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Comments: Dear Regional Forester Eberlien,

Please accept this addendum to the R5 Draft EA comments that were submitted on May 4, 2022, on behalf of the Environmental Protection Information Center (EPIC) and the Klamath Forest Alliance. This addendum focuses on the Upland Sediment Analysis, which is used for calculating effects to soil, water quality and public safety (aka drinking water) and supporting the conclusions in the Draft EA.

Also attached are referenced materials, for both comments submitted.
Please accept this addendum to the R5 Draft EA comments that were submitted on May4, 2022, on behalf of the Environmental Protection Information Center (EPIC) and the KlamathForest Alliance. This addendum focuses on the Upland Sediment Analysis, which is used forcalculating effects to soil, water quality and public safety (aka drinking water) and supporting theconclusions in the Draft EA. The analysis contains gross assumptions and oversimplifications,which are not adequate for determining project effects.The Upland Sediment Analysis, was not completed and/or made available until April27th, over halfway in to the public comment period. Please note that multiple critical supportingdocuments, such as the Road Sediment Analysis, are not complete or available within the publiccomment period.NEPA [ldquo]requires that the relevant information will be made available to the largeraudience that may also play a role in both the decision making process and the implementation ofthat decision.[rdquo] WildEarth Guardians v. Montana Snowmobile Ass[rsquo]n, 790 F.3d 920, 924 (9th Cir.2015) (citing Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989)).[ldquo]Informed public participation in reviewing environmental impacts is essential to the properforest alliancek l a m at h2functioning of NEPA.[rdquo] League of Wilderness Defenders/Blue Mts. Biodiversity Proj. v.Connaughton, 752 F.3d 755, 761 (9th Cir. 2014) (citations omitted), and [ldquo]NEPA[rsquo]s publiccomment procedures are at the heart of the NEPA review process.[rdquo] California v. Block, 690 F.2d753, 770 (9th Cir. 1982). An agency may not discharge its obligation to provide the public withanalysis of the environmental impacts of a project simply by incorporating documents byreference. Pacific Rivers Council v. U.S. Forest Serv., 689 F.3d 1012, 1031 (9th Cir. 2012)vacated as moot, 133 S. Ct. 2843 (2013). Even when documents are incorporated by reference,the incorporated material must be [ldquo]reasonably available for inspection.[rdquo] 40 C.F.R. [sect] 1501.12.UPLAND SEDIMENT ANALYSISThere are multiple issues with the Disturbed Water Erosion Prediction Project (WEPP DisturbedVersion 2.0 or WEPP V2), used in the Upland Sediment Analysis. There are limitations andbroad assumptions that skew the modelling and make it an inadequate measure of soil health,water quality and public safety.The baseline condition assumes the current condition after fire. However, the condition of waterquality and sediment inputs prior to the fire should be considered in order to distinguish theincrease of sediment from wildfire separate from the proposed logging. The effects from wildfirealone likely push these rivers and streams over TMDL allowances.Methodology and AssumptionsModelling oversimplifies recovery and relies on Best Management Practices (BMPs) and ProjectDesign Features (PDFs). It is generally assumed that if logging reduces the likelihood ofwildfire, or the severity of wildfire, then the average annual sediment production due to theoperations is less than the sediment from wildfire over time. As described in our previouscomments, the additive effects of BMPs and PDFs can often increase problems.Older models, such as Disturbed WEPP V2 which was developed in 2010, fail to take intoaccount climate change, current rainfall intensities, the prolonged drought regime, as well as theeven aged forest stands that have grown out of clearcut plantation forestry, the subsequent road,landing and skid trail network and altered hillslope hydrology due to past management.Modelling soil and water quality effects for a project of this complexity and expanse, especiallyin

