

Before the United States Department of the Interior
Bureaus of Land Management
Northeastern States Field Office
LLESM03200

***Comments of Buckeye Forest Council,
Heartwood, Center for Health, Environment
and Justice and Athens County Fracking
Action Network on the
BLM's Draft Environmental Assessment***

NEPA #: DOI-BLM-Eastern States-0030-2016-0002-EA

**Oil and Gas Leasing, Wayne National Forest,
Marietta Unit of the Athens Ranger District,
Monroe, Noble, and Washington Counties, Ohio**

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RE: Comments on Draft Environmental Assessment, NEPA #: DOI-BLM-Eastern States-0030-2016-0002-EA (Marietta Unit, Athens Ranger District, Wayne National Forest)

Dear Mssrs. Wadzinski and Scardina:

The Buckeye Forest Council (“BFC”), Heartwood, the Center for Health, Environment and Justice (“CHEJ”) and Athens County Fracking Action Network (“AFCAN”) hereby comment upon the Draft Environmental Assessment (NEPA #: DOI-BLM-Eastern States-0030-2016-0002-EA) for oil and gas leasing in the Marietta Unit of the Athens Ranger District of Wayne National Forest in Monroe, Noble, and Washington counties of Ohio. The Draft Environmental Assessment for the Marietta Unit of “the Wayne” is the “EA” referenced in these comments.

I. The Public Deserves an Immediate 60-Day Extension to Comment on the EA

Note: The public has timely requested a 60-day extension of the May 31, 2016 deadline for commenting on the Marietta Environmental Assessment because of the complexity of the 113-page EA and the fact that somehow, the comment deadline was contrived to fall on May 29, 2016, a Sunday. The Forest Service’s grant of an “extension” until May 31 was gratuitous, inasmuch as federal law and regulation require a deadline ending on a holiday or weekend to be extended automatically to the next Federal Government business day. And at that, there was no widespread public announcement that the deadline was to be May 31.

Many potential commenters had Memorial Day weekend plans which did not include commenting on the Environmental Assessment. It is a disservice, given the gravity of the EA as a decisional document, for the public to not be allowed a time extension which affords citizens who were forced to choose between participating in a major environmental decision or enjoying a holiday to offer their comments. Fracking in a national forest cannot possibly be considered a matter of national urgency or emergency.

Given that the BLM/FS position is to allow fracking without further inquiry under

NEPA than the EA, and that the federal agencies have taken months to generate the EA, considerations of fairness about the proposed decision to allowing hydraulic fracturing beneath 18,000 acres of national forest land militate in favor of more time for public consultation. Accordingly, BFC, Heartwood, CHEJ and AFCAN members declare that they may submit comments which will be fully considered and added to the administrative record by the FS and BLM through the close of business on July 30, 2016.

II. Background Statement

The EA does not satisfy the requirements of the National Environmental Policy Act (“NEPA”), and the proposed lease sale violates the Mineral Leasing Act (“MLA”) and the Federal Lands Policy and Management Act (“FLPMA”). The Bureau of Land Management (“BLM”) and the U.S. Forest Service (“FS”) should produce a full Environmental Impact Statement (“EIS”) before, and in consideration of placing limitations on, any contemplated leases.

We are deeply concerned that new leasing within the Wayne would worsen the climate crisis. To preserve any chance of averting catastrophic climate disruption, the vast majority of all proven fossil fuels must be kept in the ground. Opening up new areas to oil and gas exploration and unlocking new sources of greenhouse gas pollution would only fuel greater warming and contravenes BLM’s mandate to manage the public lands “without permanent impairment of the productivity of the land and the quality of the environment.”

Indisputably, the FS and BLM recognize that new mineral leases will likely involve the highly controversial industry practices of high-volume horizontal hydraulic fracturing, or “fracking.” These practices deplete enormous water resources, risk toxic spills, contaminate air, and fragment and degrade habitat for species. The extraction of fossil fuels with these dangerous techniques undermines the protection of our public lands. Full compliance with the spirit and objectives of NEPA and other federal environmental laws and regulations require BLM and the FS to avoid these dangers altogether. Instead of promoting fracking, the FS and BLM should propose to ban new hydraulic fracturing and other unconventional well stimulation activities in the Wayne.

At a minimum, FS and BLM must fully address these issues in an Environmental Impact Statement (“EIS”) and in an amended Resource Management Plan (“RMP”). The current RMP for the Wayne does not address the relatively new and dangerous extraction methods of fracking and horizontal drilling, nor does it include any analyses of the impacts that potential greenhouse gas (“GHG”) emissions of federal fossil fuels (leased and unleased) or fracking and horizontal drilling have on the environment, on sensitive species, on shallow water table and wetlands, or on the increased risks from induced seismic activity. The FS and BLM must fully analyze the public health, environmental justice, and industrialization impacts of fossil fuel extraction and especially hydraulic fracturing across the entire Forest, since leasing is contemplated variously in all three units. The approach favored in the Environmental Assessment of piecemeal analyses of individual lease sales does not provide the appropriate perspective for examining the cumulative

effects of hydraulic fracturing and climate change impacts at the regional and landscape scale and for making land management decisions.

Consequently, we call for a moratorium on all new leasing of fossil fuels in the Wayne National Forest, at least until an updated, final, and approved RMP (that addresses issues such as fracking and GHG emissions) replaces the existing one. The BLM and FS should compile an Environmental Impact Statement that encompasses the proposal to undertake hydraulic fracturing within all three units of the Wayne National Forest. The EIS must consider a full range of alternatives, including a no-leasing alternative; an alternative that disallows new hydraulic fracturing and other unconventional well stimulation activities; consideration of alternate means of obtaining the energy sought to be retrieved via fracking; and should require strict controls on natural gas emissions and leakage. The draft Finding of No Significant Impact (FONSI) pending before the FS should not be adopted.

