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Via CARA Online Comment System

Wayne National Forest Supervisor[rsquo]s Office Attn: Plan Revision

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Dear Forest Plan Revision Team:

We are writing to submit comments on the Draft Assessment for the Wayne National Forest Plan revision. This letter addresses the Draft Assessment[rsquo]s discussion of oil, gas, and coal development on particular resources and identifies missing or incorrect information in the Draft Assessment. The Draft Assessment contains significant information gaps with respect to the impacts of fossil fuel development on forest habitat, streams, air quality wildlife, and climate change. More thorough discussion of these issues is needed to inform the Forest Service[rsquo]s assessment of the [ldquo]need for change[rdquo] to the 2006 Forest Plan, and whether the Forest Plan should continue to allow fossil fuel leasing and fracking in the national forest.

Further, as you know, on March 13, 2020, the U.S. District Court for the Southern District of Ohio issued a decision finding the Forest Service and BLM violated NEPA in authorizing oil and gas leases in the Wayne, because they failed to take a hard look at the impacts of fracking in the 2006 Forest Plan Environmental Impact Statement (2006 Forest Plan EIS), the Forest Service[rsquo]s 2012 Supplemental Information Report (2012 SIR), and BLM[rsquo]s 2016 Environmental Assessment for oil and gas leasing in the forest (Leasing EA). The Court found the agencies failed to use [ldquo]quantified or detailed information[rdquo] in reaching its conclusions, and failed to take a hard look at the impacts of fracking on local resources, including overall forest habitat loss, water depletion impacts on the Little Muskingum River, and regional air pollution. Likewise, here, it is critical for the Forest Service to use quantified and detailed information in the Draft Assessment to inform the Forest Service[rsquo]s assessment of the [ldquo]need for change[rdquo] to the 2006 Forest Plan, and the subsequent NEPA review of the Forest Plan revision in an EIS.

A. The Assessment should identify all sources of surface disturbance and interior forest loss

Previously, BLM[rsquo]s Leasing EA and the U.S. Forest[rsquo]s 2012 Supplemental Information Report (SIR) estimated that a total of 5.5 acres would be disturbed per individual well site for the well pad and access road.1 The Draft Assessment now estimates that developing a single well pad alone could result in 20 to 35 acres of disturbance.2 This figure does not include disturbance from other infrastructure, and it is unclear whether the figure includes [ldquo]limits of disturbance,[rdquo] or the staging areas surrounding the well pad for equipment and other storage.

1 Leasing EA at 26. A CD or thumb drive of all references cited in this letter will be delivered to your office shortly.

2 Draft Assessment Mineral Supp. Report at 4.

The 2012 SIR also fails to take into account disturbance from pipelines, including gathering lines and transmission lines. Specifically, it fails to quantify the likely disturbance from pipelines or analyze resulting habitat fragmentation impacts, and suggests the same pipelines used for conventional oil and gas wells would be used for unconventional high-volume frack wells. The Forest Service now notes the likely increase in pipeline development due to increased fracking activities and larger-scale development:

* [ldquo]Proliferation of higher-volume extraction coupled with the need to upgrade and replace aging utility infrastructure will place pressure on companies to invest in corridors and pipelines, which could result in increased requests for special use permits and potential for surface disturbance.[rdquo]3
* [ldquo]Much of the existing oil and gas infrastructure is aging and needs replacement. In addition to new development, the Wayne is experiencing more frequent and larger- scale special use projects and requests associated with the replacement of old infrastructure.[rdquo]4
* Through the spring of 2019, approximately 41 acres of disturbance associated with utility infrastructure were permitted under the 2006 Wayne Forest Plan (USDA 2018b). In 2019, requests for larger-scale utility lines prompted an administrative correction to the 2006 Wayne Forest Plan to increase the acres of utility corridor development acres that are within the scope of the plan to 500 acres. Nationwide infrastructure spending trends suggest that requests for larger utility corridors will likely continue in the foreseeable future, affecting other land management activities in the Wayne (DOE 2018).5

It further notes that [ldquo][s]hale gas development is linked to habitat fragmentation (Langlois et al. 2017), which negatively impacts the function of forest ecosystems (Watson et al. 2018).

While access roads contribute to fragmentation, pipeline construction itself causes the greatest landscape-scale impacts by creating more forest edge and reducing interior forest habitat.[rdquo]6 The Court[rsquo]s ruling in the Wayne leasing litigation faulted the 2012 SIR and Leasing EA for failing to analyze the impacts from pipeline disturbance, in either a quantitative or qualitative analysis.

[egrave] The Assessment should include surface disturbance estimates for all other oil and gas infrastructure, including pipelines, staging areas, compressor stations, and sumps or impoundments. Attachment A, pp. 23-28, details the potential disturbance from these other types of infrastructure.

B. The Assessment should provide more current and detailed information on water withdrawals for fracking in the Wayne

3 Draft Assessment at 68.

4 Draft Assessment at 64.

5 Draft Assessment at 64.

6 Draft Assessment at 63.

Previously, the Forest Service downplayed water depletion impacts from fracking and underestimated the amount of water needed to frack a single horizontal well or [ldquo]lateral.[rdquo] The 2012 SIR concluded that 3.5 to 4 million gallons of water would be used to develop each horizontal well in the national forest.7 BLM[rsquo]s Leasing EA later increased that projection to 4 to 8 million gallons per well.8 The Draft Assessment now acknowledges average water withdrawals per well in Ohio in 2011 and 2014 over twice these amounts, although these higher figures appear to have been available at the time the 2012 SIR and 2016 Leasing EA were prepared: [ldquo]The average amount of water used in hydraulic fracturing increased from 8.3 million gallons per lateral well in 2011 to 19.4 million gallons per well in 2014 (Thompson 2019a), in part due to increases in the length of the lateral that can be drilled from each well.[rdquo]9

[egrave] These figures, however, are over six years old. The Assessment should note the amount of water currently used to drill and frack one lateral, and the potential for future growth in water use per lateral. The Assessment should also acknowledge that water use is not just increasing due to increasing lateral length, but also due to increasing water-intensity to frack the same length lateral.10

BLM[rsquo]s Leasing EA and the 2012 SIR also failed to put water depletions resulting from federal leasing in context with overall cumulative water use for horizontal drilling in the Wayne. In the Wayne leasing litigation, the Court found BLM and the Forest Service failed to sufficiently analyze these impacts on local water resources. The Draft Assessment now observes extremely high cumulative volumes of freshwater use in Monroe and Washington counties for horizontal drilling and increasing water use over time:

Hydraulic fracturing on horizontal well laterals require significantly larger amounts of water per well than

conventional vertical wells. In Monroe County, the annual total volume increased from 67.01 million gallons in 2013 to 1,182.28 million gallons [or 1.18 billion gallons] in 2018, while annual total volume in Washington County increased from 14.31 million gallons to 22.76 million gallons from 2013 to 2017 (FracFocus 2019). These numbers reflect an increase in both number of active horizontal wells, as well as an increase in the average volume of water withdrawn per well. In Monroe County, mining accounted for an estimated 83% of all surface water withdrawals, and nearly 42% of total water withdrawals in 2015 (Dieter et al. 2018; FracFocus 2019). All or nearly all water withdrawals for high volume hydraulic fracturing in the region appear to be from surface water (Thompson 2019a).11

[egrave] The Assessment should address the extent to which drillers are relying on water from streams and rivers within the Wayne National Forest, which would inform a cumulative impacts analysis on surface water resources in the Forest, including the Little Muskingum and Ohio rivers. The 2012 SIR previously acknowledged the

7 2012 SIR at 41-42.

8 Leasing EA at 105.

9 Draft Assessment at 45.

10 Kondash, AJ, et al., The intensification of the water footprint of hydraulic fracturing, Science Advances (Aug. 15, 2018), doi: 10.1126/sciadv.aar5982, available at https://advances.sciencemag.org/content/4/8/eaar5982.

