appropriate Best Management Practices (BMPs) specific to the use of treated wood near aquatic environments were not identified in the Negative Determination Worksheet or proposed to be used. As a result, the likelihood of adverse impacts to coastal water quality and wildlife from the proposed project is greater than it would be if implementation of such measures was required, and adequate oversight was provided to help ensure that implementation of BMPs was successful.

[16] Lelow, S.T. and M. Tippie. (2001). Guide for Minimizing the Effect of Preservative-Treated Wood on Sensitive Environments. Gen. Tech. Rep. FPL–GTR–122. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. (http://www.wwpinstitute.org/documents/fplgtr122.pdf).

[17] Ibid.