III. The 2006 FEIS Contains Scant, Insufficient Discussion Of Wayne-Specific Fracking.

The Forest Service and Bureau of Land Management are continuing to avoid the responsibility of disclosing, under the National Environmental Policy Act, the reasonably foreseeable effects of high-volume hydraulic fracturing in subsurface shale within the Wayne National Forest. The subject was barely mentioned in the 2006 Final Environmental Impact Statement and subsequent scrutiny has been superficial and nonpublic.

The 2006 FEIS and 2012 Supplemental Information Report (SIR) were legally and substantively inadequate to discharge the obligation under NEPA to discuss the direct and indirect environmental effects of fracking, as well as the cumulative impacts. The 2006 FEIS contains a generalized discussion of directional drilling, but in its brief discussion and few references to directional drilling,¹ the FS did not consider widespread hydraulic fracturing. There

¹All references to “directional drilling” within the 2006 FEIS are reproduced in this footnote. See 2006 FEIS p. 2-33:

Minerals underlying an NSO surface may be extracted by directional drilling. Directionally drilled wells are more expensive to drill and maintain, and their economic life is shorter than vertical wells. Also, they may not be appropriate for shallower oil and gas reservoirs. Also, FEIS p. 3-266:

Minerals underlying an NSO surface may be extracted by directional drilling if adjacent lands are available for leasing with surface occupancy or are privately owned. Directional drilling technology limits the distance a well can be located from its subsurface target, however. In some cases, directional drilling is neither technically nor economically feasible. Directionally drilled wells can be many times more expensive to drill and maintain, and their economic life is shorter than that of conventional wells.

An NSO designation on the WNF currently has the same effect as a ‘no leasing’ designation because: Most of the operators are small, independent businesses with limited resources and cannot justify the cost of directional drilling or state-of-the-art mineral assessment and mapping technologies.

was no presentation of the environmental, economic, or public health research, nor any data on deep-shale drilling and high-volume hydraulic fracturing. In 2006, the FS assumed the preferred extraction method for oil and gas would continue to be vertical drilling because of economics:

Directionally drilled wells are more expensive to drill and maintain, and their economic life is shorter than vertical wells. Also, they may not be appropriate for shallower oil and gas reservoirs.

Final Environmental Impact Statement (2006 Forest Plan Final EIS) (U.S. Forest Service, 2005) (“2006 FEIS”), p. 2-33. According to the FS, it would be years before hydraulic fracturing would become widespread in the Wayne:

This kind of operator feedback coupled with the fact that only 12 wells out of 1,704 permitted during the 10 year period were directional wells, suggest that this type of technology is still not yet economically feasible within the WNF.

2006 FEIS Apx. G, p. G-5.

Even as the FS predicted an oil and gas scenario largely without fracking in the Wayne, the “2006 Record of Decision for the Final Environmental Impact Statement” expanded the allowed surface occupancy area in the Marietta Unit:

I have selected the alternative that will allow surface occupancy on 96% of the Marietta Unit, which is the area of the Forest that has the highest potential for continued oil and gas development. The 1988 Plan allowed surface occupancy on 82% of the

And, FEIS Apx. p. G-4:

Given the availability of directional drilling techniques, it is possible for a surface location to be offset from its intended bottomhole location.

Finally, FEIS Apx. p. G-5:

The Oil and Gas Potential Analysis contained in the 1992 Amendment #8 to the WNF Forest Plan concluded that directional or horizontal drilling would not be economically feasible in the Forest. It further stated that given the unwillingness of operators to use directional drilling methods, applying no surface occupancy restrictions on tracts over 20 acres in size would in effect, prevent the tract from being developed. Since 1992, there have been a dozen wells drilled and completed using directional drilling methods in the 12 county area where the WNF is located. None of these wells were drilled on the Forest. Ten of the 12 wells were drilled to target formations over 4000 feet deep while the remaining two wells used horizontal drilling technology in formations that were 2,200 to 2,700 feet in depth. The operators of the two shallower horizontal wells reported technical problems that needed to be resolved before use of horizontal techniques can be considered economically feasible. This kind of operator feedback coupled with the fact that only 12 wells out of 1,704 permitted during the 10 year period were directional wells, suggest that this type of technology is still not yet economically feasible within the WNF.

Marietta Unit.

ROD p. 14.

A sea change in the government's view of the economic feasibility of fracking registered in 2012, well after the 2006 ROD was issued. In a May 3, 2012 letter from Mark Storzer of the BLM to Anne Carey as the then-supervisor of Wayne National Forest, the BLM admitted, in contradiction to the earlier pronouncement, that "given advances in technology, horizontal drilling is now economically viable in certain areas of the WNF." But despite this conclusion, incorporated into the 2012 Supplemental Information Report (SIR), the FS did not seek to supplement the 2006 FEIS with identification and discussion of direct and indirect effects from fracking, nor with cumulative effects across the entire forest. Indeed, in the SIR, the BLM acknowledged that it was "not a NEPA analysis or approval . . . 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." SIR p. 6. Despite the 180-degree reversal of the agencies' outlook for fracking in the Wayne, the BLM declined to revise the factual predicate.²

In the 2006 FEIS, the Forest Service decided to hold only 4% of the Marietta Unit apart from possible oil and gas drilling, by which the FS meant mostly conventional vertical well development. The received wisdom in 2012 acknowledged that the Federal agencies understood that as a result of the 2006 ROD, 96% of the Marietta Unit would likely be exposed to fracking. But there has never been any NEPA-guided analysis of the environmental implications, nor any exploration of alternatives. The FS and BLM propose to lease tens of thousands of acres for fracking, without ever having analyzed, even programmatically, the multiple environmental insults caused, directly and indirectly, and cumulatively, from fracking in the difficult terrain, hydrology and geology of the Wayne. There never has been a comprehensive analysis of the impacts of fracking in the Wayne National Forest that applies increased knowledge of the underlying geology and a practical grasp of the contemporary state of fracking technology to quantify the prospects and anticipated damage that would follow from large-scale fracking in the Wayne. The BLM and FS must not be allowed to tier off from the outdated and insufficient 2006 FEIS their plans to lease 40,000 or more surface acres for fracking.

