

Dorothy Holasek

December 27, 2019

USPS Certified Receipt #

7018 0360 0001 8413 2019

4FRI Rim Country DEIS  
c/o Coconino National Forest Supervisor's Office  
1824 South Thompson Street  
Flagstaff, AZ 86001

Dear USFS:

Because of the US Forest Service's history of altering my official comment in the 4FRI NEPA process by changing my submitted text to mean the exact opposite of what I submitted, I want all of my actual words to be printed in the Rim Country 4FRI online and hard copy public comments, including my complete EJ complaint.

#### PRESCRIBED FIRES/WILDFIRES/MANAGED WILDFIRES

There is a fundamental manipulation of language in the DEIS that repeatedly pits the benefits of prescribed fires with wildfires. This is misleading and deadly because it conveys the message that, if the public supports 4FRI's burn program, our citizens will be exchanging the smoke pollution from high intensity fires for that of low intensity prescribed fires. The concept of managed wildfires, in which the FS expands lightning strikes to thousands or tens of thousands of acres by ground and aerial ignition, is not explained. Managed wildfires are increasingly becoming the land management tool of choice because they are exempt from ADEQ's air quality restrictions. Therefore, the truth is that the FS will engage in an increasing number of prescribed fires and managed wildfires within the 4FRI boundaries and beyond. That combined amount of smoke pollution is the real amount of smoke pollution that our citizens will be forced to breathe.

#### DISEASES

The DEIS downplays the health consequences of the 4FRI burn program. The number, severity and prevalence of medical conditions that will be caused or worsened by the smoke pollution that Rim Country 4 FRI will generate is staggering. The PM 2.5 that is contained in this smoke shortens the lives of people with heart, lung, stroke, diabetes, cancer and autoimmune diseases along with harming the health of the fetus and the developing lungs of children. The 4FRI team has been provided with hard copies of these public health studies references as early as 2011. As recently as November 27, 2019, Harvard University's T. H. Chah School of Public Health published in the British Medical Journal BMJ that short term exposure to fine particulate matter that is found in wildfire smoke led to higher rates of septicemia, or blood poisoning, kidney failure, urinary tract infections, skin and other tissue infections and electrolyte disorders..." Researchers defined "short-term" as exposure on the day of hospitalization and compared the pollution levels to the day before. As the amount of PM2.5 increased between the days analyzed, so did the hospital admission rate connected to those disease groups. Further, the link between exposure to fine particulate matter and hospitalizations was still evident even when the daily air pollution levels were lower than current World Health Organization guidelines and the less-stringent US regulatory standards. "The study shows that the health dangers and economic impacts of air pollution are significantly larger than previously understood", said Yaguang Wei, the study's lead author.

## ECONOMIC COSTS

When the DEIS discusses the “zero sum cost” of their 4FRI thinning and burn program, it deliberately ignores the REAL COSTS to our society through our healthcare system, absences from work and school, lost productivity and early death to our citizens. The FS's burn program is riding on the suffering and death of our citizens, NOT the FS budget. While the FS not only ignores the real cost to society, they simultaneously reject no-burn strategies for remediation of our forests such as petitioning Congress through the Secretary of Agriculture to change our out-dated log export laws. These laws prohibit the export of logs in their unmilled form from public lands west of the 100<sup>th</sup> meridian, encompassing the entire western US. Changing these laws would provide a viable market, the FS does not have now, for the small diameter low value trees to the orient. Such a change would cost the taxpayer nothing and would exponentially accelerate the thinning process and provide jobs and infrastructure for the surrounding communities.

The DEIS also refuses to consider professional meat goat grazing to keep down the ladder fuels in our wildland urban interfaces (WUI's), including the perpetual regrowth of ponderosa pine seedlings. Not only are goats highly effective, offering goat grazing contracts to the public would stimulate the economy through the employment of professional herders and their apprentices, the raising and training of the goats, herd dogs and guard dogs, the sale and servicing of the portable solar powered electric fences, the sale and servicing of the livestock trailers and the sale of goat meat. Currently, the US imports goat meat from New Zealand in order to meet the demand of various US ethnic groups. New research shows that the burning of our ponderosa pines, including the forest floor duff, leaves a waxy film on the forest soils that increases rain and snow melt runoff, instead of nourishing the remaining trees. By contrast, the goat hooves punch small pockets into the forest soils for rain and snow melt to collect and improve forest health.