11 Draft Assessment at 45-46.

potential for water withdrawals to be taken from [ldquo]larger streams or rivers or lakes.[rdquo]12 Drillers have previously proposed water withdrawals from streams within the Wayne National Forest.13

The 2012 SIR suggested that the Forest Service would not allow excessive water withdrawals from national forest land that could impact streams, but did not contemplate the possibility that such water withdrawals could occur from private surface adjacent to federal surface. The 2012 SIR erroneously found that because the Forest Service could limit water withdrawals, no increased impacts to groundwater or surface water would result. It noted:

The following guideline in the Forest Plan limits the approval of surface water withdrawals to periods when the withdrawal will not impact other uses of the water.

GFW-WSH-1: Water should not be diverted from streams, lakes, or springs when in- stream flow needs or water-level assessments indicate that diversion would adversely affect stream processes, aquatic and riparian habitats

and communities, or recreation and aesthetic values.14

However, as commenters repeatedly noted, this reasoning fails to take into account that drillers of federal leases could still withdraw water from private lands in the forest, which the Forests Service lacks the ability to limit. The Draft Assessment now states that [ldquo]the 2006 Wayne Forest Plan does not allow surface water withdrawal for energy development,[rdquo] which is contrary to its previous statement in the 2012 SIR that the Forest Service may limit (but does not prohibit) such water use.15 The Forest Service now acknowledges [ldquo]mineral leasing on adjacent land could divert water from aquatic ecosystems also located in the national forest.[rdquo]16 In other words, drillers of private leases in lands adjacent to the national forest could withdraw water for horizontal drilling from streams in the national forest. However, it fails to clearly acknowledge that drillers of federal leases could also withdraw water from adjacent private lands, impacting aquatic ecosystems located in the national forests. It also fails to acknowledge that such depletions would be out of the Forest Service[rsquo]s control, and that state regulations are inadequate to ensure private-surface depletions avoid harm to aquatic resources.17 Still, the Draft Assessment observes potentially significant impacts from fracking within the national forest contrary to its prior conclusion in the 2012 SIR: [ldquo]Stream dewatering as a result of water withdrawals for high-volume hydraulic fracturing[hellip]could adversely affect aquatic ecosystems far beyond the point of impact.[rdquo]18 Adverse impacts to streams and aquatic resources could occur even with increased precipitation in the Wayne:

Water withdrawals have not traditionally altered hydraulic regimes of aquatic ecosystems, although the exponential increase in unconventional oil and gas

12 2012 SIR at 49.

13 Environmental Assessment for Rolland Wells at 43, available at https://eplanning.blm.gov/epl-front-office/projects/nepa/88264/160641/196412/Final_Rolland_APDs_EA.pdf.

14 2012 SIR at 41.

15 2012 SIR at 41.

16 Draft Assessment Watersheds Supp. Report at 46.

17 See, e.g. 2012 SIR at 29.

18 Draft Assessment at 45.

development remains a concern. Water withdrawal operations with poor control on timing could deplete minimum flows or shorten the duration of periods of inundation for wetlands and lower levels in lakes, ponds, and reservoirs, affecting ecosystem functions like primary productivity and leaf litter processing (Poff et al. 1997). Increased water withdrawals have the potential to simplify streams and rivers by reducing flow in one or several sites, which results in the loss of branches and stream features. Simplified streams lose their ability to adapt to

disturbances like floods, fires, or landslides (Penaluna et al. 2017). In addition to confirming potentially negative impacts during low-flow conditions, impacts from hydraulic fracturing could also occur under average and high-flow conditions.

Studies have indicated seasonal variation in hydrologic sensitivity correlated with stream flow characteristics, with high baseflow and low baseflow streams showing the lowest sensitivity and perennial, flashy streams showing the highest sensitivity (Buchanan et al. 2015).19

Further, it notes [ldquo]water withdrawal operations with poor controls on timing could deplete minimum flows or shorten duration of inundation periods for aquatic ecosystem functions reliant on water (Poff et al. 1997).[rdquo]20

[egrave] The Forest Service should correct its statement in the Draft Assessment that [ldquo]the 2006 Wayne Forest Plan does not allow surface water withdrawal for energy development,[rdquo] when nothing in the Forest Plan prohibits this water use.

[egrave] The Assessment should also clarify that drilling and fracking of both private and federal leases could result in water withdrawals from private lands, with impacts to aquatic resources in the national forest.

[egrave] The Assessment should discuss the lack of adequate state regulation of fracking- related water withdrawals to avoid harm to aquatic resources.

C. The Assessment should more fully describe the various risks of water contamination

The Forest Service[rsquo]s 2012 SIR dismissed potential water quality impacts from fracking, finding the 2006 EIS for the Forest Plan adequately analyzed the risk of spills and water contamination from fracking, even though it never specifically addressed high-volume hydraulic fracturing. It states:

The [2006 Forest Plan] EIS analyzed the risk of effects to water resources and disclosed that spills may occur. This analysis is equally relevant to conventional and [high volume hydraulic fracturing] wells. This analysis was in part based on State of Ohio regulations for oil and gas activities and water quality. State of Ohio regulations have kept pace with the advances in technology and methods of extracting oil and gas resources. Measures already existing in the Forest Plan limited surface occupancy in sensitive areas and require the handling of fluids in a

19 Draft Assessment Watershed Supp. Report at 45.

20 Draft Assesment at 44.

manner that minimizes the potential occurrence and size of a spill back to what might occur at a conventional oil and gas operation. Therefore, the level of effect is not anticipated to increase.21

Likewise, regarding the potential for groundwater contamination from faulty well casing, it concluded such impacts did not warrant further analysis, essentially leaving it up to BLM to review these impacts at the site-specific permitting stage:

The existing framework is such that the Forest Service has no authority to make decisions on the cementing and casing of a well. As per the MOU between the Forest Service and the BLM, the WNF will provide site specific recommendations concerning local hydrogeology and groundwater-dependent receptors to the BLM and DOGRM for mitigation or monitoring.

No additional analysis or protections are needed at the Forest Plan level at this time since Ohio has updated regulations in order to keep pace with technology. Because of these regulatory updates, the effects on WNF water resources are not anticipated to change.22

Further, with respect to the potential for communication between old and new wells, or between a well lateral and the existing underground fracture network, the Forest Service dismisses this impact, noting [ldquo]the potential for upward movement is remote,[rdquo] and [ldquo]no documented instances of contamination due to migration [exist] in Ohio.[rdquo]23

The Assessment now notes existing uncertainties with respect to the water contamination risks of fracking compared to conventional well development:

Some studies suggest correlations between distances to unconventional wells and the occurrence of certain contaminants in freshwater sources, but have not established an actual connection. (Ingraffea et al. 2014; Yan et al. 2016).

Establishing a clear link between unconventional oil and gas operations and water resource contamination, especially with respect to any differences with conventional oil and gas operations, has been handicapped by various factors.

These include a lack of pre-existing baseline surface and groundwater quality data, incomplete spills data, adequate screening out of other potential sources of the contamination (including conventional oil and gas development), and the relatively recent age of most unconventional oil and gas operations, which may not allow sufficient time for subsurface migration of contaminants to a monitored receptor. More study is needed to conclusively evaluate whether or not high volume hydraulic fracturing poses an increased risk of water contamination when compared to conventional drilling (EPA 2016; Thompson 2019a).[rdquo]24

However, overwhelming evidence shows fracking results in increased risk of water contamination. Of 151 unconventional oil and gas spills analyzed by the EPA, spill amounts

21 2012 SIR at 35.

22 2012 SIR at 27-28.

23 2012 SIR at 29.