IV. Significant New Information and Circumstances Require A Supplemental EIS.

Ideally, the 2006 FEIS, which was a "Programmatic Environmental Impact Statement," or PEIS, is supposed to facilitate the production of subsequent project-level EIS's or Environmental Assessments through the process of "tiering." "Tiering" refers to the assessment of general matters in broader environmental impact statements (PEIS's) with subsequent narrower analyses (such as regional program statements or ultimately site-specific EIS's), that merely reference the

²Because the BLM and FS did not consider the SIR to be a NEPA review, they convened no public process and denied the public any opportunity to review and comment.

general assessment while concentrating mostly on the issues specific to the individual contemplated action.³ “This process allows an agency to avoid duplication of paperwork through the incorporation by reference of the general discussions and relevant specific discussions from an [EIS] of broader scope into one of lesser scope or vice versa.” “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act,” 46 Fed. Reg. 18,026, 18,033 (Mar. 23, 1981).

In the context of national forest management, the programmatic stage is the level “at which the [agency] develops alternative management scenarios responsive to public concerns, analyzes the costs, benefits and consequences of each alternative in an EIS, and adopts an amendable forest plan to guide management of multiple use resources.” *Ecology Ctr., Inc. v. U.S. Forest Serv.*, 192 F.3d 922, 923 n.2 (9th Cir. 1999). Following the programmatic stage is the “implementation stage during which individual site specific projects, consistent with the forest plan, are proposed and assessed.” *Id.* A programmatic EIS must provide “sufficient detail to foster informed decision-making” in the next-tier decision. *Ilio 'ulaokalani Coalition v. Rumsfeld*, 464 F.3d 1083, 1094 (9th Cir. 2006).

Federal regulations require “that oil and gas leasing of the specific lands has been adequately addressed in a NEPA document, and is consistent with the Forest land and resource management plan.” 30 C.F.R. § 228.102(e)(1). The same regulation states that:

If NEPA has not been adequately addressed, or if there is significant new information or circumstances as defined by 40 C.F.R. § 1502.9⁴ requiring further environmental analysis, additional environment analysis shall be done before a leasing decision for specific lands will be made. If there is inconsistency with the Forest land and resource management plan, no authorization for leasing shall be given unless the plan is amended or revised.

Id.

The 2006 FEIS/PEIS no longer adequately addresses NEPA. It fails to encompass

³ A typical example of tiering occurs with respect to U.S. Forest Service forest management plans for large geographic areas. *See, e.g., Salmon River Concerned Citizens v. Robertson*, 32 F.3d 1346 (9th Cir. 1994). *See also, Churchill County v. Norton*, 276 F.3d 1060, 1081 (9th Cir. 2001), *cert denied*, 537 U.S. 822 (2002) (rejecting challenge that broad-ranging water-rights act mandated programmatic EIS for agency’s proposed acquisition of specific water rights, because the diverse actions under the act were not connected to, nor had synergistic or cumulative effects with, the proposed action) (Segmentation & PEIS case).

⁴Where significant new circumstances or information arise after the completion of an EIS, NEPA requires the preparation of a supplemental EIS. *See* 40 C.F.R. § 1502.9(c)(1). An agency must prepare a supplemental EIS when “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” *Id.* § 1502.9(c)(1)(ii).

significant new information. Even if at one time the 2006 FEIS discussion of directional drilling and/or hydraulic fracturing were adequate, it is no longer true. New scientific and engineering information about fracking's capabilities, environmental consequences, and public health threats or actual damage compel that there be a major overhaul, in the form of a Supplement to the 2006 FEIS.

**A. Expanded use of fracking technology and its toxic effects are
'significant new information'**

Hydraulic fracturing was new to Ohio in 2006. Since 2006's Forest Plan, the extraction technology known as high volume hydraulic fracturing ("HVHF"), or "fracking," has become widespread and opened new shale gas reserves to development that had, until recently, been considered unrecoverable.

The new technology represents a sharp departure. Over the last decade, fracking has led to major changes in land use, including national forest land use in places like Pennsylvania and Arkansas, with environmental and social impacts well beyond those experienced with conventional drilling. The effects of fracking on land use, water quality, forest fragmentation, wildlife, and the recreational uses are now well-documented.

The EA cannot reasonably ignore the demonstrated likelihood of increased use of hydraulic fracturing and/or other unconventional recovery techniques within the expected leasing area. Elements of these technologies have been used individually for decades, but the combination of practices employed by industry recently is new. Hydraulic fracturing, a dangerous practice in which operators inject toxic fluid underground under extreme pressure to release oil and gas, has greatly increased industry interest in developing tightly held oil and gas deposits such as those in the proposed lease area. The first aspect of this technique is the hydraulic fracturing of the rock. When the rock is fractured, the resulting cracks in the rock serve as passages through which gas and liquids can flow, increasing the permeability of the fractured area. To fracture the rock, the well operator injects hydraulic fracturing fluid at tremendous pressure. The composition of fracturing fluid has changed over time. Halliburton developed the practice of injecting fluids into wells under high pressure in the late 1940s; however, companies now use permutations of "slick-water" fracturing fluid developed in the mid-1990s.⁵

The main ingredient in modern fracturing fluid (or "frack fluid") is generally water, although liquefied petroleum has also been used as a base fluid for modern fracking. The second ingredient is a "proppant," typically sand, that becomes wedged in the fractures and holds them

⁵New York State Department of Environmental Conservation, *Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program, Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs* at 5-5 (Sep. 7, 2011) ("NYDEC SGEIS") at 5-5.

open so that passages remain after pressure is relieved. In addition to the base fluid and proppant, a mixture of chemicals are used, for purposes such as increasing the viscosity of the fluid, keeping proppants suspended, impeding bacterial growth or mineral deposition.