## OUR AIR TANKER FLEET

Considering the FS's philosophy that the only way to fight fire is with fire, it bears noting that there are a lot of misconceptions about our air tanker fleet. All tankers are leased by the Interagency Fire Center in Boise which reserve leases only 13 large tankers for the USFS, BLM and the NPS (2DC-10's/9,600 gallons, 1 C-130Q/4,000 gallons, 2 MD-87's/5,000 gallons, 4 RJ 85's and 4 Bac 146's). A supertanker leases for \$94,000 per day and \$66,000 per hour. A DC-10 leases for \$27,000-32,000 per day and \$11,000-132,000 per hour. Perhaps the debate as to whether we should lease or own our air tankers needs to be re-visited. But, first we need to extend and reinforce the runways of our mountain towns so that we can handle large air tankers. A supertanker and a DC-10 can only refuel in Marana or Fort Huachuca. In northern Arizona, smaller air tankers can only refuel in Winslow or Prescott. This scenario leaves the White Mountains without effective support. If you wanted to cripple our fire suppression policy in favor of reintroducing fire into our western forests, what better way than to have a skeleton air tanker fleet? Too often the public sees images of air tankers brought in after a fire has raged on for days, which is futile. The cost effective way to use air tankers is at the very beginning of a fire. We have the smallest air tanker fleet in decades. Just how serious are we in putting out fires anymore?

## ENVIRONMENTAL JUSTICE AND SOCIOECONOMIC COSTS

**It is nothing less than criminal that Apache County, the poorest county in Arizona, with a poverty rate of 35.9% and the 6<sup>th</sup> poorest county in the US, was totally left out of the Socioeconomic Analysis and the Environmental Justice Analysis. To make matters worse, Yavapai County, a relatively affluent County, with a poverty rate of 15.1%, was inserted into Apache County' place. Yavapai County is not even in the 4FRI project. I believe that this was a deliberate maneuver to camouflage the unrealistic expectation that impoverished downwind populations will be able to protect their health from the onslaught of smoke pollution that the FS will be generating in their burn programs. The Little Colorado River Basin is at the lowest elevation in 4FRI situated north and east and downwind of the 4FRI forests. Apache and Navajo Counties are the major air shed for both the first half of 4FRI and the Rim Country projects.**

I am submitting my Environmental Justice complaint from 2016 which thoroughly explains the disproportionate burden placed on our poorest counties with low income and the lack of access to electric power that precludes these citizens from practicing what the FS refers to as "averting behavior". The FS claims that practicing "averting behavior" will protect our citizen's health from 4FRI generated or preventable smoke pollution. "Averting behavior" includes, but is not limited to, purchasing high tech HVAC systems, purchasing and running room HEPA air cleaners, wearing respirators, using O2 tanks, remaining inside with doors and windows closed at all times, running the AC and taking vacations upwind during unplanned times of the year. The DEIS does not explain how a citizen would practice these behaviors if he is poor and has no electrical power.

Considering the FS's history of altering my official comments in the 4FRI NEPA process, in which they changed my words to mean exactly the opposite of my intent, I want my entire Environmental Justice Complaint to be printed on line and in the hard copy version of the public responses to this DEIS.

## A REVIEW OF ENVIRONMENTAL JUSTICE GUIDELINES

**The amount of participation by EJ populations in 4FRI does not relieve the FS of their obligation under EJ to identify and mitigate the disproportionate adverse effects of FS programs to EJ populations, even if it means that the FS has to change their programs.** Instead of accurately including Apache County into the EJ analysis, the FS coins a new expression:

"A household's ability to adapt to change".

"A household's ability to adapt to change" is a euphemism for families that are too ignorant to agree with the FS's superior assessment of their burn programs and too ignorant to practice proper "averting behavior". If I had a nickel for every time I heard a FS employee explain to me that downwind populations need to take responsibility for their health issues, I could run for president. Even the most energy efficient home cannot keep the 4FRI smoke pollution from entering closed doors and windows. That is why these deadly smoke particles are referred to as PM 2.5.

