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Comments: The Nevada Division of Environmental Protection (NDEP) Bureau of Air Quality Planning has reviewed the draft Preliminary Environmental Assessment for the Humboldt-Toiyabe National Forest (Forest), Forest-Wide Prescribed Fire Restoration Project (draft PEA) that is being developed for the proposed increase in pace and scale of prescribed burning in the Forest. NDEP provides comments herein with the acknowledgement that the overall initiative to reduce the intensity, severity, and spread of wildfires can serve to benefit air quality, yet we provide suggestions and recommendations to help minimize the air quality impacts of prescribed fires. NDEP requests that the draft PEA be revised to address our comments.

The plan aims to incrementally increase the acreage of prescribed burning, from the current levels of less than 3,000 acres per year to maximum of 100,000 acres per year, over the next 15 to 20 years. This plan aims to increase resiliency of existing vegetation, restore or maintain proper ecological function to native vegetation communities and wildlife habitats, improve firefighter and public safety, and promote adapted communities within the Wildland Urban Interfaces. Achieving these goals by expediting fuel reduction treatments and fire protection efforts near high fire[shy] risk areas throughout California and Nevada. We would like to provide the following comments for your consideration.

It is well known that wildfire smoke is hazardous to human health, not only to those near the fire but also to those thousands of miles away. Wildfire smoke is made of pollutants that can aggravate respiratory issues and contribute to ground-level ozone formation. The areas of Nevada under NDEP's jurisdiction are currently designated as attainment/unclassifiable for PM_{2.5} National Ambient Air Quality Standards (NAAQS); however, that standard is currently under review and is expected to be lowered which could present challenges for Nevada. Data has shown that emissions from wildfires can cause elevated levels of ozone and PM_{2.5} concentrations not only in the immediate fire area, but also in areas downwind through the direct transport of ozone and its precursor gases (i.e., nitrogen oxides [NO_x] and volatile organic compounds -[VOCs]) and fine particulate matter (PM_{2.5}) within the smoke plume¹.

In 2021, NDEP recorded more than 60 PM_{2.5} and more than 20 ozone days of exceedance within its jurisdiction, attributed to smoke from wildfires.

For these reasons, NDEP acknowledges the need for the U.S. Forest Service's (USFS) initiative aimed to reduce the intensity, severity, and spread of wildfires.

However, prescribed fires also have the potential to impact human health as well as impair the ability of the public to enjoy natural landscapes and outdoor activities by degrading air quality and/or increasing visibility impairment. For these reasons, NDEP would like to bring to your attention the following suggestions and recommendations, intended to mitigate the impact of prescribed fires on air quality.

1. When possible, favor the use of alternative fuel reduction practices, including mechanical measures, manual treatments, targeted grazing, and herbicide treatment. When prescribed burn is the chosen option, always consider weather forecast and atmospheric dispersion conditions to limit smoke impact downwind.

2. Develop a transparent and accessible plan of action to be shared with the public and air quality agencies of downwind jurisdictions (states, counties, cities). When possible, consult with the air quality agencies during the development phase to identify areas where there are localized air quality concerns. The USFS' Implementation Procedure Guide states the special considerations will be made when the prescribed fire is in an area designated non-attainment. NDEP agrees with this approach, but early communication and accessible plans

would also allow downwind air quality agencies to identify other areas of concern. NDEP realizes the inherent difficulties in planning prescribed fires but given the spatial and temporal extent of this Forest-wide Prescribed Fire Restoration Project (hundreds of thousands of acres over the next 15- 20 years), NDEP encourages the USFS to share planned locations and times of fire well ahead of time, and when possible, even well ahead of deadlines for open burning permit applications.

3. Develop and implement a communication strategy with all air quality agencies outside and downwind the prescribe fire jurisdiction to enhance communication about prescribed fires before, during and after ignition. This would allow the air quality agencies the opportunity to provide timely information to the public in downwind states. For instance, the NDEP's Air Program has developed the NV-RxFIRE public map, which contains information about permitted prescribed fires and their ignition status (<https://ndep-gis.maps.arcgis.com/apps/webappviewer/index.html?id=c2f05906ddd0400e81c61845e7c578ef>).

4. Even in the presence of a well developed and implemented communication plan with all impacted air quality agencies, it is likely that the USFS will be the only agency with 'boots on the ground'. This may be particularly true in rural areas of downwind states. We recommend that USFS be ready to provide assistance for the monitoring of the smoke impact in downwind areas, especially in the presence of downwind rural communities. Installation of portable or personal sensors (like PM2.5 purple air) in sensitive downwind areas may provide real-time impact of smoke from prescribed fires and help dispelling concerns about public health.

5. Upon request, be available to provide downwind jurisdictions with information about the prescribed burn activities, such as extent of the burn area, fuel loading, and duration of the burn. This would be useful in the unlikely event that downwind air quality agencies may need to prepare exceptional event demonstrations.

Thank you for the opportunity to review and comment on this plan. Please contact me if you have any further questions or if I can be of further assistance.

Footnote:

1 For instance: Xu et al. Ozone chemistry in western U.S. wildfire plumes. Science Advances, 2021, Vol. 7, Issue 50. <https://www.science.org/doi/10.1126/sciadv.abl3648>