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Dear officials Wadzinski, Scardina, and Atkinson:

I object on many grounds to plans to consider leasing of mineral rights under Wayne National Forest land for oil and gas extraction. I will include here only a few of the dozens and dozens of reasons that this plan is both dangerous and illegal. Note that my submission of comments does not mean that I consider this process legitimate, which I do not. I intend to provide substantiation of my concerns in the future as I have in the past. Please see materials I provided to Wayne National Forest Supervisor Anne Carey between October 2011 and August 2012 as well as the following objections:

1. This flawed, haphazard planning process is not supported by a Forest Plan or by a supplemental EIS *as it must be*<sup>1</sup>, since the 2006 Wayne National Forest Plan did not evaluate fracking, the technology that would be used, and since the potential impacts of fracking on the human environment are highly significant,<sup>2</sup> with new research documenting associations between birth outcomes and proximity to oil and gas operations among many other serious health impacts.<sup>3</sup> The third edition of the *New York Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)*, published in October, 2015 (a fully referenced public open source document at [concernedhealthny.org](http://concernedhealthny.org)), states:

More than 100 new studies on the impacts of fracking have appeared in the peer-reviewed literature since public health concerns so famously led to a ban on high

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<sup>1</sup> 36 CFR 219.2 and 219.5. Note too that plans should be revised as necessary to “adapt to changing conditions, including climate change, and improve management based on new information...” And (219.2 (b) (2): “A plan does not authorize projects or activities or commit the Forest Service to take action. A plan may constrain the Agency from authorizing or carrying out projects and activities, or the manner in which they may occur. Projects and activities must be consistent with the plan (§ 219.15).”

<sup>2</sup> 40 CFR 1502.9(c): Agencies: (1) Shall prepare supplements to either draft or final environmental impact statements if: (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. See also explanation of meaning of significantly in terms of context (for example, the affected region) and intensity, for example, “2) the degree to which the action affects public health and safety....4) The degree to which the effects on the quality of the human environment are likely to be highly controversial. 5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks, 6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration, and 7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.” at 40 CFR 1508.27 [emphasis added]

<sup>3</sup> Casey et al. 2015. Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania USA, *Epidemiology*, Stacy et al. Perinatal Outcomes and Unconventional Natural Gas Operations in Southwest Pennsylvania, *PLoS ONE* 10(6). See links to other research studies at [stateimpact.npr.org/pennsylvania/2015/10/09/pennsylvania-study-finds-link-between-gas-drilling-and-premature-births/](http://stateimpact.npr.org/pennsylvania/2015/10/09/pennsylvania-study-finds-link-between-gas-drilling-and-premature-births/)

volume fracking in New York—and since the second version of this document was released nine months ago... **Earlier scientific predictions and anecdotal evidence are now bolstered by empirical data, confirming that the public health risks from unconventional gas and oil extraction are real, the range of adverse impacts significant, and the negative economic consequences considerable. Our examination of the peer-reviewed medical and public health literature uncovered no evidence that fracking can be practiced in a manner that does not threaten human health. ... The evidence to date indicates that fracking operations pose severe threats to health, both from water contamination and from air pollution.** In the United States, more than two billion gallons of fluid are injected daily under high pressure into the earth with the purpose of enabling oil and gas extraction via fracking or, after the fracking is finished, to flush the extracted wastewater down any of the 187,570 disposal wells across the country that accept oil and gas waste. All of those two billion daily gallons of fluid is toxic, and it all passes through our nation's groundwater aquifers on its way to the deep geological strata below where it can demonstrably raise the risk for earthquakes. In the air above drilling and fracking operations and their attendant infrastructure, researchers have measured strikingly high levels of toxic pollutants, including the potent carcinogen benzene and the chemical precursors of smog. **In some cases, concentrations of fracking-related air pollution in communities where people live and work far exceed federal safety standards. Research shows that air emissions from fracking can drift and pollute the air hundreds of miles downwind.** With more than 15 million Americans already living within a mile of a fracking well that has been drilled since 2000, and with more than 50,000 new wells fractured per year over the past 15 years, the potential for exposure and accompanying adverse impacts is significant. [emphasis added]

This compendium and the other major studies it cites are essential reading for any manager in charge of decisions about enabling this technology to be practiced anywhere, especially on public land in Appalachia, already burdened as it is by extractive industries and their legacy of pollution and economic suppression.