They are 2.5 microns and smaller and easily pass through closed windows and doors and easily pass from the lungs into the bloodstream where they do their deadly damage to our citizen's hearts, lungs, brains, kidneys and immune systems. **To expect downwind populations to "adapt to change" in response to this smoke pollution is physiologically impossible. Smoke kills, plain and simple.**

**Item #1**

The burning of forest, chaparral and grassland vegetation creates hazardous air pollution, adversely affecting downwind populations. The tiny particulate matter referred to as PM 2.5, only one toxic pollutant of over 100 contained in wood smoke, is known to shorten the lives of people with COPD, heart disease, diabetes and people with inflammatory diseases such as rheumatoid arthritis and Lupus; and adversely affects people with asthma, including children. (References 1,2,3,4,5,6,7,8,9)

**Item #2**

The USFS uses fire to conduct "prescribed burns" on public lands; and encourages and grows lightning caused wildfires through "managed wildfires". Prescribed burns are under NEPA guidelines. Managed wildfires are not rated under NEPA guidelines.

In prescribed burns, the Forest Service first chooses the area that they wish to burn. The treatment method can either be broadcast in an open forest or pile burning of limbs from previously mechanically thinned acreage.

These burns also use diesel fuel and other chemical accelerants to start and drive the fire to the preplanned finish size in a predetermined period of time.

Managed wildfires start with a lightning strike in an area where the FS would like to conduct burns. The FS directs and increases the size of the fire within a predetermined perimeter, using aerial and ground application of accelerants. These burnout operations can amount to thousands of acres per day of fire growth per managed wildfire.

The FS claims that fire is natural to the SW forests, which is correct. But, the heavy use of diesel and chemical accelerants to ignite and maintain these prescribed burns and managed wildfires is not natural and adds a significant increase in the amount of air pollution caused by these burns. This is a source of toxic air pollution that is not measured by the FS's or ADEQ's PM 2.5 particulate monitors.

**Acknowledging that fire is natural does not negate the human suffering and death from PM 2.5. Nature is not always merciful to human beings and we often seek to redirect nature for the benefit of human life. Fire is natural. But so is cholera, flooding and drought. Nothing should rank higher than public health, not even the FS's ideal forest health implementation plan which effectively eliminates human health from the equation by minimizing public health studies about the adverse health effects of PM 2.5 in favor of using fire as a "cost effective" (for the FS) tool to manage the forests. (References 1,2,3,4,5,6,7,8,9) Appendix G, H, N, K)**

**Item#3**

The air quality during a prescribed burn is monitored and allowed by the Arizona Department of Air Quality (ADEQ). The air quality during a managed wild fire is unregulated. It is important to note that ADEQ does not recommend that the FS conduct this fire program, nor does it guarantee that the level of resulting smoke pollution will not shorten the lives of vulnerable individuals within the downwind populations. ADEQ's job is to identify when

atmospheric conditions are likely to favor sufficient lift near the fire to move smoke away from the forest communities during prescribed burns only.

ADEQ does not monitor PM 2.5 in our Little Colorado River airshed, which is downwind and lower in elevation to the four forests of the Four Forest Restoration Initiative (4FRI). This airshed is heavily impacted by the FS generated and the FS preventable smoke pollution. (Appendix H, K, L, N).

**Item #4**

**The USFS, in conjunction with our state air quality agency (ADEQ), shifts the burden of coping with the smoke pollution (generated by and preventable by the FS) to downwind populations by promoting the concept of "averting behavior" (Coconino/Kaibab, 4FRI, FEIS, Chapter 3, 2014). Averting Behavior includes, but is not limited to, staying indoors for hours or weeks at a time throughout the year with the windows and doors closed; using air conditioning and air filters; and leaving the area for days or weeks. Averting behavior is an essential component of the FS's plan to justify their massive and chronic production of smoke pollution.**

However, this recommendation presupposes the assumption that individual households or communities within downwind populations have relatively equal access to airtight homes, air conditioning, air filters and ability to pay for the increased electric usage or finance a temporary relocation. This assumption selectively culls out participation in the recommended averting behavior for:

- 1) Those households that cannot afford the above listed items.
- 2) People who make their living in outdoor occupations such as construction, landscaping, maintenance, highway, farming, ranching, postal delivery, etc. Apache and Navajo Counties are rural counties.
- 3) Children that wait for school buses on rural highways or participate in sports or other outdoor activities at school and at home.