the impaired North Coast Klamath Siskiyou region, deserves more than eight single locations:2 priority areas on the Mendecino NF1 priority area on the Klamath NF2 priority areas on the Shasta-Trinity NF1 priority area on the Plumas NF1 priority area on the Sequoia NF1 priority area on the Sierra NF3Biased and Streamlined InputsThe inputs used [mdash] to determine effects and to assume that Equipment Exclusion Zones (EEZ)buffer widths are sufficient to protect streams [mdash] are oversimplified and skewed, which make asignificant decrease in sedimentation.Modelling runs:[bull] Lump the same soil type, primarily using loam.[bull] Increase rock percentage up to 40-60% rock.[bull] Assume 45-100% soil cover.[bull] Use average weather conditions.Soil DataSimply put, loam soil is a proper, healthy balance of sand, silt and clay soil. In reality, greatdifferences in soil properties can occur within short distances and there are multiple soil typesthroughout our forests.Soil data for this analysis/model should utilize variables derived from a post-fire soils texturalanalysis not the NRCS soil survey data. Runoff and soil erodibility data can vary drastically aftera fire. Root strength is reduced post-fire increasing the erodibility of hillslopes, subject toaccelerated sedimentation from the proposed treatment. Recovery cannot by attained by utilizingsimplified lookup tables or web sources with data gaps.Precipitation, Climate Extremes and Snow Melt DataTo accurately account for effects extreme rainfall and weather events must be incorporated. It isprojected more than 90% of extreme fire weather events in California, Colorado, and the PacificNorthwest will be followed by at least three spatially colocated extreme rainfall events withinfive years, pointing to a future with substantially increased post-fire hydrologic risks acrossmuch of the western United States1.The proposed treatment areas are in the snow zone, which does not bode well for hydrologicmodels. Snow accumulation and melt rates including snow pack depths during logging andtimber sale projects are nearly impossible to predict. These extremes should be incorporated into1 Touma D, Stevenson S, Swain DL, Singh D, Kalashnikov DA, Huang X. Climate change increases risk of extremerainfall following wildfire in the western United States. Sci Adv. 2022 Apr;8(13):eabm0320. doi:10.1126/sciadv.abm0320. Epub 2022 Apr 1. PMID: 35363525.4the model to show cumulative effects scenarios, such as 100 yr peak storms not the averages ofreturn period storms.The report states that under average weather conditions, upland erosion may be higher than thepre-fire condition but within a natural and sustainable range of soil loss. Mean annual averagedata is a poor way to examine the cumulative effects from post-fire logging. Precipitation ratesand the intensity of solar radiation are changing, therefore it makes no sense to model averagerainfall and snow melt data. Please present the modeled data for the 3 yr, 6 yr, 15 yr, and 30 yrrainfall return periods. Forest runoff and highest rates of sediment delivery will occur for thosestorms greater than the 2 year recurrence interval. Increased high rates of rainfall should beincorporated to better understand how individual storms could increase the rate of sedimentation.General Modelling IssuesModels are primarily based on a very few inputs or empirical values, and are not physicallybased. Physically based erosion models incorporate erodibility2,3. We are concerned the modeldoes not reflect reality or the actual on the ground conditions that may occur due to logging withheavy equipment and the additive effects of BMPs. The simplistic WEPP V2 erosion model doesnot account for ecological conditions and extent of impacted variables that would arise frompost-fire logging on roads, skid trails and landings with heavy equipment in these complex, steepand rugged watersheds.A single disturbance in a given year is seldom a problem. As more disturbances are added duringa year, and additional disturbances in the years that follow, the forest is less likely to recover toan undisturbed condition. Rain splash and sheet-wash may further increase rill sediment deliveryrates under natural rainfall given the amount of exposed soil in the areas with logging equipmenttraffic4 (see also Bryan, 2000). Numerous disturbances over a number of years must beconsidered to better determine cumulative effects.Downstream Accelerated ErosionThe Draft EA and Upland Sediment Analysis state that sediment delivery risk falls over time,with most subwatersheds dropping to pre-fire conditions within 3 years on low soil burn severityhillslopes and typically within 5-10 years on high soil burn severity hillslopes. This is asignificant and long-term issue for the project. Further, the analysis does not differentiate ordescribe what most means and only looks at 8 sites. This is a poor representation of widespreadimpacts.2 Bryan, R.B., 2000. Soil erodibility and processes of water erosion on hillslope. Geomorphology 32, 385[ndash]415.3 Elliot, William J.; Foltz, Randy B. 2003. The challenges in developing the WEPP cumulative effects model. In:Wide, M.I.; Hallberg, I., eds. Proceedings: 2nd Forest Engineering Conference; 12-15 May, 2003, Vaxj[ouml], Sweden.Uppsala, Sweden: Skogforsk: 55-58. Poster. https://www.fs.fed.us/rm/pubs_other/rmrs_2003_elliot_w001.pdf4 Wagenbrenner, J.W.; MacDonal, L.H.; Coats, R.B.; Robichaud, P.R.; Brown, R.E. 2015. Effects of post-firesalvage logging and a skid trail treatment on ground