Fracking fluid is hazardous to human health, although industry's resistance to disclosing the full list of ingredients formulation of frack fluid makes it difficult for the public to know exactly how dangerous. A congressional report sampling incomplete industry self-reports found that "[t]he oil and gas service companies used hydraulic fracturing products containing 29 chemicals that are (1) known or possible human carcinogens, (2) regulated under the Safe Drinking Water Act for their risks to human health, or (3) listed as hazardous air pollutants under the Clean Air Act."⁶

Recently published scientific papers also describe the harmfulness of the chemicals often in fracking fluid. One study reviewed a list of 944 fracking fluid products containing 632 chemicals, 353 of which could be identified with Chemical Abstract Service numbers.⁷ This study concluded that more than 75 percent of the chemicals could affect the skin, eyes, and other sensory organs, and the respiratory and gastrointestinal systems; approximately 40 to 50 percent could affect the brain/nervous system, immune and cardiovascular systems, and the kidneys; 37 percent could affect the endocrine system; and 25 percent could cause cancer and mutations.⁸ Another study reviewed exposures to fracking chemicals and noted that trimethylbenzenes are among the largest contributors to non-cancer threats for people living within a half mile of a well, while benzene is the largest contributor to cumulative cancer risk for people, regardless of the distance from the wells.⁹

Another study reveals that "[a]t least 685 papers have been published in peer-reviewed scientific journals that are relevant to assessing the impacts of [unconventional natural gas development]. The number of papers published per year has continually risen and at least 226 were published in 2015 alone.¹⁰ By the end of 2015, over 80% of the peer reviewed scientific

⁶United States House of Representatives, Committee on Energy and Commerce, Minority Staff, *Chemicals Used in Hydraulic Fracturing* (Apr. 2011) ("Waxman 2011b"), p. 8.

⁷Colborn, Theo *et al.*, *Natural Gas Operations for a Public Health Perspective*, 17 *Human and Ecological Risk Assessment* 1039 (2011).

⁸*Id.*

⁹McKenzie, Lisa *et al.*, "Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources," *Sci Total Environ* (2012), doi:10.1016/j.scitotenv.2012.02.018, p. 5 ("McKenzie 2012").

¹⁰Hays, Jake, *et al.*, "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*, <http://dx.doi.org/10.13>

literature on shale and tight gas development has been published since January 1, 2013 and over 60% since January 1, 2014.¹¹ Conservatively, over 80% of the peer-reviewed science writing about fracking has been composed since the 2006 FEIS and the 2012 SIR. There is a veritable tsunami of new information which the BLM and FS have not even undertaken to survey.

The impacts associated with the fracking-induced oil and gas development boom have caused some jurisdictions to place a moratorium or ban on fracking. For instance, in 2011 France became the first country to ban the practice. Vermont became the first state to ban fracking. New York State halted fracking within its borders in 2008, continued the moratorium in 2014 and banned the practice in 2015, by issuing a final environmental impact statement which concluded a seven-year review. New York's environmental agency said fracking posed risks to land, water, natural resources and public health.¹²

The second technological development underlying the recent shale boom is the use of horizontal drilling. Shale oil and shale gas formations are typically located far below the surface, and as such, the cost of drilling a vertical well to access the layer is high. The shale formation itself is typically a thin layer and vertical drilling provides access to only a narrow face of the shale layer. Horizontal drilling allows the advantage of drilling sideways along the shale formation once it is reached so that a company can extract resources from a much higher volume of shale for the same amount of drilling through the overburden. This increases the fraction of total well length that passes through producing zones. The practice of combining horizontal drilling with hydraulic fracturing was developed in the early 1990s.

A third technological development is the use of "multi-stage" fracking. In the 1990s industry began drilling longer and longer horizontal well segments. The difficulty of hydraulic fracturing increases with the length of the well bore to be fractured, however, both because longer well segments are more likely to pass through varied conditions in the rock and because it becomes difficult to create the high pressures required in a larger volume.¹³ In 2002 industry began to address these problems by employing multi-stage fracking. In multi-stage fracking, the operator treats only part of the well bore at a time, typically 300 to 500 feet.¹⁴ Each stage "may require 300,000 to 600,000 gallons of water," and consequently, a frack job that is two or more

71/journal.pone.0154164 (April 20, 2016).

¹¹*Id.*

¹²Public News Service - NY, *Cuomo Declares: No Fracking for Now in NY*. See: <http://www.publicnewsservice.org/2014-12-18/health-issues/cuomo-declares-no-fracking-for-now-in-ny/a43579-1>; RT Network. June 30, 2015. *It's official: New York bans fracking*. <https://www.rt.com/usa/270562-new-york-fracking-ban/>.

¹³NYDEC SGEIS at 5-93.

¹⁴*Id.*

stages can contaminate and pump into the ground over a million gallons of water.¹⁵

This new combination of multi-stage slick water hydraulic fracturing and horizontal drilling (hereinafter “fracking”) has made it possible to profitably extract oil and gas from formations that only a few years ago were generally viewed as uneconomical to develop. Projected development of tight oil and gas, prior to the glut and collapse in the hydrocarbon economy from 2014 to the present, was predicted to increase domestic crude oil production greatly. Once the recession in the hydrocarbon sector ends, fracking, including fracking with the most recent techniques that have been associated with serious adverse impacts in various locations, is poised to expand. The oil and gas industry is still exploring new locations to develop, and the nation has not yet seen the full extent of fracking’s impact on oil and gas development and production.