**It is at this point that the intent of the Environmental Justice principles are violated.**

Many residents in these two counties live in poorly constructed site built homes or older mobile homes that are far from airtight, do not own an air conditioner and could not afford the increased electrical usage if they owned one. In addition, many homes on the Navajo reservation and other rural areas of Apache and Navajo counties do not have electric power to their homes and live "off the grid" because of poverty or non-existing utilities.

	<u>Apache County</u>	<u>Navajo County</u>
<u>% Native American (NA)</u>	72.9%	43.4%
<u>Per Capita Income</u>	12,294	16,745
<u>Poverty Rate</u>	34.4%	24.4%
<18	41.8%	32.6%
>65	29.2%	12.4%
Native Americans	40.2%	48.1%

Combined Apache and Navajo occupied households without electric power = 4,764.

**What these basic facts mean is that the vulnerable people, who do not have access to the tools necessary for averting behavior, will die sooner than those people who do have access. (Appendix L, K, O, Q, J, J) (References 1-9).**

#### Item #5

The FS has rejected all alternative methods to fire, within the NEPA process and outside the NEPA process, that were suggested by the public and has dismissed requests by the public for the FS to develop alternative methods to fire. The FS's stated reasons are that fire uniquely meets their program goals for their ideal forest remediation plan and is cost effective for the USFS. Some of the alternatives suggested by the public include, but are not limited to:

1) Change our timber export laws. In the 1970's, Japan, in need of timber, began buying from the Pacific NW public lands and sinking it in bogs for later use, much like a savings account. They would then mill it on their offshore processing ships as needed. To prevent this practice, which circumvented the employment of the US lumber mills, congress passed a series of protection laws, beginning in the 1970s, which led to the prohibition of harvesting timber from public lands west of the 100th meridian for export in its unmilled form. Forty years later, with an abundance of dead and dying trees throughout the west, this well meaning legislation has outlived its usefulness in its current form.

2) Thin until the distance between trees or groves of trees prevents crown fires. If the public knew the true cost of chronic exposure to the FS generated and FS preventable smoke, the 16" maximum trunk diameter size would have to increase.

3) Utilize goat grazing by professional goat graziers to clean out ladder fuels, including shrubs and saplings, similar to what land managers throughout the west are already doing. This is accomplished with solar powered fences, herding and guard dogs. We forget that the Navajo and other Native Americans of the SW have a long tradition of goat herding.

4) Chip the slash piles on site for export to the EU and the orient.

5) Provide air tankers (waterhogs, not supertankers) and lengthen runways for mountain towns so they can put out wildland fires within the first half hour of ignition. I have personally observed the successful use of the tanker system for many years in Prescott, Arizona before they also embarked upon their fire program. (Appendix H, K, L, N).

#### Item #6

The FS discounts the distance that prescribed burns and managed wildfire smoke travels. In so doing they under represent the impact that smoke pollution generated by and preventable by the FS has on downwind populations. This fact was painfully apparent the summer of 2016 during which the managed wildfires from the Coconino and Tonto National forests heavily impacted Navajo and Apache counties, what the EJ discussion in the 2014 DEIS/FEIS for the first half of 4FRI, Coconino/Kaibab Forests describes as populations

"geographically distant from the project area and therefore unlikely to experience acute smoke effects". I personally observed visibility down to one mile from this smoke pollution in our Little Colorado airshed from fires as far away as 80 miles, during the months of May and June, 2016 for the following five managed wildfires and two wildfires totaling 132,737 acres. Their smoke rivaled a catastrophic wildfire.