2. The **SIR report conducted in 2012 is not a NEPA-based analysis**<sup>4</sup> and cannot substitute for a Forest-wide NEPA-based analysis.
3. The SIR furthermore cannot provide useful information to guide a NEPA-based evaluation because it is out-of-date and wholly inadequate in assessing even the environmental and economic risks to the surrounding community known in 2012, as a NEPA-based analysis must do.<sup>5</sup> For example,
  - a. It dismisses the significance of **water consumption** because it claims that water withdrawals would not come from the Wayne, ignoring that water withdrawals would come from the region's rivers and thereby potentially jeopardize water supplies, including drinking water supplies, throughout the county. It also hugely

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<sup>4</sup> Wayne NF SIR, 2012, p. 6: "The SIR itself is not a NEPA analysis or approval, nor is it a discrete or circumscribed agency action. It is interlocutory in nature and does not mark the consummation of a decision-making process or determine any legal rights. It simply is a review of available information, akin to a memorandum to the file, documenting assessment of the significance of new information."

<sup>5</sup> 40 CFR 1508.8 Effects Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. ... Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. [emphasis added]

underestimates the amount of water used per well and *conflates* “per well” and “per frack.” It does not account for **truck traffic** and attendant environmental and economic impacts for transport of this water to fracksites and transport of liquid and solid frackwaste away from the sites and through our counties.

- b. The SIR disregards the **impacts of highly toxic<sup>6</sup>, radioactive waste on the surrounding community**, which already receives burdensome amounts of waste without sufficient geologic evaluation of the ability of the receiving land to protect local water supplies (*Ohio does not require proof of any confining zone*) and *with no monitoring of groundwater or drinking water* by ODNR to determine the extent of contamination that may already be occurring from injection, dumping, and documented spills at industrial frackwaste receiving facilities in the region.
- c. It dismisses the potential environmental risks of **frackwaste stored in tanks, completely disregarding known risks of explosions**, which have caused large, long-lasting and highly toxic fires in Ohio (Monroe County, June 2014, where the fire lasted a week and killed over 70,000 fish alone) and around the nation, apparently triggered by lightning or mechanical, electrical problems, or “human error.”
- d. The SIR relies on Ohio law to protect the environment and human environment without basis. Ohio law is completely inadequate to protect against the hazards of fracking and frackwaste. For example, *Ohio law does not limit water withdrawals from rivers, lakes, and streams; it does not require a Class 2 injection well to have aquifer mapping or proof of a confinement zone before a permit is granted. Ohio does not require green completion or capture of VOCs from frackwaste storage tanks at fracking or injection sites. Ohio does not penalize injection well operators for violations, including failure of the well to meet periodic pressure tests. Spills of frackwaste at Athens County injection well operations are routinely not reported to Ohio EPA nor known frackwaste chemicals assessed in soil after spills, nor “clean-up” evaluated for adequacy. ODNR has no clean-up standards and only seems to test for chlorides!*
- e. Like the 2006 Plan, the SIR **does not evaluate socio-economic costs** to the community of becoming an industrial extraction and waste-receiving zone as a result of Forest Service actions. Documentation of economic impacts, including loss of real estate value, denial of insurance protection and mortgages, loss of tourism and of the ability of our institutions of higher learning to attract faculty and student, and of social impacts on communities and individuals who live with fracking, is readily available<sup>7</sup> and must be evaluated.<sup>8</sup> See for example the Ohio University Mineral Rights Committee report and recommendations to the OU Board of Trustees, adopted in spring 2012 and provided to Ms. Carey but not considered in the 2012

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<sup>6</sup> See among dozens of studies, E. Elliott et al, 2016. A systematic evaluation of chemicals in hydraulic \-fracturing fluids and wastewater [sic] for reproductive and developmental toxicity, *Journal of Exposure Science and Environmental Epidemiology*, pp 1-10; Yao, Y. et al, 2015. Malignant human cell transformation of Marcellus Shale gas drilling flow back water, *Toxicology and Applied Pharmacology* 288 (2015) 121–130.