24 Draft Assessment at 65.

ranged from 5 gallons up to 19,320 gallons. Thirteen of the 151 spills reached a surface water body, with the largest spill volume reported reaching a water body being 7,350 gallons.25 Also reported were spills reaching Pennsylvania surface waters between January 2008 and June 2013 with volumes ranging from 3,400 gallons to 227,000 gallons.26 Such noted mobility of spill waters ultimately poses a threat to both surface and ground beneficial use waters. Similar threats are posed by spills of produced water as well.

Another way in which chemicals can be mobilized is through unintended flow pathways in the subsurface resulting from fracking. A well with insufficient mechanical integrity (e.g. due to well casing and tubing leaks, uncemented annulus, gaps in cement, gaps between casing and cement) can allow unintended fluid movement. Also, the fracture network produced during fracking could intersect sources of groundwater or surface water constituting a conduit for fracking water to flow. Finally, there have been instances where fracking one well has affected a nearby oil and gas well or its fracture network, resulting in spills of the nearby well.27

Perhaps the best examples of unwanted fluid migration are found in Pennsylvania. For example, an abandoned well in Pennsylvania produced a 30-foot geyser of brine and gas for more than a week after the fracking of a nearby gas well.28 In another example, in 2009, shortly after drilling and fracking in the Marcellus Shale, residents near the township of Dimock, Pennsylvania reported that natural gas was appearing or increasing in their water wells.29 As of 2016, over 1,000 fracking water contamination complaints had been filed from 17 of 40 fracking counties in Pennsylvania.30 However, evidence of fluid migration has been observed in many other settings, including the Raton Basin of Colorado and Parker County, Texas, posing risks to drinking water and ultimately public health.31

Another concern is the increasing problem of uncontrolled fractures created by hydraulic fracturing operations causing [ldquo]frack hits[rdquo][mdash][ldquo]an unplanned surge of pressurized fluid into another well, often resulting in surface spills[rdquo] and causing damage to the well.32 Recently, a jury awarded damages to a vertical well owner whose well was damaged by a frack hit caused by horizontal well fracking operations; the high-pressured fracking fluid shot past the area where production was to occur, and toward the vertical well[rsquo]s production area, and the day after, frack fluid started erupting from the well into the air.33 Numerous similar lawsuits have been filed against horizontal well operators.34 The defendant claimed that it could not be held liable, because the fractures created by fracking were too hard to control, and cited a previous ruling noting that

25 U.S. EPA, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States at ES-23 (2016), (EPA 2016 HF Study).

26 EPA 2016 HF Study at ES-24.

27 EPA 2016 HF Study at ES-32.

28 EPA 2016 at ES-32.

29 EPA 2016 HF Study at 6-11.

30 Peltier, Laurel, Pennsylvania Fracking Water Contamination Much Higher Than Reported. EcoWatch, February 4, 2016. https://www.ecowatch.com/pennsylvania-fracking-water-contamination-much-higher-than-reported-

1882166816.html. (Accessed July 12, 2018).

31 EPA 2016 HF Study at ES-45.

32 Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16128-01 (March 26, 2015). 33 Soraghan, Mike, Small producer wins verdict against Devon in [lsquo]frack hit[rsquo] case, E&E News, Aug. 17, 2017, available at: https://www.eenews.net/energywire/2017/08/17/stories/1060058877.

34 Id.

such fractures are [ldquo]of immeasurable length and uncontrollable direction.[rdquo]35 Regardless of whether the defendant was to blame, it is evident that frack hits are an inherent risk of horizontal drilling operations.

Increased fracking activities could also threaten groundwater. A recent study focused on the southern Eagle Ford Shale region found evidence of [ldquo]episodic contamination events potentially attributed to unconventional oil and gas development or other anthropogenic activities.[rdquo] 36 Elevated levels of bromide were detected in groundwater, along with multiple volatile organic compounds and dissolved gas effervescence, suggesting contamination by unconventional oil and gas activities. Further, a study of 18 wells drilled in south Texas between 1990 and 2011; found 61 percent had well integrity or barrier failures mainly in shale zones.37

Moreover, the severity of spills at a single location will significantly worsen due to the following factors:

* Up to 20 wells could be constructed on a single well pad.38 Previously, the 2012 SIR only contemplated the potential for up to 8 wells to be drilled from a single well pad.
* Greater water use for each horizontal well will result in the production of higher volumes of wastewater at a well site.
* With climate change and heavier precipitation, oil and gas infrastructure may be threatened by severe storms, flooding, and erosion. As the Draft Assessment notes: [ldquo]Oil and gas operations can result in land disturbance. Heavier thru traffic can cause erosion and slips, and increased precipitation (Butler et al. 2015) coupled with more oil and gas activity (DOI 2018b) magnifies threats to infrastructure such as well pads and roads (ODOT 2016).[rdquo]39 Oil and gas development, such as pipelines crossing steep slopes, will destabilize soils, exacerbating the risk of landslides: [ldquo]Erosion and landslides following soil saturation can result in adverse impacts on utility infrastructure, including pipelines. Any sort of soil compaction modifying the structure of soil will alter its strength and drainage properties.[rdquo]40 Tanks and other equipment could also be put at risk.

The Draft Assessment notes: [ldquo]The potential for more drought coupled with heavier precipitation events may lead to flashier, localized flooding and less

35 Id.; see also H&S Equipment, Inc. v. Devon Energy Production Co., Case No. Civ-15-12440HE, Defs.[rsquo] Mot. for Summary Judgment, 23 (W.D.Okla. March 15, 2017) (Dkt. 35) (citing Coastal Oil & Gas Corp. v. Garza Energy Tr., 268 S.W.3d 1, 7, 32 (Tex. 2008)); Coastal Oil, 268 S.W.3d at 7 ([ldquo]Estimates of [fracture] distances are dependent on available data and are at best imprecise. Clues about the direction in which fractures are likely to run horizontally from the well may be derived from seismic and other data, but virtually nothing can be done to control that direction[hellip][rdquo]).

36 Hildenbrand, Z.L., et al., A reconnaissance analysis of groundwater quality in the Eagle Ford shale region reveals two distinct bromide/chloride populations, Science of the Total Environment, 575 (2017) 672-680.

37 Davies, Richard, Oil and gas wells and their integrity: Implications for shale and unconventional resource

exploitation, Marine and Petroleum Geology, vol. 58 available at http://www.sciencedirect.com/science/article/pii/S0264817214000609. 38 Draft Assessment Mineral Supplemental Report at 4.

39 Draft Assessment at 64.

40 Draft Assessment at 61.

water retention. This could result in damage to property and infrastructure and the potential for lost business productivity or even loss of life.[rdquo]41 The Wayne is already at high risk of erosion: [ldquo]Soil survey data indicates that soil erosion hazard is severe or very severe across 32% of Athens Unit, 46% of Marietta Unit, and 48% of Ironton Unit.[rdquo]42

* However, the Forest Service has never considered how it will manage resources and activities under stress of climate change effects.43 Section F details the potential for pipeline breakage due to the increasing risk of erosion with climate change.

[egrave] The Draft Assessment should acknowledge mounting evidence that increased fracking activities will increase the risk of spills. Further, the higher density of wells and concentration of chemicals and wastewater stored on a single well pad will significantly increase the volume and severity of spills and localized impacts on groundwater or surface water. Increased severe weather, flooding, and erosion could also increase the severity and frequency of spills or leaks.

D. The Assessment should provide current and accurate information on pollution emissions from fracking and more detailed public health information

As the Court[rsquo]s order in the Wayne National Forest leasing litigation observed, the Forest Service has never taken a hard look at the impacts of oil and gas development on air quality, let alone the air pollution impacts of fracking. Now, the Forest Service[rsquo]s Draft Assessment states that VOC emissions from oil and gas increased 116% between 2011 and 2014[mdash]although elsewhere it suggests total [ldquo][e]missions of VOC increased by 116% within the multi-state airshed during the period of 2011 to 2014. Increases were attributable to oil and gas production.[rdquo]44 It is unclear which statement is correct. In any case, these figures do not take into account higher emissions resulting from the [ldquo]2017 boom in high-volume hydraulic fracturing in Monroe County.[rdquo]45 Likewise, while the Draft Assessment notes drops in NOx emissions since 2011, this does not reflect emissions trends during the 2017 boom.