#### Item #6, Fire Chart

Fire Name	Forest Location	Start Date	Stop Date	Final Size	Distance from Snowflake/Taylor	Type of Wildfire
Morman	Coconino (East of Munds Park)	05/15/16	06/18/16 By FS	7892	75 Miles NW	Managed WF
Cowboy	Coconino 8 miles South of Flagstaff	05/17/16	06/18/16 By FS	3425	80 Miles NW	Managed WF
Pivot Rock	Coconino 8 miles of Strawberry	05/19/16	06/18/16 By FS	5962	70 Miles W	Managed WF
Jack	Coconino 14 miles N of Clints Wells	05/29/16	06-15-16 Stopped Growing	33850	65 Miles W	Managed WF
Juniper	Tonto NE of Young	05/20/16	06-15-16 Stopped Growing	30631	70 Miles SW	Managed WF
Tenderfoot	Prescott National Forest	06/18/16	06/10/16 By FS	5000	100 Miles W	Wildfire
Cedar	Apache Reservation	06-15-16	06-30-16 By FS	45977	50 Miles S/SW	Wildfire

132,737 Acres Burned in 45 days

Upwind to Little Colorado River Airshed

81,760 was Managed Wildfire

(Appendix A, F, H, O, Q, N)

Because the FS is only concerned with the acute health effects, they are only monitoring PM 2.5 close to the fire area. Whereas, the Little Colorado River Airshed is below the forest elevation in Scrub/Juniper/grassland ecology. Although we don't have the fire, we bear the brunt of the smoke impact from the FS-generated and FS-preventable smoke activity. We are subject both to chronic and acute adverse health effects. In addition, because morbidity and mortality studies show clear correlation for chronic exposure to PM 2.5, the chronic as well as acute adverse health effects on our downwind populations must be weighed. (Appendix D, F, H, G, O) (References 1-9).

#### Item #7

The FS justifies in their NEPA documents and in their PSAs the smoke generated from prescribed burns as less detrimental to downwind populations than wildfires. "The timing of prescribed fires is predictable, the volume of smoke produced is far less than a wildfire, and there is time to notify the public when burns will be implemented. As a result, adverse health consequences are less likely to result from prescribed fires." (Chapter 3, Health Impacts, Coconino/Kaibab 4FRI FEIS 2014).

**This is an either or proposition. When in fact, if the FS's program strategies were changed or "amended", then the clean air alternative methods to fire could be implemented for successful forest management.** It also misleads the public into comparing one prescribed burn to one wildfire, when the Coconino/Kaibab 4FRI plans to conduct prescribed burns on 58,611 acres per year for ten years. The Apache Sitgreaves, Tonto and Southern Coconino 4FRI, Rim Country, proposes to conduct prescribed burns on up to 95,233 acres per year for ten years. All four forests are upwind to us and these burns will co-exist with concurrent fire projects in the same airsheds.

The FS justifies the smoke pollution from managed wildfires as less detrimental to downwind populations than catastrophic wildfires. This argument similarly discounts alternative methods to fire, such as the "waterhog air tanker/runway system previously described in Fact #5. I personally witnessed the effectiveness of this system while living in the Prescott National Forest. Currently we have only two waterhog/runway systems in Northern Arizona. One in Prescott and one in Winslow. Because the effectiveness of such a system is time dependent on the first 1/2 - 1 hour of the start of a wildfire, the large geographical distances that a tanker has to travel to get to the fire and then fly back to reload for the four forests of 4FRI, essentially make their application ineffective in extinguishing a potential catastrophic wild fire. (Appendix A, E, F, G, I, J, K, L, O, P).

#### Item #8

The FS has violated the 2015 planning rule in the NEPA process for Coconino and Kaibab 4FRI and will likely continue the same approach for the Apache Sitgreaves, Tonto and Southern Coconino 4FRI, Rim Country. They failed to utilize the best available science by failing to utilize the best available public health science and the best available medical science for particulate pollution.



Public health science and medical science clearly stand in opposition to any increase in particulate air pollution. Even the FS admits in their Coconino/Kaibab 2014 DEIS, 4FRI. Chapter 3, that "PM studies find that the dose response function is not linear. In other words, a doubling of PM concentration more than doubles the health consequences."

The FS 4 FRI has also violated the 2012 Planning Rule by failing to offer greater transparency by burying crucial public health data in the appendices of the FEIS. (Notably, the "Fire Ecology Report " LATA/2012). (Appendix D, K, J, L, P) (References 1-10).