<sup>7</sup> Cosgrove, B. et al. 2015. The Economic Impact of Shale Gas Development: A Natural Experiment along the New York / Pennsylvania Border, *Agricultural and Resource Economics Review* 44/2 (August 2015) 20–39; D. McCubbin, B.K. Sovacool. 2013. Quantifying the health and environmental benefits of wind power to natural gas, *Energy Policy* 53 (2013) 429–441; Perry, S. 2012. Development, Land Use, and Collective Trauma: The Marcellus Shale Gas Boom in Rural Pennsylvania, *Culture, Agriculture, Food and Environment* Vol. 34, Issue 1 pp. 81–92,

<sup>8</sup> 40 CFR 1508.14 Human environment: When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment.

SIR.

- f. It does not evaluate the **extensive known incidence of frack fluid and frackwaste migration into drinking water supplies** and claims that there is none. This inaccuracy alone is reprehensible, since much of this data was available in 2012. Much additional data, including the recent USEPA draft study (the data, not the misstatements about that data, now critiqued by the SAB) and the 2016 Burton et al. study<sup>9</sup> among many reports, are now available and must be taken into account by the FS before any further consideration of this dangerous project takes place.
  - g. Neither the 2006 Plan nor the non-NEPA-based 2012 SIR considers **climate impacts** of fracking, which are hugely significant.<sup>10</sup> With the greenhouse gas equivalent of methane 87-100 times that of CO<sub>2</sub> and methane leakage rates being close to 20% of gas extracted<sup>11</sup>, any increase in gas and oil extraction will have significant ghg impacts. Lifecycle CO<sub>2</sub> emissions of fracked gas and oil are also highly significant as well as significantly greater than emissions from conventional extraction and were not considered in the 2006 Plan or SIR. At a time when the nation and the world have committed to reducing ghg emissions, promoting fracking on our public forest is simply and clearly immoral.
  - h. Neither the 2006 FEIS nor the SIR accounts for the prospective presence of **orphan wells**, which according to a December 2015 Report of the Office of the Inspector General (#2015-EAU-057), are being highly mismanaged in the Wayne. These unmapped, uncapped, and often leaking wells provide uncontrolled pathways for methane and toxic radioactive frack waste to the surface and to drinking water supplies.
  - i. Neither the 2006 Plan nor the SIR evaluated the **cumulative impacts of toxic air emissions** from frack sites and other fracking infrastructure that is an indirect effect of increased fracking. Air emissions of toxic compounds are significant from all stages of extraction, production, transportation, and waste handling.<sup>12</sup>
4. The BLM/FS “public meetings” held in SE Ohio in November 2015 were likewise shameful charades of the public engagement requirement under NEPA and a waste of attenders’ time. One questioner in Marietta had to ask eight different officials where the water for fracking would come from before getting the non-answer that it was up to the operator. This response alone shows that the FS is not following NEPA and has not

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<sup>9</sup> T.G. Burton et al. 2016. Elucidating hydraulic fracturing impacts on groundwater quality using a regional geospatial statistical modeling approach, *Science of the Total Environment* Vol. 545–546, pp.114–126

<sup>10</sup> Howarth, R. 2014. A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas, *Energy Science & Engineering*. Caulton, D. et al. 2014. Toward a better understanding and quantification of methane emissions from shale gas development, *PNAS*.