A central problem is that fracking has little federal or state oversight. The current informational and regulatory void on the state level in Ohio makes it even more critical that the BLM and FS discharge their legal obligations to review, analyze, disclose, and avoid and mitigate the impacts of the contemplated oil and gas leasing decisions.

B. Admitted but unquantified surface damage to the Forest is ‘significant new information’

While the Marietta EA mentions fracking, explains in basic terms the shale layers underlying the Wayne, and discloses some of the chemicals which are emitted into the air and water from the process, it is severely deficient for determining whether or not a proposed action may have significant effects on the human environment. The EA contains no discussion of the impact of fracking on specific geological formations, surface and ground water resources, seismic potential, or human, animal, and plant health and safety concerns present in the area to be leased. The profusion of directionally-drilled fracking wells on private and public lands elsewhere in southeast Ohio since 2006 has not been accounted for. Real-time experiences with water consumption and pollution associated with fracking, waste disposal hazards, waste characterization, air pollution, and air quality changes in the industrialized countryside are not covered by the 2006 FEIS. The BLM and FS are relying on data a generation old to predict that there will be minimal surface disturbances on public lands, and insignificant effects from the agencies’ determination to begin leasing federal minerals. The FS and BLM intend to allow surface disturbances on federal leaseholds but suggest only that there is room under the ceiling they projected in 2006.

The consideration of alternatives in the EA is not meaningful specifically because the agencies have never supplemented the EIS. Without detailed explication of the environmental effects of fracking, the 2016 EA alternatives discussion is confined to comparing different terms which might be inserted in leases for fracking, plus consideration of the no-action alternative. There is no discussion of policies which are not market-driven, no integration of BLM oil and

¹⁵*Id.*

gas leasing with the U.S.' international treaty commitments respecting reductions in fossil fuel usage. There is no exploration of renewable energy options to supplant the need for hydrocarbons from the Wayne. There are no provisions for methane emissions mitigation at the wellhead. Leasing for fracking is a highly-significant step in U.S. energy policy in this time of anthropocene warming, yet the BLM and FS see their responsibility as commodification without environmental concern.

The BLM states (EA p. 20) that the 2012 SIR, which was not subjected to the rigors of an Environmental Impact Statement or even an EA, "was issued because horizontal wells were becoming more of the standard approach to mineral development on private surface in the area." Other than the fatally deficient SIR, BLM cites zero new studies, forecasts or projections to support the expectation that only 40 additional surface acres will be permanently disturbed after more than 18,000 acres in the Marietta Unit are leased for new fracking.

The agencies state there is a "no surface use" policy in place right now, but the obvious contemplation is that much public forest land will be disrupted and surface features destroyed across 18,000 acres of leased mineral tracts. Table 2-1 of the Marietta EA (p. 20) reveals that the surface disturbance from the reasonably foreseeable development scenario (RFDS) for oil and gas drilling in 2006 fell 70 acres short of the 2006 FEIS projection for unreclaimed surface disturbance, and 40.2 acres shy of the 2006 projection for reclaimed surface disturbance. The BLM and FS rely on their 10 year old prediction as the outer boundary of surface disturbance, without any explanation as to why anyone should have confidence in the Table 2-1 figures as a limitation.

In Section 2.4.1 of the EA, the agencies discuss the alternative of "Offer[ing] all leases with a no-surface-occupancy stipulation," but conclude that this alternative would not fulfill the purpose and need for leasing: that

. . . requiring all future drilling to take place off the federal surface may force operators to use locations that result in greater adverse impacts to natural resources compared to impacts on the federal surface. Impacts from oil and gas development on federal surface would be minimized by the leasing stipulations provided in the 2006 Forest Plan. Second, the federal government has more authority to protect natural resources on federal lands than on private lands.

EA p. 25. The agencies pledge that "As nominated parcels are reviewed, the BLM, in coordination with the Forest Service" will "determine which stipulations and notices must be attached to approved lease parcels, including, where appropriate, NSO stipulations." *Id.*

This apparent underestimate of acreage requirements for access to and operation of multiple well pads is reproduced in both the FEIS and the SIR. In the current practice, however, the Ohio Department of Natural Resources allows for dense well development at drilling pads. With the increasing subterranean reach of horizontal drilling, there is significant impetus for dense industrial well drilling activity in large clearings across the forest. Larger forest clearings,

access roads to the expanded drilling sites, intensified truck traffic to and from well sites, the use of waste holding ponds or pits on-site, even the BLM's pledge that there will be batteries of large waste storage tanks at the wellhead, all militate in the direction of clear-cutting of larger forest breaks than are described in the FEIS. There is new information from institutional research organizations such as FracTracker quantifying the real-time data on water consumption and the concomitant need for injection well capacity for fracking waste disposal.

**C. Induced fracking waste disposal within the region of the WNF
is 'significant new information.'**

Huge quantities of liquid and solid wastes are produced by fracking, most of it radioactive. New landfills which were not foreseen as little as two or three years ago are being proposed around southeastern Ohio. The FS and BLM concern themselves solely with the fact that some wastes will remain injected into wells, underground, and that there may be spills within the Forest. There is no consideration of induced effects in the form of expanded waste facilities and disposal of fracking wastes in licensed sanitary landfills, which is permissible in Ohio. BLM and FS fail to recognize downsides to waste holding ponds at drilling sites, which will attract and poison migratory birds and other wildlife, or that waste ponds can leak, even when lined and ostensibly properly-constructed, thus putting groundwater chronically at risk. There is no mention of, nor accounting for, the likely presence of orphan wells in locales where there will be new drilling activities. The capping and identification of orphaned wells occurs at taxpayer expense and provides important geological clues that must be considered in the selection of areas for fracking, since fracking wells must not be allowed to connect to uncontrolled pathways to the surface. The FS and BLM view fracking as completely industry-driven and beyond their control to limit or prohibit, despite the administrative tools and powers available to the Federal Government.