[egrave] The Assessment should clarify whether total VOC emissions in the analysis area have increased by 116%, or whether VOC emissions from oil and gas production have increased by 116%.

[egrave] The Assessment should provide a complete inventory of all major criteria pollutant emissions sources, including from the oil and gas sector, and their emissions since 2011.

41 Draft Assessment at 53.

42 Draft Assessment at 61.

43 See, e.g., Draft Assessment at 53 ([ldquo]The 2006 Wayne Forest Plan focused on disturbed landscapes and stream profiles, but flooding was not explicitly addressed.[rdquo]).

44 Compare Air Quality Supp. Assessment at 8 with Draft Assessment at 64.

45 Draft Assessment at 61.

[egrave] At a minimum, the Assessment should provide updated emissions figures since 2017 and any other available emissions data.

[egrave] The Assessment should address how ambient air quality monitoring stations were selected and how monitoring is conducted.

Further, despite recognizing the airshed[rsquo]s significant increase in VOCs due to oil and gas production, the Draft Assessment[rsquo]s ground-level ozone discussion misleadingly suggests forests and trees are to blame for ground-level ozone pollution:

Ozone concentrations will increase when NOx react with volatile organic compounds, especially on hot-sunny days when wind speeds are low. Nitrogen oxides are released during the combustion of fossil fuels, primarily from driving vehicles and electricity production. The main source of volatile organic compounds is trees.46

But trees actually provide [ldquo]a net positive benefit[rdquo] to air quality:

While they emit volatile organic gases, trees take up a variety of air pollutants, including both ozone and nitrogen oxides, which reduces the ambient concentrations that we breathe. In the atmosphere, nitric oxides are converted to nitric acid, which trees absorb through their pores, or stomata. It is the amount of nitric oxide that determines ozone levels in many forested regions of the United States. Airborne ozone would be higher if it were not for the uptake of nitric oxides by trees.

Trees also remove particulate matter from the atmosphere, particularly small particles which are a major health hazard in air pollution. Trees along urban roadways can reduce the presence of fine particulate matter in the atmosphere within a few hundred yards of the roadside verge. The total area of leaves is critical: a few trees with sparse leaves are less effective than a dense canopy. Trees with small or hairy leaves are best at removing particles.47

In contrast, oil and gas activities only result in harmful air pollution without any associated air quality benefits. The Draft Assessment[rsquo]s discussion of air pollution fails to discuss the relative impact of oil and gas activities on air pollution compared to trees.48

[egrave] The Draft Assessment should discuss the relative impact of oil and gas production on ozone formation in comparison to other sources of ozone precursors. It should also address its relative impact on particulate matter, carbon monoxide, and other criteria pollutant emissions in the region.

46 Air Quality Supp. Assessment at 11.

47 Schlesinger, William H., Trees and Air Pollution, Cool Green Science (April 6, 2017), available at https://blog.nature.org/science/2017/04/06/trees-air-pollution-balance-ecosystem-services-ozone/.

48 Air Quality Supp. Assessment at 11.

The Draft Assessment also now acknowledges, [ldquo]Community surveys from across the country have revealed that eight volatile organic compounds were found to be present near oil and gas operations, including benzene, formaldehyde, and hydrogen sulfide (Macey et al. 2014; Breech et al. 2014). These compounds are associated with multiple impacts to human health (Colborn et al. 2011; Webb et al. 2014).[rdquo]49 However, the Draft Assessment fails to acknowledge a number of other public health findings that we extensively detailed in our comments to inform the Draft Assessment, including the importance of setbacks to protect residential and other sensitive areas. A number of literature reviews are available which document both significant knowledge gaps and risks to public health, including:

1. Concerned Health Professionals of New York, Physicians for Social Responsibility, Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction), Sixth Ed. (June 2019)50
2. Hays, Jake and Seth B. C. Shonkoff, Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015, PLoS ONE 11(4): e0154164. e0154164. doi:10.1371/journal.pone.0154164 (2016)51
3. A searchable and exhaustive citation database of peer-reviewed journal articles pertaining to shale gas and oil extraction, including air quality and health impacts, is housed on the PSE Healthy Energy website at https://www.psehealthyenergy.org/our-work/shale-gas- research-library/

The Wayne National Forest contains many private inholdings where people live and farm, but the proximity of oil and gas activities to communities and homes is not acknowledged in the Draft Assessment. State regulations do not provide minimum setbacks in rural areas.

[egrave] The Assessment should provide a comprehensive evaluation of the public health risks of fracking; describe any public health standards for the protection of local communities from oil and gas and any regulatory gaps; and acknowledge the threat to communities within and around the Wayne.

E. The Draft Assessment[rsquo]s discussion of wildlife resources is incomplete

The Assessment should acknowledge that existing leasing stipulations for the protection of bats, such as the

endangered Indiana bat, are outdated in light of climate change and other threats to these species.

An October 2016 U.S. Fish and Wildlife Service (USFWS) document identified as [ldquo]Proposed email to Bureau of Land Management on how individual projects could be reviewed[rdquo] reveals problems with the Forest Service[rsquo]s standard oil and gas stipulations for lease parcels and

49 Draft Assessment at 59.

50 Available at https://www.psr.org/wp-content/uploads/2019/06/compendium-6.pdf.

51 Available at http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154164.

how they are applied to lease parcels ([ldquo]USFWS document[rdquo]).52 The USFWS document notes that Stipulation 1 [ldquo]indicates that work in floodplains will be restricted,[rdquo] but the Fish and Wildlife Service [ldquo]encourages the inclusion of wording to prohibit all activity within wetlands. Indiana bats will forage over wetlands and wetlands are often the sources of prey for the Indiana bat.[rdquo] Id. at 1. Stipulation 16, however, states [ldquo]oil and gas activities may be allowed within that portion of a floodplain outside riparian areas.[rdquo] Accordingly, the Forest Service should consider prohibiting all oil and gas activity in wetlands.

Second, Stipulation 12 is intended to protect summer roosting habitat for bats and direct harm to bats by prohibiting clearing of this habitat in the summer roosting season (April 15- September 15). The USFWS document notes that Stipulation 12 (erroneously referred to as [ldquo]Stipulation 8[rdquo]) should not be limited to [ldquo]Known Locations of Indiana Bat,[rdquo] as the heading suggests, but that these stipulations should be applied all across the Forest. This is because:

Comprehensive bat surveys across WNF have not been conducted and Indiana bats may occur anywhere that has suitable habitat. Removal of any potential Indiana bat roost trees throughout WNF should be conducted during the winter regardless of whether or not Indiana bats have been identified in the immediate area.53

Accordingly, Stipulation 12 should apply to all of the proposed lease parcels, rather than just those on which the Indiana bat is known to occur.

In addition, the document notes that [ldquo]the dates listed in the stipulation [September 15- April 15] are outdated. New research has been conducted that indicates that bats are arriving earlier and staying later than previously documented. The [FWS[rsquo]s] current recommendation for seasonal removal of potential habitat is that trees may be removed between October 1 and March 31 in areas outside the vicinity of known or suspected hibernacula.[rdquo]54 These changes in bat hibernation and migration patterns, which likely result from climate change,55 have never been considered by BLM or the Forest Service.