<sup>11</sup> Schneising, O., J. et al. 2014, Remote sensing of fugitive methane emissions from oil and gas production in North American tight geologic formations, *Earth’s Future*, 2, 548–558; Ingraffea, A. et al. 2014. Assessment and risk analysis of casing and cement impairment in oil and gas wells in Pennsylvania, 2000–2012. *PNAS*.

<sup>12</sup> See for example, Macey et al. 2014. Air concentrations of volatile compounds near oil and gas production: a community-based exploratory study. *Environmental Health*, Vol. 13:82. <http://www.ehjournal.net/content/13/1/82>; Helmig, et al. 2014. Highly Elevated Atmospheric Levels of Volatile Organic Compounds in the Uintah Basin, Utah, *Environmental Science & Technology*, 48 (9), pp 4707–4715; Gilman, J.B., et al. 2013. Source Signature of Volatile Organic Compounds from Oil and Natural Gas Operations in Northeastern Colorado, *Environ. Sci. Technol.*, 47 (3), pp 1297–1305.; D. Brown, et al. 2014. Understanding exposure from natural gas drilling puts current air standards to the test, *Rev Environ Health*.

- evaluated significant potential effects of its actions on the human community: Our water is not renewable and is not for private industry to consume for profit by fracking our public lands!
5. Luckily, our federal government has a legal obligation to abide by the National Environmental Policy Act and must therefore evaluate significant potential effects of any action on the Forest and human environment, including on the economy of the surrounding community, before taking such action. **Consent is an action that will have significant effects and must be guided by a Plan or by an SEIS.**
  6. Congress's original mandate to the FS requires that National Forests provide long-term economic *benefit* to the public. The FS must evaluate how fracking our National Forest will cost (and benefit if there is any) the American public and the region in which it exists before considering consenting to the irremediable action of Consent, given that natural gas and oil extraction is most likely largely destined for export and places huge burdens on irreplaceable fresh water, causes climate-destroying ghg emissions that make gas worse for the climate than coal, and devastates health, roads, tourism and local economies. Where is the data of your assessment of these net costs (and benefits if there are any)? How can giving away leases for pennies benefit the American people when the costs to the public and to the future of our nation and planet are so outlandishly high, Mr. Scardina? Have you studied the relative economics and environmental impacts of clean renewable energy, Mr. Scardina? Have you read the Jacobson studies of the viability of these technologies to meet America's energy needs?
  7. There have been reports that Mr. Scardina claims it is not his job to grant consent. While it is correct that the Regional Forester must *inform* the BLM of the availability of lands to lease, this formal announcement must follow a thorough analysis at the Forest level, which "**shall be conducted by the authorized Forest officer** in accordance with the requirements of 36 CFR part 219 (Forest land and resource management planning) and/or, as appropriate, through preparation of NEPA documents." (36 CFR 228.102 (c)) Since the project is a Forest-level project, the Forest Supervisor is, by law, the default Forest officer.
  8. The Forest Supervisor, further, must evaluate the proposed action under NEPA in a way that "reflects the unit's expected distinctive roles and contributions to the local area, region, and Nation, and the roles for which the plan area is best suited, considering the Agency's mission, the unit's unique capabilities, and the resources and management of other lands in the vicinity. (36 CFR 219.2(b)(1))

The Wayne National Forest Supervisor clearly cannot consider granting consent to authorize the BLM to proceed with this dangerous and illegal plan to consider fracking our state's only National Forest and our region's lungs and economic lifeblood. A Forest-wide EIS – not a District-wide or site-specific EA – is the only legal and moral action that can be taken, Mr. Scardina, and you are in charge of making this happen. The Wayne is *your* responsibility. And, per CFR 36 and 40, it is your responsibility to see that the Wayne acts in ways to protect longterm environmental and economic sustainability of our community. We, the people who live here and who will live here long after you leave your post, expect you to do your legal and ethical duty as steward of our National Forest.

Sincerely,  
H Cantino, Athens OH 45701