#### Item #9

PM 2.5 kills at concentrations below what the Little Colorado River airshed experiences from the FS generated and FS preventable smoke pollution in Apache and Navajo Counties. Please refer to Department of Ecology State of Washington Pub #09-02-021 (12-11-09). Their estimates of morbidity costs from exposure to PM 2.5 for heart and lung disease alone in 2009 was \$190 million. They also estimated that 1,100 people die each year in Washington State due to PM 2.5 as of the year 2009. Their estimates are from a year prior to the common practice of prescribed burns or managed wild fires. **What this study means to 4FRI is that the increase in smoke pollution generated by and preventable by the USFS will shorten the lives of people in downwind populations of Northern Arizona. (Appendix D, F, H, N, O, F). (References 6).**

#### Item #10

The level of disregard for public health attributed to the FS's 4FRI fire plan and concurrent fire plans can only be summed up in the fact that after years of asking the FS to develop an official public smoke complaint form to incorporate and track the impact that the smoke pollution generated by and preventable by the FS is having on downwind populations, the FS has failed to do so. Their stated reasons are that the form would be too costly for the OMB to produce and that there is "no point in collecting such data because we are going to have to burn anyway." Yet, during the Coconino/Kaibab 4FRI the FS set aside \$85,000 to follow the impact that their fire program will have on goshawks.

What may be ideal for forest health is in deadly conflict with human health. Pleas to the FS to consider public health are met with suggestions to practice averting behavior, a costly and impractical behavior and, therefore, ineffectual. Averting behavior is totally inaccessible to low income populations with high poverty rates. --Reminiscent of "Let them eat cake"; let the poor turn on their air conditioning or take a vacation.

The human body does not distinguish between dying from PM 2.5 for the sake of a "perceived" noble or ignoble cause. (Appendix A, B, E, H, O) (References 10).

## APPENDIX I

**A) Executive Order 12898:**

"Executive Order 12898 amplifies Title VI by providing that each federal agency shall make actively environmental justice part of its mission by identifying and addressing, as appropriate disproportionately high and adverse human health or environmental effects of its programs, policies, and activated on environmental justice communities."

**B) USDA's Environmental Justice Strategic Plan:**

Goal #3 - "Expand public participation in program operations, planning activity, and decision making processes to benefit environmental justice communities".

**C) USDA's Environmental Justice Strategic Plan:**

Goal #4 - "Ensure USDA's activities do not have disproportionately high and adverse human health impacts, and resolve environmental justice issue complaints."

**D) Forest Land Management Planning Rule (2012):**

Require that agencies utilize the best available science.

**E) USDA's Environmental Justice Strategic Plan:**

Goal #5 - "Increase the awareness, skills, and abilities of USDA employees regarding environmental justice. "Additionally, offices should be able to identify and amend programs, policies and activities that have disproportionately high and human health or environmental effects on environmental justice communities".

**F) USDA Intra-agency Discussions:**

11-14-99 "Cumulative effects does come into play for EJ concerns the same way it does for any environmental effect one is concerned about. In the case of EJ, we would be looking at "adverse", "disproportionate" and "high impacts" (including cumulative impacts.)"

**G) Executive Order 12898 and NEPA:**

To ". . . attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences".

**H) Executive Order 12898 and NEPA:**

"Agencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available. For example, data may suggest there are disproportionately high and adverse human health or environmental effects on a minority population, low income population, or Indian tribe from the agency action. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within control or subject to the discretion of the agency proposing the action."

**I) Executive Order 12898 and NEPA:**

"Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does

not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposal action is environmentally unsatisfactory. Rather, the identification of such an effect heighten agency attention to alternatives, including alternative sites, mitigation strategies, monitoring needs, preferences expressed by the affected community or population."

**J) Executive Order 1298 and NEPA:**

"The public should have access to enough information so that it is well informed and can provide constructive input." . . . "The following information may help the public during the scoping process: An initial list of alternatives and potential impacts."

**K) Executive order 1288 and NEPA:**

"The following steps may be considered as appropriate in developing an innovative strategy for effective public participation

- coordination with individuals, institutions, or organizations in the affected community to educate the public about potential health and environmental impacts and enhance public involvement."