After we raised the above concerns with BLM in our comments on a September 2019 Lease Sale DNA, on July 1, 2019, Fish and Wildlife Service recommended that tree-cutting be limited to the period between October 1 and March 31:

The Service does recommend that in addition to the stipulations provided by the Wayne National Forest, that the any applicant (whether pursuing activities on

52 USFWS, Email from USFWS to U.S. Forest Service titled [ldquo]Letter for BLM[rdquo] (Oct. 3, 2016) ([ldquo]USFWS Document[rdquo]).The Conservation Groups discovered this document in the administrative record for the lawsuit challenging BLM[rsquo]s December 2016 and March 2017 lease auctions for the Wayne National Forest, in Center for Biological Diversity et al. v. U.S. Forest Service et al., 2:17-cv-372-MHW-KAJ (S.D. Ohio).

53 USFWS Document.

54 USFWS Document.

55 Bats as barometer of climate change, Science Daily (Feb. 12, 2018), available at https://www.sciencedaily.com/releases/2018/02/180212190935.htm; Sherwin, Hayley A., et al., The impact and

implications of climate change for bats, Mammal Review 43(3) (May 2012), available at https://www.researchgate.net/publication/228167919_The_impact_and_implications_of_climate_change_for_bats.

Federal or non-Federal surface) at a minimum be required to clear trees between October 1 and March 31 to avoid and minimize impacts to threatened and endangered bats. The Service will evaluate and provide specific recommendations that may include surveys or more restrictive clearing dates when BLM

conducts a section 7 consultation after they have received an application for a permit to drill.56

In response, BLM created a new stipulation titled, [ldquo]Tree Cutting Timing Limits and Consultation Requirements[rdquo] and added this stipulation to each parcel. This stipulation provides:

Based on BLM consultation with the U.S. Fish and Wildlife Service, tree clearing may be restricted to between October 1 and March 31 to avoid and minimize impacts to threatened and endangered bats. The U.S. Fish and Wildlife Service will evaluate and provide site specific recommendations that may include surveys or more restrictive clearing dates during consultation if/when a notice of staking or application for permit to drill is received.57

The stipulation, however, does not impose any new requirements, but simply provides that tree clearing [ldquo]may[rdquo] be restricted to between October 1 and March 31. It is also unclear whether an operator could be prohibited from conducting tree clearing on non-federal surface during the summer roosting season as recommended by the Service.

Further, no BLM or USFS decision document requires the imposition of the stipulations (thus there is no assurance they will be consistently attached to leases), and the stipulation has not been subject to any NEPA review analyzing its impacts or its effectiveness. For example, an EIS should address: (1) How early do bats typically emerge from hibernation in southeast Ohio or arrive for roosting in the Wayne National Forest, and how late do they leave for hibernation?

1. Are these periods of arrival and departure projected to shift even earlier or later over time?
2. Is the new stipulation protective enough in light of changing climate conditions over the next decade or more?
A NEPA analysis must also consider alternative measures, such as requiring a stipulation that applies to both private and federal surface, or a shorter period in which tree- clearing is allowed. For example, the Buckeye Xpress project prohibits tree clearing of known maternity roosting habitat from April 1 to October 15.58 The Forest Service should then select an appropriate stipulation based on the NEPA review and incorporate it into its Forest Plan.

Nor is there is any indication that BLM formally consulted with the FWS regarding potential impacts on listed bats in light of shorter hibernation seasons. New information that the summer roosting season is starting earlier and ending later [ldquo]may[rdquo] affect the Indiana bat and other listed species than previously considered, and triggers reinitiation of consultation.

56 Final DNA for September 2019 Lease Sale at 45 (emphasis added), available at https://eplanning.blm.gov/epl-front-office/projects/nepa/120494/177048/215742/DNAWayneNFMariettaUnit15EOIsFinal.pdf.

57 U.S. BLM, September 2019 Lease Sale Notice at 43 (emphasis added), available at https://eplanning.blm.gov/epl-front-office/projects/nepa/123355/20000275/250000339/Sept._12_2019_Signed_Lease_Sale_Notice.pdf.

58 FERC, Buckeye Xpress Project, Environmental Assessment (May 2019) at B-107, available at https://www.ferc.gov/industries/gas/enviro/eis/2019/CP18-137-EA.pdf.

[egrave] The Forest Service should acknowledge the impact of climate change on the Indiana bat and the need to update leasing stipulations to protect this species. Further, it should consider adopting stronger, science-based protections for the Indiana bat than the stipulations currently used by BLM.

In addition, the Assessment does not acknowledge that the Northern long-eared bat[rsquo]s status as a [ldquo]threatened[rdquo] species is currently under reconsideration by Fish and Wildlife Service, and that it could be upgraded to [ldquo]endangered[rdquo] status.59

[egrave] The Assessment should acknowledge the potential for the Northern long-eared bat[rsquo]s relisting as [ldquo]endangered.[rdquo]

F. The Assessment should acknowledge pipeline hazards in the national forest

The Forest Service[rsquo]s Assessment and analysis of oil and gas development and fracking in the Wayne National Forest should consider the impacts of pipelines, including safety hazards posed by gathering pipelines and transmission pipelines. Increasingly, pipelines have created safety hazards for communities, but state and federal governments have done little to avoid or minimize these risks.

Extensive networks of gathering pipelines are required for fracking operations. Gathering pipelines [ldquo]transport gases and liquids from the commodity's source - like rock formations located far below the drilling site - to a processing facility, refinery or a transmission line.[rdquo]60 [ldquo]Both the federal government and the states have jurisdiction over gathering pipelines, which is estimated to include 240,000 miles of onshore gathering pipelines. The Pipeline and Hazardous Materials Safety Administration (PHMSA) regulates both natural gas gathering pipelines and hazardous liquid gathering pipelines.[rdquo]61 However, many onshore gathering pipelines that are generally located in rural areas and operate at low pressures are not federally regulated nor subject to PHMSA regulation.62

Until recently, gathering pipelines have been considered to pose less of a safety risk than other types of pipelines because of the low pressures used to operate them. As a result, operators of these unregulated pipelines are not legally required to report risks or incidents.63 However, according to the U.S. Government Accountability Office, [ldquo]The increased extraction of oil and natural gas from shale deposits poses an increased risk to the public, partly because of the development of new and larger gathering pipeline infrastructure.[rdquo]64

59 See Memorandum Opinion in Center for Biological Diversity v. Everson, available at https://www.biologicaldiversity.org/species/mammals/northern_long-eared_bat/pdfs/Northern-Long-eared-Bat-Opinion-and-Order.pdf.

60 U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration, Gathering Pipelines FAQs (updated Aug. 20, 2018), available at: https://www.phmsa.dot.gov/faqs/gathering-pipelines-faqs.

61Id.

62 U.S. Government Accountability Office, Pipeline Safety: Collecting Data and Sharing Information on Federally Unregulated Gathering Pipelines Could Help Enhance Safety (2012) at PDF 2.

63 Id. at 9.

64 Id. at 12.

Increased shale oil and gas extraction has led to drilling and production in areas of the country not used to this activity. As a result of this ongoing activity and future growth projections, state and federal safety officials have identified new gathering pipelines associated with shale development as a potential public safety risk.65 Some of the new gathering pipelines have larger diameters and operate at higher pressures, like transmission pipelines, thus posing greater risk of explosion and catastrophic consequences in the event of an accident. But gathering pipelines are not regulated like transmission pipelines.66 Because operators of unregulated pipelines are not required to report pipeline incidents, retrieving accurate data on the number of injuries or fatalities is hard to find and based on estimation.

[ldquo]Pipelines face a number of risks[mdash]such as corrosion and excavation damage[mdash]that can damage the pipeline[rsquo]s integrity and result in leaks and ruptures.[rdquo]67 According to the U.S. Government Accountability Office, it is estimated that from 2004 to 2010, there was an average of about 16 fatalities per year for all pipeline incidents reported to PHMSA.68 According to FracTracker, which reviewed data collected from PHMS on cumulative impacts pipeline incidents it found that, [ldquo]since 2010, there have been

4,215 pipeline incidents resulting in 100 reported fatalities, 470 injuries, and property damage exceeding $3.4 billion.[rdquo]69 A pie chart created by FracTracker, diagramed the causes of pipeline incidents for all reports received from January 1, 2010 through November 4, 2016. The number one cause of pipeline incidents is equipment failure and the second cause of pipeline incidents is corrosion failure.70

[ldquo]The significant and expected growth in the nation[rsquo]s production and use of natural gas is placing unprecedented demands on the nation[rsquo]s pipeline system, underscoring the importance of moving this energy product safely and efficiently.[rdquo]71 [ldquo]Building new infrastructure, or replacing and modernizing old infrastructure, is expensive and requires a long lead-time for planning.