Fracking causes considerable induced environmental damage and corresponding public health threats across Ohio. Deregulation of Ohio air and water quality regulations since 2006 which formerly restricted fracking-related processes have fostered permitting of dozens of new injection wells. Similarly, deregulation policies that are not identified or discussed in the Marietta EA have been implemented which allow the so-called "beneficial use" of radioactive and chemically-toxic drilling wastes for such purposes as landfill cover, fill for industrial parks and agricultural fertilizer, and access roads to drilling pads. Fracking waste may be used in highway de-icing sprays and road dust-control sprays. Since 2012, there has been disposal of radioactive wastes in conventional sanitary landfills, and since 2010, disposal of radium-bearing water reclaimed from fracking operations through municipal water treatment systems that are incapable of removing the radioactivity, likely causing water pollution downstream.

One likely waste disposal threat that will receive a boost from a Wayne decision to lease federal minerals for fracking is the proliferation of injection waste wells in Washington and eastern Athens Counties. Injection wells in Washington County are associated with earthquakes. This threat as well as known pollution of surface water in nearby West Virginia and possible contamination of drinking water, surface water, and groundwater in Ohio from injection wells are

highly significant environmental and public health impacts that will be made greater by increased fracking in the region as a result of the leasing of federal minerals for fracking. The FS relies on ODNR regulation, which does not require or perform monitoring for contamination of drinking water, surface water, or groundwater around injection wells.

The public health-damaging effects from the fracking waste stream must be addressed via supplementation of the FEIS. Fracking in the Wayne will induce threats from distribution of chemically-toxic and radiotoxic natural gas via gathering lines and facilities, mega-pipeline projects and associated compressor stations, as well as expanded fracking waste down-blending, landfilling, “beneficial use” and injection wells. Yet none of this induced development from fracking is covered in the EA.

D. The agencies’ admission that they have insufficient evidence of potential air contamination is ‘significant new information’

Curiously, the EA states that extensive data must be gathered in order to adequately analyze the air polluting effects of fracking, even as a Finding of No Significant Impacts is proposed. At EA p. 65, the agencies admit the following:

During well completion, flowback, fracturing fluids, water, and reservoir gas come to the surface at high velocity and volume. This mixture includes a high volume of VOCs and CH₄, along with air toxins such as benzene, ethylbenzene, and n-hexane. The typical flowback process lasts from three to ten days. Additional emissions from other processes and equipment during production and transportation of the oil and gas from the well to a processing facility may occur.

To reasonably quantify emissions associated with well exploration and production activities, certain types of information are needed. Such information includes a combination of activity data such as:

- The number, type, and duration of equipment needed to construct/reclaim, drill and complete (e.g., belly scrapers, rig, completions, supply trucks, compressor, and production facilities)

- The technologies which may be employed by a given company for drilling any new wells to reduce emissions (e.g. Selective Catalytic Reduction (SCR) on diesel powered drill rigs, natural gas fired drill rig engines, the use of “green” completion technology, and multi-stage flare stacks)

- Area of disturbance for each type of activity (e.g. roads, pads, pipelines, electrical lines, and compressor station)

- Compression per well (sales and field booster), or average horsepower for each type of compressor, if needed

- The number and type of facilities utilized for production operations.

Since the BLM and FS are proposing approve widespread leasing for HVHF without this knowledge, NEPA is violated.

E. Other unconsidered environmental effects comprise ‘significant new information’

Notably, while the passage cited above somewhat describes the contaminated liquid effluent, there is no mention in the EA of the potential for geological faults or other features which would allow migration of this industrial liquid waste through formerly-impermeable layers of rock and soil.

The EA does not account for the average 1,800 heavy truckloads of materials, chemicals, and wastes which are delivered to/taken from the wellhead of every typical fracking well. There is neither mention of, nor quantification of, the projected damage from copious diesel air pollution that thousands of truckloads to and from the well pads will cause to the Forest.

Nor is the foreseeable damage to Forest Service and public roadways and bridges, increased wildlife road kill, and risks to humans from increased traffic accidents on low-speed, remote roads considered in the EA. Drilling wastes might be used to construct roadbeds to drilling pads, as happens elsewhere in Ohio, which would spread radium-laced shale wastes around the land surface, where it will be prone to leach into groundwater. There is no mention of that possibility, even to categorically prohibit it from happening in the WNF.

A paramount misunderstanding of fracking by the BLM is reflected in the Table 2 comparison of vertical and fracking wells which appears in the previously-mentioned BLM (Storzer) May 3, 2012 letter. A category in Table 2 entitled “Water that returns to the surface and is available for reuse” suggests that all water contaminated by fracking chemicals and radiation will be “reused” indefinitely. The fact is, essentially 100% of all water associated with fracking is permanently polluted from the chemicals used to extract oil and gas. Moreover, it is radioactively contaminated with Ra-226 and Th-232, and other isotopes. All flowback and other “water” from fracking is permanently impaired. While some of it may be reused to extract gas and oil, *all* of it will ultimately either be left in the ground following injection to draw out oil and gas, or be disposed of as drilling wastes. Liquid fracking waste is not economically amenable to conventional water treatments and must be permanently removed from the biosphere. The BLM has completely ignored the reality that the water sacrificed for fracking has limited reuse potential, but in the end, is irredeemable.