**L) Executive order 12898 and NEPA:**

"Where a potential environmental justice issue has been identified by an agency, the agency should state clearly in the EIS or EA whether, in light of the facts and circumstances, a disproportionately high and adverse human health or environmental impact on minority populations, low income populations or Indian tribes is likely to result from the proposed action and any alternatives. . . using language that is understandable to the public and that minimizes use of acronyms or jargon."

**M) Executive Order 12898 and NEPA:**

"Where an EIS is prepared, CEQ regulations require agencies to identify an environmentally preferable alternative in the ROD . . . when the agency has identified a disproportionately high and adverse human health or environmental effect on low-income populations, minority populations, or Indian Tribes from either the proposed action or alternatives, the distribution as well as the magnitude of the disproportionate impacts on these communities should be factors in determining the preferable alternative. In weighing this factor, the agency should consider the views it has received from affected communities, and the magnitude of environmental impacts associated with alternatives that have a less disproportionate and adverse effect on low-income populations, minority populations or Indian Tribes."

**N) Executive Order 12898 and NEPA:**

"Environmental hazard and substantial environmental hazard: For purposes of research, data collection, and analysis under Section 3-3 of the EO, the term "environmental hazard" means a chemical, biological, physical or radiological agent, situation or source that has the potential for deleterious effects to the environment and/or human health. Among the factors that may be important in defining a substantial environmental hazard are: The likelihood, severity and magnitude of the impact."

**O) Council on Environmental Quality:**

"Environmental justice guidance under The National Environment Policy Act 12-10-97" - Page 3, "The Executive Order recognizes the importance of research, data

## SEQUESTERED NUCLEAR RADIATION IN RECA COUNTIES

The DEIS can state that “radiation emissions is beyond the legal scope of this analysis”, but they are wrong. It is covered under NEPA, The Federal Land Management Act and the Environmental Justice Guidelines. **The most striking omission from the DEIS is the fact that the four forests of 4FRI area located entirely within the Radiation Exposure Compensation Act (RECA) Counties of northern Arizona.** The sequestration of radioactive debris in our forests from the Nevada test site atomic bomb tests was argued in the FOS for the first half of the 4FRI with Calvin Joyner, Regional Forester. The FS's basic argument was that the FS staff at the Flagstaff office is not concerned about the re-suspension of these radionuclides and that the FS will not arrange for any testing. This statement was made after promising \$68,000 to follow the effects of 4FRI activities on goshawks.

The DEIS persists in citing the Cerro Grande fire in New Mexico which was not located in a RECA county. The Cerro Grande fire was a prescribed fire that got out of control and nearly burned down the city of Los Alamos and the Los Alamos Nuclear Laboratories. The study was designed to determine whether the fire had reached the nuclear waste containment containers located outside of the laboratories. It was not designed to determine the amounts or kinds of radionuclides that are still sequestered in our northern Arizona forests from the atomic bomb testing in Nevada during the 1950's and 1960's. Apache, Coconino, Gila and Navajo counties are Radiation Exposure Compensation Act (RECA) counties because they received the lion's share of radioactive debris from the atomic bomb tests. Residents that lived or worked in these counties during certain periods are eligible to receive \$50,000 from the US Department of Justice for designated cancers.

When the forests of northern Arizona burn, either through lightening or the hand of man, the radioactive debris that is sequestered in the vegetation and soils of our forests is re-suspended into the atmosphere and falls on our citizens once again. These radionuclides have long half lives. Cesium 137 (the radionuclide that we associate with the burning forests of Chernobyl) has a half life of 30 years; whose analog is potassium with an affinity for the soft tissues of the human body. Strontium 90 has a half life of 28 years; whose analog is calcium with an affinity for the bones and teeth. Plutonium 239 has a half life of 24,000 years and has an affinity for the lining of the bones. A comparison graph of the amount of Cesium 137 released from the Nevada atomic bomb tests makes Chernobyl and Fukushima look like mere pimples.

The FS has been officially aware of this issue as early as 2012 when they were asked, during the public comment period, by this author and by the entire board of the Physicians For Social Responsibility PSR to test the smoke and ash for these radionuclides and publish their methodology and findings in a peer reviewed journal. The PSR shared a Nobel Prize For Peace for ending the testing of atomic bomb testing after they discovered Strontium 90 in baby teeth.