Frequently, the most inexpensive way to move new production to demand centers is by using

65 Id.

66 Id. at 12-13.

67 Id. at 4.

68 Id. at 4.

69 Kelso, Matt, Updated Pipeline Incident Analysis, FracTracker Alliance (Nov. 23, 2016), available at: https://www.fractracker.org/2016/11/updated-pipeline-incidents/.

70 Id.

71 Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines, 81 Fed. Reg. 20,724 (Apr. 8, 2016).

available existing infrastructure.[rdquo]72 Currently, the United States[rsquo] extensive pre-existing gas network is underutilized in three ways (1) pipelines are assets that reflect historic supply and demand trends; (2) pipelines are often sized to meet high initial production levels and have excess long-term capacity because of changing economics; and (3) pipelines were built specifically to provide gas to cold-weather regions for residential and commercial consumers but not for power generation, which are underutilized during off-peak seasons. In instances where the utilization of the existing pipeline network is high, the cost-effective solution is to add capacity to existing lines via compression. Adding compression is simpler and less costly than building a new pipeline. By adding compression it may raise the average pipeline operating pressures, exposing previously

hidden defects.73

Increasing changes in the natural gas industry have caused significant shifts in supply and demand and the nation[rsquo]s aging pipeline network faces increased pressures from these changes as well as from the increased exposure caused by a growing and geographically dispersing population.74 PHMSA has noted [ldquo]infrequent but severe accidents indicate that some pipelines continue to be vulnerable to failures stemming from outdated construction methods or materials.[rdquo]75 Where there is no federal regulation, [ldquo]severe pipeline accidents have occurred in areas outside of [high consequence areas].[rdquo]76 And even with regulation of gathering pipelines in Ohio, severe accidents have also occurred. Many of these explosions are due to leaks in the pipeline or failure to correct known defects. When these pipelines break, severe damage to the surrounding areas can occur, including human fatalities and destruction of homes.

Where Ohio, West Virginia, and Pennsylvania meet are the Marcellus and Utica shales, two gas-rich shale layers underground, which are tapped by fracking.77 Together these shale layers are [ldquo]generating nearly one-third of America[rsquo]s natural gas production.[rdquo]78 Residents in this tristate area are astonished by the pure hustle of the boom by the installation of new pipelines. [ldquo]Yet along with all of that has come a barrage of carcinogenic emissions, toxic waste and explosions of fracking well pads and pipelines, leaving many residents scared, outraged and with the nagging feeling that regulators cannot keep pace with industry.[rdquo]79Indeed, a number of recent pipeline accidents in recent years strongly suggest that regulators are not keeping pace with the industry.

In February 2011, a natural gas line explosion happened in a rural area in Hanover, Township in Ohio.80 The blast from the explosion was felt by residents in the surrounding area. Some residents were unsure where the blast came from, but could see the flames billowing into

72 Id. at 20,726.

73 Id. at 20,726-27.

74 Id. at 20,725.

75 Id. at 20,725.

76 Id. at 20,724.

77 Nobel, Justin, The Hidden Risk in the Fracking Boom, Rolling Stone (Feb. 20, 2019), available at: https://www.rollingstone.com/politics/politics-features/pipeline-explosions-fracking-796569/.

78 Id.

79 Id.

80 Ohio Gas Pipeline Explosion Shakes Houses, Firehouse (Feb. 11, 2011), available at: https://www.firehouse.com/home/news/10463922/ohio-gas-pipeline-explosion-shakes-houses.

the air. [ldquo]One resident likened the explosion to a sonic boom.[rdquo]81 The blast blew away a section of a road, leaving nothing but a crater.82 One house was damaged and homes were evacuated.

In 2009, construction of the $7 billion REX natural gas pipeline was finished. The pipeline runs from the gas fields of Colorado through Ohio to the edge of Pennsylvania. It is one of the nation[rsquo]s most ambitious infrastructure projects in a quarter-century.83 [ldquo]Six weeks after passing a battery of final pressure tests, the line leaked natural gas-triggering an evacuation of nearby homes in southeastern Ohio.[rdquo]84 A leak in the pipeline that had been previously flagged for poor construction techniques by federal safety inspectors, but REX had failed to fix it. This was not REX[rsquo]s first incident; they had a pattern of incidents, which led to PHMSA opening an investigation. PHMSA discovered the line had failed in the very 31 mile segment that was flagged by a federal welding inspector for unsound work five months before the incident.85

On January 21, 2019, a natural gas pipeline ruptured in Noble County in southeastern Ohio, creating a fireball that surged 120 feet into the air and engulfed a home with a 12-year-old boy inside. The boy was rescued by his grandfather from the inferno but suffered from burns on the back of his legs and neck and on the top of his head.86 One other person was injured and two homes were damaged. 87 [ldquo]It was the second time in three years that an explosion carrying a furious wave of burning methane gas had erupted into the lives[mdash]and bedrooms and living rooms[mdash]of residents living along this 76 year-old pipeline system.[rdquo]88 The pipeline is operated by Texas Eastern Transmission Pipeline and it is 9,029 miles long. The pipeline first exploded in April 2016 in Salem Township, Pennsylvania. The incident created a crater 50 feet long by 12 feet deep and generated a fireball that obliterated a home, melted a road and sent a 26 year-old man to the hospital with third-degree burns.89 The pipeline explosion in Noble County, Ohio was the second major pipeline explosion in the space of a year. The first explosion occurred on January 31, 2018 along a pipeline operated by Tallgrass Energy.90 [ldquo]In September 2018, a

natural-gas pipeline exploded in Beaver County, Pennsylvania on the Ohio border. Three months prior, in June, a pipeline had exploded in nearby Marshall County, West Virginia.[rdquo]91 People in this area live in fear that one day a ruptured pipeline will destroy their home and put them in harm[rsquo]s way.

On September 10, 2018, in Center Township, Pennsylvania, dozens of homes were evacuated because an Energy Transfer Corp. natural gas pipeline exploded causing a large fire

81 Id.

82 Balash, Michael, Gas pipeline explodes in rural Columbiana County, CantonRep.com (Feb. 11, 2011), available at: https://www.cantonrep.com/x163791193/Gas-pipeline-explodes-in-rural-Columbiana-County.

83 McCoyand, Craig R. & Joseph Tanfani, Ambitious U.S. gas pipeline illustrates hazards, Philly News (Dec. 10, 2011) (last accessed Dec. 21, 2018).

84 Id.

85 Id.

86 Nobel, Justin, The Hidden Risk in the Fracking Boom, Rolling Stone (2019).

87 Soraghan, Mike, Pipeline blast in Ohio linked to earth movement, E&E News (April 3, 2019), available at: https://www.eenews.net/energywire/stories/1060140829.

88 Nobel, Justin, The Hidden Risk in the Fracking Boom, Rolling Stone (2019).

89 Id.

90 Id.

91 Id.

that lasted for days. 92 The explosion and fire caused property damage. It was reported the cause of the explosion was due to seismic activity. A landslide happened a few feet from the pipeline, which is believed to have caused a structural defect in the pipeline, which led to the explosion.93

In early 2018, there were at least six pipeline explosions in Appalachia which were caused by landslides and other earth movements.94 Many of these explosions are happening because pipelines are being built on steep hillsides in an area that has a wet climate. [ldquo]That makes the land around pipelines more vulnerable to slipping.[rdquo]95 The Texas Eastern Transmission pipeline explosion in Noble County described above was likely caused by earth movement.96 [ldquo]Earth movement[mdash]such as landslides, erosion and sinkholes[mdash]can strain pipelines, leading to ruptures, spills and explosions.[rdquo]97 Steep areas in the Wayne National Forest are highly susceptible to earth movement.