The U.S. Environmental Protection Agency recently published a long-awaited study that proves water resources are threatened, and sometimes actually harmed, by poor oversight of fracking schemes. There is no mention of this prospect, nor of this study.

The draft Finding of No Significant Impact (“FONSI”) contains no prediction or limitations that quantify direct, indirect or cumulative effects resulting from anticipated years of fracking. The FS has a temporary freeze upon surface disruption, offers only anecdotal rationales to justify leasing for fracking purposes, and has deferred the real environmental impacts identification and analysis to each specific lease, at a point where the official determination will be that there is no significant environmental impact. This is not *bona fide* PEIS tiering.

**V. The Use of Environmental Assessments For Each of the Three Forest Units
Instead of a Single EIS Is Evidence of Segmenting.**

By deferring site-specific environmental impacts analysis to a stage subsequent to the EA/FONSI - where the agencies' conclusion will be that there will be no significant environmental effects from fracking, the FS and BLM only plan to have a plan. The government will review for environmental effects piecemeal, and much too late to stop environmentally-damaging leases. Using Environmental Assessments with FONSI's in each of the three forest units while promising some "environmental review" prior to each individual lease, the federal government is rejecting any systematic environmental assessment of a technology that presently is nearly unknown in the Wayne. By using three separate EA's and FONSI's, the agencies are downgrading the widespread fracking in Wayne National Forest to the level of an insignificant event unworthy of scrutiny within an EIS.

.Fracking across the three units of the Forest requires cumulative effects analysis. Council on Environmental Quality regulations require that so-called "connected" or "cumulative" actions be considered in a single EIS. 40 C.F.R. §§ 1508.25(a)(1), (a)(2); *cf. City of Tenakee Springs v. Block*, 778 F.2d 1402, 1407 (9th Cir. 1985). The obvious cumulative effects on water, air, land, waste generation, wildlife and human inhabitants in all three units of the Forest are not accounted for within this EA. Cumulative actions are defined as "actions, which when viewed with other proposed actions have cumulatively significant impacts." 40 C.F.R. §§ 1508.25(a)(2). A cumulative environmental impact "results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such other actions." 40 C.F.R. §§ 1508.7. The regulatory definition includes impacts resulting from "individually minor but collectively significant actions taking place over a period of time." *Id.*

"NEPA ... prohibit[s] an agency from breaking up a large or cumulative project into smaller components in order to avoid designating the project a major federal action" that would be subject to NEPA analysis requirements. *Churchill v. Norton*, 276 F.3d 1060, 1076 (9th Cir.2001); see also *Nat'l Wildlife Fed'n v. Appalachian Reg'l Comm'n*, 677 F.2d 883, 890 (D.C.Cir.1981) (agency cannot escape the existence of a comprehensive program with cumulative environmental effects by "disingenuously describing it as only an amalgamation of unrelated smaller projects"); *Susquehanna Valley Alliance v. Three Mile Island Nuclear Reactor*, 619 F.2d 231, 240 (3d Cir.1980); *Blue Mountain Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1215 (9th Cir.1998) (five potential logging projects in the same watershed were cumulative and had to be evaluated in a single EIS, where they were reasonably foreseeable and "developed as part of a comprehensive forest recovery strategy").

In *Thomas v. Peterson*, 753 F.2d 754 (9th Cir. 1985), the court examined the Forest Service's decision not to prepare a comprehensive EIS to analyze the combined effects of construction of a timber road in a formerly roadless area of the Nez Perce National Forest in Idaho, and the resulting timber sales that the road would facilitate. The Ninth Circuit required the agency, under NEPA, to consider the effects of several related actions in a single EIS. "Not to

require this would permit dividing a project into multiple ‘actions,’ each of which individually has an insignificant environmental impact, but which collectively have a substantial impact.” *Id.* at 758.

Here, considering the cumulative effects of later leases only after fracking has begun on earlier ones will not satisfy NEPA. Before the massive undertaking of fracking development in the Wayne, NEPA obligates an accounting for such impacts as road-clearing, pad development, drilling, chemical injections into the wells, leaks of flowback, accidental spills of radioactive fracking wastes, fragmentation of the forest canopy, contributions to air pollution at a regional level, and greatly scaled-up water consumption. In discussing “fragmentation” of the forest as an ecosystem, the agencies offer up this curious and undocumented conclusion:

Since the desired outcome for this management area is some component of oaks, which require disturbances such as timber removal, some clearing in this management area may be desirable. Even if all the projected future mineral development were to occur on the Marietta Unit within this management area, the total area of disturbance would not exceed the WNF’s management goal for this area.

Cerulean warbler, the indicator species for this habitat type, is a Regional Forester Sensitive Species and, as such, is protected by a controlled-surface-use stipulation.

The amount of land that these projects would alter is very small in relation to the total acreage of the WNF. Therefore, these projects would not have a major effect on efforts to restore and maintain an oak ecosystem on the Forest. Some projects could have a beneficial effect on the oak ecosystem such as the wildfires if they are not too hot and/or in the wrong season, or the control of non-native plants which may allow the oaks to regenerate more effectively depending on the type of non-native and where it is growing.

As described above, fragmentation and edge effects have greater implications in a mature interior forest than in oak-hickory forests or early-successional habitat, which depend on periodic disturbance. In a mature interior forest, the loss of a few acres of canopy can result in the loss of suitability of hundreds of acres of habitat for a wildlife species, such as Cerulean warbler, that depends on the presence of large blocks of unbroken forest.

EA p. 69 (Emphasis added).