cover, soils, and sediment production in the interior westernUnited States. Forest Ecology and Management 335 (2015) 176[ndash]193.5BEST AVAILABLE SCIENCE AND TECHNOLOGYThese highly erodible watersheds deserve accurate up-to-date attention and technology.Maintaining trees, which develop soil on the hillslope, contribute to critical habitat and waterquality must be a priority. Region 5 planners should familiarize themselves with the extensivebody of work and publications by Danielle Touma, et. al. and the National Science Foundationand US Department of Energy Research article titled Climate Change Increases Risk of ExtremeRainfall following Wildfire in the Western United States.Agency staff should use current climatology, technology and data available to run the mostinformed models. We also recommend the Erosion Risk Management Tool (ERMiT) that wasdeveloped by Robichaud in 20075. ERMiT is a web-based application that uses the WaterErosion Prediction Project (WEPP) technology to estimate erosion, in probabilistic terms, onburned and recovering forest with and without the application of mitigation treatments.We urge USFS soil scientists, hydrologists, and geologists to familiarize themselves with theextensive body of work and publications by USFS researcher and scientist William Elliot.To improve the model in the proposed project areas we suggest that soil impacts can be bettergenerated using post-fire satellite imagery and ESRI ARCGIS to develop improved delineationof forest and riparian cover and cover types and generalization of rock content for post-firecumulative effects model.ALTERNATIVESIt is interesting to note that even with the multitude of apparent flaws and biases thedetermination still concludes that there would be adverse impacts to soil and water quality.Watersheds in the project area are at higher risk of increased soil erosion and sediment deliveryto streams. Skid trails greatly increase the risk of upland erosion for all scenarios modeled.Despite this information the R5 Draft EA fails to look at reasonable alternatives.The Region 5 dismissal of alternatives is based on a black and white dichotomy [mdash] either doeverything exactly as proposed or do nothing at all. The [ldquo]touchstone[rdquo] of a lawful alternativesanalysis is whether the agency[rsquo]s [ldquo]selection and discussion of alternatives fosters informeddecision making and informed public participation.[rdquo] Westlands Water Dist. v. U.S. Dept. ofInterior, 376 F.3d 853, 872 (9th Cir. 2004). Federal agencies must [ldquo][r]igorously explore andobjectively evaluate all reasonable alternatives to a proposed project.[rdquo] Center for BiologicalDiversity v. Nat[rsquo]l Highway Traffic Safety Admin., 538 F.3d 1172, 1217 (9th Cir. 2008).5 Robichaud, P.R.; Elliot, W.J.; Pierson, F.B.; Hall, D.E.; Moffet, C.A. 2007, Predicting post fire erosion andmitigation effectiveness with a web based probabilistic erosion model. USDA, Catena, Vol. 71, Issue 2, Pages 229-241.6RECOMMENDATIONSWe urge project planners to use the best available science and technology available. Nothingcompares to actual on-the-ground information, which should be used at some level indetermining the effects of the 5,000+ miles and nearly 200,000 acres of ground based loggingand subsequent impacts. There should be a more accurate and honest attempt with the datainputs.To comply with the Clean Water Act, the Endangered Species Act and other relevant laws thatare intended to protect our salmon, water quality and drinking water in these fire-affectedimpaired Wild and Scenic Rivers the agency must reduce the scope, scale and adverse effects ofthe R5 project. There are reasonable alternatives included in our previous comments, such aseliminating low use roads, retaining live trees, limiting roadside logging distances andmaintaining the buffer widths of the Aquatic Conservation Strategy.We can live without roads but everything depends on clean water. Please use this NEPA processto make better decisions for our forests, rivers, wildlife and the people. Thank you for your timeand attention.