Further, climate change will increase these risks. The Draft Assessment states, [ldquo]Land use change and altered precipitation and drought patterns linked to climate have resulted in stressors of concern to land managers, including increased runoff and flush events that affect watershed ability to absorb heavier flows.[rdquo]98 The Forest Service must analyze the effect climate change , including heavier precipitation, will have on pipelines in this area because the area is susceptible to heavy rain and soil erosion. It is expected climate change will alter hydrologic regimes by increasing the flow and frequency of heavy flows, which will then exacerbate sedimentation and washouts.99 The Draft Assessment notes heavier precipitation and less water retention could lead to property and infrastructure damage, which could be problematic for pipeline development, especially on hillsides or steep slopes.100 These problems could lead to landslides, earth movements, and pipeline breakage or explosions. The Forest Service will need to analyze these risks and address them accordingly.

Pipeline explosions can lead to devastating consequences, especially near highly populated areas. On April 17, 2017, an abandoned pipeline exploded in the town of Firestone, Colorado that destroyed one home, seriously injured one person, and killed two people.101 The cause of the explosion was an abandoned pipeline that was cut off underground and left uncapped which was connected to a natural gas well with a valve. The valve was open at the time of the explosion.102

92 Sandoval, Polo, Natural gas line explosion leads to evacuations in western Pennsylvania town, CNN (Sept. 10, 2018), available at: https://www.cnn.com/2018/09/10/us/pennsylvania-gas-explosion/index.html.

93 Shumway, John, Massive Gas Line Explosion, Fire Prompt Evacuations in Center Twp., KDKA2 CBS Pittsburgh, (Sept. 10, 2018), available at: https://pittsburgh.cbslocal.com/2018/09/10/center-township-gas-line-explosion-fire/.

94 Soraghan, Mike, Landslides, explosions spark fear in pipeline country, E&E News (June 4, 2019), available at: https://www.eenews.net/energywire/stories/1060472727/search?keyword=ohio+gathering+pipeline+safety.

95 Id.

96 Soraghan, Mike, Pipeline blast in Ohio linked to earth movement, E&E News (April 3, 2019), available at: https://www.eenews.net/energywire/stories/1060140829.

97 Id.

98 Forest Service, Draft Assessment Wayne National Forest, January 2020 at 52.

99 Id. at 52.

100 Id. at 53.

101 Lee, Mike and Mike Soraghan, Abandoned gas line caused Colo. home explosion, E&E News, May 3, 2017.

102 Id.

On September 13, 2018, a series of gas explosions in three Massachusetts neighborhoods ignited at least 39 homes. The explosions killed a teenager and left at least 13 other people injured. Eyewitnesses described the accident site as [ldquo]Armageddon.[rdquo] 103 The pipeline explosions were caused by Columbia Gas and a crew they contracted to replace aging gas pipes. When the crew disconnected the old system it disabled the gauges, and the full flow of high-pressure gas was released into the system. Because there were no sensor monitors there was no accurate read of how high the pressure was, which caused the explosions.104

In 2010, in San Bruno, CA a natural gas pipeline explosion killed 8 people; more than 50 people were injured. The cause of the San Bruno explosion was a leak in a PG&E underground pipeline and increased pressure on the line.105 PG&E was aware of the bad seam in the pipeline and was required by federal law to inspect all gas transmission pipelines but failed to properly check the bad seam. While the Massachusetts and San Bruno pipeline explosions did not involve gathering lines, they illustrate the grave threat posed by pipeline explosions in residential areas.

To address issues involving higher pressure gathering lines, PHMSA is proposing to issue requirements for certain currently unregulated gas gathering pipelines that are intended to prevent the most frequent causes of failure, but these rules have not yet been finalized.

PHMSA[rsquo]s Notice of Proposed Rulemaking proposes to revise the Pipeline Safety Regulations regarding the safety of onshore gas transmission and gathering pipelines.106 But even when gathering pipelines are regulated), regulation may not be enough to prevent accidents. As illustrated above, devastating pipeline accidents have occurred in southeast Ohio despite Ohio[rsquo]s regulation of gas-gathering lines.

[egrave] In sum, the Forest Service should acknowledge and fully analyze the potential for oil and gas leasing to increase pipeline development in the Wayne National Forest, including high-pressure gathering lines and transmission lines; safety hazards of these pipelines and risks to surrounding communities and recreation; and the increased risk of pipeline accidents with climate change.

G. The Draft Assessment must assess federal oil, gas, and coal development[rsquo]s contribution to climate change

The Draft Assessment must provide a thorough evaluation of the direct, indirect, and cumulative contributions of federal oil, gas, and coal development to climate change. In its current form, the Draft Assessment provides myriad examples of climate change impacts to the Wayne National Forest and its ecosystems, but provides no discussion on the Wayne National Forest[rsquo]s contribution to that climate change through oil, gas, and coal development. The [ldquo]Non- Renewable Energy Development[rdquo] section of the Draft Assessment (starting at 60) lacks any

103 CBS News, [ldquo]It looked like Armageddon[rdquo]: Deadly gas blasts destroy homes, spark fires, September 14, 2018, available at: https://www.cbsnews.com/news/lawrence-ma-fire-gas-explosion-suspected-2018-09-13-live-updates/. 104 Zraick, Karen, Faulty Work by Gas Company Caused Massachusetts Explosions, Officials Say, The New York Times, October 12, 2018, available at: https://www.nytimes.com/2018/10/12/us/columbia-gas-explosions-boston- ma.html.

105 Derbeken, Jaxon Van, How PG&E missed chance to avert San Bruno blast, SFGate, May 23, 2015, available at: https://www.sfgate.com/bayarea/article/How-PG-E-missed-chance-to-avert-San-Bruno-blast-6283494.php.

106 81 Fed. Reg. at 20,722.

discussion of greenhouse gas pollution from federal oil, gas, or coal development on the Wayne National Forest, regionally, or nationally.

This omission is fatal for the Assessment[rsquo]s [ldquo]need for change.[rdquo] As the Forest Service states, the Assessment [ldquo]is intended to be a rapid evaluation of existing information on the current and changing ecological, social, and economic conditions prevalent across the Wayne National Forest[rdquo] that [ldquo]informs the [lsquo]need to change[rsquo] the current forest plan.107 Ignoring greenhouse gas pollution from federal oil, gas, and coal development starves the Assessment from a discussion of climate change causes and effects and precludes any rational discussion of [ldquo]need for change[rdquo] as relates to future federal oil, gas, and coal development. Before rendering a [ldquo]need for change,[rdquo] the Forest Service must complete a draft assessment that evaluates the direct, indirect, and cumulative contributions of federal oil, gas, and coal development to climate change, and the impacts of that climate change to the various natural resources of the Wayne National Forest.

As we have discussed in many previous submissions to the Wayne National Forest, scientific research has established that there is no room in the global carbon budget for new fossil fuel extraction if we are to avoid the worst dangers from climate change. Instead, new fossil fuel production and infrastructure must be halted and most existing production must be phased out to meet Paris Agreement climate targets and avoid catastrophic climate dangers. The cumulative lifecycle emissions from oil, gas, and coal development in the Wayne National Forest should be evaluated in this context, and in the context of global and U.S. carbon budgets necessary to avoid catastrophic climate change effects. Insofar as the Forest Service[rsquo]s [ldquo]need for change[rdquo] seeks to minimize climate change impacts to the Wayne National Forest, the Forest Service should not be committing to new fossil fuel development and infrastructure on our public lands that locks in carbon-intensive oil, gas, and coal production for years into the future.