The FS's response was to produce a pamphlet entitled, “Prescribed Burns and Radiation” in which they incorrectly stated that prescribed burns cannot get hot enough to re-suspend Cesium 137 into the atmosphere. The FS also incorrectly compared the cumulative exposure to medical x-rays and air travel to exposure to these radionuclides. These radionuclides can lodge inside of the human body through breathing, eating, drinking or the swallowing of saliva and continue to irradiate the surrounding tissue even after the person has died. It is worth noting that the debris did not fall evenly and testing one plot of the forest does not necessarily represent another plot an acre away.

**The pamphlet and the DEIS persist in quoting the “one chance in a million” from the Cerro Grande study to describe the harm that could have been caused by the Cerro Grande fire. Remember, this study was designed to assess whether the fire had reached the nuclear waste storage containers located outside the Los Alamos Nuclear Laboratories, not the amounts and kinds of radionuclides that are sequestered in our northern Arizona forests. In addition, the laboratory that conducted the testing published a disclaimer as to the accuracy of their results based on the small amount of samples and the short window of testing. Residents complained that air monitors were not placed where the heaviest smoke was present. The “one chance in a million” statement is meaningless to 4FRI's DEIS analysis and is essentially untrue.**

The first half of the DEIS for 4FRI that included Kaibab and Coconino National Forests states that because Cesium 137 is a “heavy metal”, if any Cesium 137 were re-suspended, it would fall close to the fire. As early as 2011, Flegal and Odigie studied ash samples from the Santa Barbara Jesusita fire and found that lead sequestration in the vegetation and soils, as a result of our many years of leaded gasoline, was re-suspended into the smoke and ash. The concern is that the lead will now have a direct route into the human body through the lungs and into the blood stream of a whole new generation of children.

Lead has a boiling point of 1,740 degrees C/ an atomic mass of 207.2

Cesium 137 has a boiling point of 678.4 degrees C/ an atomic mass of 137

Not only can Cesium 137 be mobilized in wild land fire, its presence in smoke can be used as a marker to track the movement of the smoke from wild land fire around the earth.

## OVERVIEW

Dwarfing any mistakes that the FS has made or will make is the unrelenting effects of drought, warmer temperatures, early snow melt and the resulting beetle kill that has decimated our forests. Climate change makes remediation unpredictable and unknown at the least. But there are some givens.

- 1) Pumping more CO<sub>2</sub> into the atmosphere is counter productive.
- 2) The black carbon soot that is generated or preventable by the FS through their burn programs lands on alpine snow/ice and hastens their melting.
- 3) Without the reflective value of our alpine snow/ice, the earth is losing the ability to reflect back into space the solar radiation and mediate our climate.
- 4) This chain reaction leads to a feed back loop where the increased retention of solar radiation accelerates the melting of the snow/ice and, further lessens the reflective ability of our alpine snow/ice and so on.
- 5) This philosophy that, in the most catastrophic climate change that modern man has experienced, we are going to fight fire with fire is oblivious to the consequences of the resultant black carbon soot.

**The number one problem with FS policies and the conduction of this NEPA process is that the FS decisions are made in a vacuum. The FS says that their decisions will be based on “science”. But which sciences? Certainly not public health science, not climate change science and not socioeconomic science. The FS says that they are experts in Forestry and ecology. Yet they are responsible for the large scale harvesting of older growth trees over a period greater than 75 years as they watched the under story open so that the sunlight could reach the ponderosa pine seedlings. That single action resulted in the pine thicket we have today which the FS now blames on the lack**

**of fire and the cattlemen.**

The DEIS states that “historical regimes are **probably** similar to those widely reported for montane structure ponderosa forests of the SW. Frequent surface fires...that **likely** kept forests in open structure conditions”. **Likely and probably? What about the older growth trees that the FS consistently harvested for decades without regard to the conditions that were brewing in our forests? Certainly there was not that kind of harvesting being conducted in the historical regimes that the FS refers to in order to justify their burn programs. Again, what science?**

**Above all discussions over the historical regimes and the FS's budget, is the fact that the FS's burn programs will disable and shorten the lives of our citizens through the deadly smoke that they will produce. The FS burn programs are not sustainable.**

*Sincerely,  
Dorothy Halasa*

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