H. The Forest Service should correct statements regarding its ability to control federal surface activities related to development of underlying private minerals

The Draft Assessment misstates the Forest Service[rsquo]s ability to restrict oil and gas development activities on federal surface related to private mineral development:

In Ohio, as in many other states, the owner of the mineral estate has a legal authority to make reasonable use of the surface to produce their minerals. Where mineral rights are privately owned beneath the federal surface estate, the Forest Service is limited in its ability to regulate surface activities. This means that even when the surface is owned by the Federal Government and administered by the Wayne National Forest, the Forest Service must grant reasonable access and use of the surface for the private owner or their designated entity to develop the private mineral estate.108

This statement appears to express the view that the Forest Service cannot refuse the use of federal surface overlying private minerals, in apparent reliance on the Third Circuit[rsquo]s ruling in Minard Run Oil Co. v. United States Forest Service, 670 F.3d 236 (3d Cir. 2012). In that case, the court interpreted the Weeks Act to [ldquo]require[] that any rules or regulations that the Secretary

107 Draft Assessment at 1.

108 Mineral Supplemental Report at 3.

wishes to apply to easements reserved by the grantor [] be [lsquo]expressed in and made part of[rsquo] the instrument of conveyance.[rdquo] Id. at 252 (quoting United States v. Srnsky, 271 F.3d 595 (4th Cir. 2001)). In that case, almost all of the lands at issue were acquired for the Allegheny Forest under the 1911 regulations to the Weeks Act, which did not require private mineral owners to obtain a permit for use of the overlying federal surface. Id. at 243 & n.1. Thus, the court held the mineral owners were not required to obtain a permit, and the Forest Service could not deny use of the surface or require NEPA review of proposed surface uses. However, multiple commentators have questioned the court[rsquo]s reasoning in that case. See, e.g., Jeremy Goldstein, Minard Run Oil Co. v. U.S. Forest Service: Split Estates in the Allegheny National Forest, 39 Ecology L.Q. 635, 640 (2012) (noting that the holding in Minard Run and in a separate case in the Fourth Circuit are [ldquo]directly at odds with conclusions reached by the Sixth, Eighth, Ninth, and Tenth Circuit courts.[rdquo]); Jessica Diaz, A Forest Divided: Minard Run Oil Co. v. U.S. Forest Service and the Battle over Private Oil and Gas Rights on Public Lands, 40 Ecology L.Q. 195, 209 (2013)(in reaching its conclusion, [ldquo]the court overlooked alternative explanations for why Congress may have drafted this language the way it did[rdquo]).

Even if Minard Run were correctly decided, its holding is largely not applicable here. The Wayne National Forest was established in 1934, and probably the vast majority of its lands were acquired after 1937,109 when the following permit requirement for federal surface use came into effect:

In conformity with the provisions of Section 9 of the Act approved March 1, 1911 (36 Stat. 961) [i.e., the Weeks Act], I, Henry A. Wallace, Secretary of Agriculture, do hereby establish the following regulations to govern the extraction of minerals, oil, gas, and other inorganic resources from lands purchased by the United States under authority of said Act of March 1, 1911, as amended, in cases where the right to extract such mineral resources is

to be reserved by the vendor by stipulation in the deed of conveyance to the United States.

Whoever begins such operations must, on demand, exhibit to the Forest Officer in charge satisfactory evidence of authority from the grantor so to do, and must comply with the following requirements:

1. Only so much of the surface of the land shall be used or disturbed as is necessary in the bona fide prospecting, mining, drilling or manufacturing of the minerals; but no right to so occupy, use or disturb such land shall be recognized unless the recorded owner of the reserved mineral, or his legally authorized representative, shall have applied for and received from the Forest Supervisor a permit authorizing such use or occupancy, for which permit advance payment shall be made annually at the rate of $6.00 per acre or fraction thereof.

All buildings, camps, equipment and other structures shall be removed from the land within one year from date of completion or abandonment of the operation which shall be construed as being the date when payment of the permit charges

109 Kincaid, Dan B., Wayne National Forest: Model of Multiple Use, Journal of Forestry, Volume 80, Issue 7 (July 1982) (noting first tract was purchased in mid 1930s, and acquisition continued in 1940s and 1950s).

for the land terminates. Otherwise such buildings, camps, equipment, and other structures shall become the property of the United States.

Thus, the right to develop federal surface overlying private minerals was conditioned upon receipt of a permit from the Forest Supervisor. Accordingly, a 2007 Forest Service memo opines surface use permits are discretionary actions subject to NEPA:

Issuance of permits under Secretary's Rules and Regulations dated 1937, 1947, and 1963 [ldquo]involves federal action and NEPA compliance. Issuance of an occupancy permit pursuant to these Rules and Regulations is overt federal action. This action involves the exercise of discretion[hellip]because the Forest Service has latitude in developing permit conditions. Although the language of the 1937 Regulation is general, the mineral owner must still apply for and receive a permit prior to occupancy. Accordingly, NEPA applies to this exercise of discretion, i.e. issuance of permit with terms and conditions governing surface use, under the Secretary[rsquo]s Rules and Regulations 1937, 1947, and 1963.110

[egrave] The Forest Service should acknowledge in the Assessment its discretion to permit or deny federal surface development for the development of underlying private minerals.

I. The forest planning process should be guided by the specific conditions and management needs of each forest unit and its watersheds

Finally, we reiterate several overarching concerns we raised in our initial comments before the release of the Draft Assessment, which the Draft Assessment does not seem to address. The Wayne National Forest is composed of three non-contiguous units spanning twelve counties, each with different resources, plant and wildlife species, and management challenges. Accordingly, each unit should be managed according to its specific resource conditions. For example, the Athens and Ironton units suffer higher levels of stream impairment due to pollution and acid mine drainage from previous mining, while the Marietta Unit[rsquo]s Little Muskingum River basin contains many highly pristine waterways, but suffers from agricultural-related nonpoint source pollution. In addition, the Ironton Unit contains the largest areas of intact interior forest of all three units, making it especially important for interior forest species.

The 2006 Forest Plan, however, projects and analyzes forest-wide development levels for the entire forest without regard to the differences between each unit and its resources. For example, under the 2006 Forest Plan, 50 acres of utility corridor development is allowed across the entire forest (now purportedly increased to 500 acres), but this forest-wide cap fails to take into account the different impact this level of development would have in the Marietta Unit[rsquo]s high-quality watersheds compared to the Athens or Ironton Units, or the difference in fragmentation effects between development in the Ironton Unit[rsquo]s large blocks of interior forest versus more fragmented management areas. The revised forest plan should set limits on development for each management area and/or watershed according to the specific local resource conditions and management needs of each area or watershed, rather than treat all development

110 U.S. Forest Service, Memo from Paul M. Stockinger, Director, Air, Water, Lands, Soil Minerals and Environmental Services, to Associate Regional Attorney, Office of the General Council re Applicability of NEPA to Private Mineral Estates in Region Nine (March 20, 2007).

acreage allowances as interchangeable. Accordingly, the Assessment should address conditions in the national forest on an individual unit-basis and not merely on an aggregate forest-wide basis.

Finally, with respect to oil and gas development, the Assessment must identify all lands that could be potentially leased for oil and gas development on a map (including reserved or outstanding mineral interests underlying federal surface that could transfer to federal ownership in the future). This would inform the Forest Service[rsquo]s identification of areas that should be open or closed to oil and gas development, the areas in which proposed oil and gas stipulations should apply, and alternatives to those proposals[mdash]all of which must be identified on maps. See 36

C.F.R. [sect] 228.102(c)(1)-(2). The current Forest Plan does not provide these required maps. The maps would in turn inform an environmental effects analysis of each alternative, and facilitate meaningful public disclosure of

specific resources that could be impacted by oil and gas development.

Sincerely,

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