The dubious and controversial projections of disrupted forest acreage are evidently sheer conjecture by the FS and BLM. They raise “substantial questions” about the cumulative effects of early leases in light of subsequent ones. The fracking which will follow from the act of leasing is certain and temporally close enough to require detailed NEPA analysis. “[I]f the [timber] sales are sufficiently certain to justify construction of the road, then they are sufficiently certain for their environmental impacts to be analyzed along with those of the road.” *Thomas*, 753 F.2d at 760. *See City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1312 (9th Cir. 1990) (when the projects in a particular geographical region are foreseeable and similar, NEPA calls for an examination of their impact in a single EIS; Forest Service’s failure to analyze the effects of the timber harvesting plans scheduled over the life of the contract between the Forest Service and

Alaska Pulp Company raised serious questions about the adequacy of a supplemental EIS).

VI. Rote Depiction of Fracking Well Development Does Not Substitute for Meaningful Disclosure of Positive and Negative Considerations Within the Decision to Allow Fracking.

The Environmental Assessment rotely describes hydraulic fracturing, explaining that it has been used since 1947 and that “a million” or more wells have been developed using the technique. EA pp. 22 and 23. The Assessment does not distinguish between 50 years of fracking of vertical, comparatively shallow, wells, which did not explicitly aim for subsurface radioactive shale, and the scant decade and a half of horizontal drilling into radioactive shale layers. The experience with horizontal drilling and fracking within shale layers is not a 70-year-old technology.

The EA contains no data about fracking in Ohio, no information about productivity, water consumption, waste generation, air and water pollution and contamination. Instead, proceeding from the standard industry drivel about fracking since 1947, the EA asserts that “BLM approves and regulates all drilling and completion operations, and related surface disturbance on federal public lands.” EA p. 23. The Environmental Assessment substitutes vague assurances about on-site inspection and oversight of individually-drilled wells for substantive discussion of the potential negatives of fracking in the Wayne. These mere pledges to regulate cannot displace factual exposition of positives and negatives to fulfill the “hard look” required before this undertaking. “[G]eneral statements about ‘possible’ effects and ‘some risk’ do not constitute a ‘hard look’ absent a justification regarding why more definitive information could not be provided.” *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372, 1380 (9th Cir.1998). “Simple, conclusory statements of ‘no impact’ are not enough to fulfill an agency’s duty under NEPA.” *Found. on Econ. Trends v. Heckler*, 756 F.2d 143, 154 (D.C. Cir. 1985). The agency must comply with “principles of reasoned decision making, NEPA’s policy of public scrutiny, and [the Council on Environmental Quality’s] regulations.” *Id.* at 154 (citations omitted).

“[T]he agency must examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made. . . . Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n of the U.S., Inc. v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 43 (1983) (internal quotation marks and citations omitted).

VII. De Minimis Treatment of Greenhouse Gas Emissions Does Not Satisfy NEPA

While the FS admits there are global warming implications from developing methane-producing wells on public lands in the Wayne, language in the draft FONSI suggests that the contribution from fracking in the WNF will be insignificant, but only as compared with the vast,

routine methane contributions worldwide:

The cumulative impacts may result in a very small increase in greenhouse gas emissions but are not expected to result in climate change impacts because climate change is a global process that is affected by the total of greenhouse gases in the atmosphere. The incremental contribution to global greenhouse gases from the Proposed Action cannot be translated into effects on climate change globally or with [*sic*] the area of the lease parcels.

FONSI p. 6.

The FS and BLM have failed to explain the benchmark for this determination of insignificance in relation to the environmental dangers of global warming. The agencies use the device of deliberately minimizing the GHG contribution of methane from WNF fracking to the global volume of greenhouse gases in order to alleviate their burden of conducting a more thorough investigation of possible effects of the resulting global warming in the Forest. This violates NEPA. And because of this *de minimis* finding, the FS and BLM have sidestepped the NEPA expectation to identify and discuss mitigation measures to reduce the GHG effects.

The courts expect discussion of the likely release of methane gas in cases proposing to allow hydraulic fracturing in oil and gas wells on federal lands:

One of the foreseeable effects of the Lease Modification approval is the likely release of methane gas from the expanded mining operations. As explained above, an EIS must disclose and evaluate all of the effects of a proposed action — direct, indirect, and cumulative. NEPA further defines impacts or effects to include ‘ecological[,] . . . economic, [and] social’ impacts of a proposed action. 40 C.F.R. § 1508.8(b). The agencies do not argue that they could ignore these effects. In fact, they acknowledged that there might be impacts from GHGs in the form of methane emitted from mine operations and from carbon dioxide resulting from combustion of the coal produced.

High Country Conservation Advocates v. United States Forest Service, Case No. 13-cv-01723-RBJ (D.C. Colo. June 27, 2014) (slip op. at 17). The *High Country* court further recommended that the lead federal agency use as a measurement tool the protocol document, “Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866,” Interagency Working Group on Social Cost of Carbon (Feb. 2010).¹⁶ Here, the FS and BLM have not used that measurement tool. They have discussed climate change in the hopes of avoiding litigation, but not in a way that meets the expectations of NEPA, to disclose environmental dangers and to advise and analyze alternatives or mitigation strategies.

VIII. Conclusion

¹⁶Available at www.epa.gov/oms/climate/regulations/scc-tds.pdf

The emergence of significant new information and circumstances since 2006 warrants a far more probing environmental inquest than has happened before. Fracking has never been meaningfully explicated in an Environmental Impact Statement upon the Wayne National Forest. “If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion.” 40 C.F.R. § 1502.9(a). According to FSH 1909.15, The Forest Service’s “National Environmental Policy Act Handbook,” § 18.1:

If new information or changed circumstances relating to the environmental impacts of a proposed action come to the attention of the responsible official after a decision has been made and prior to completion of the approved program or project, the responsible official should review the information carefully to determine its importance. Consideration should be given to whether or not the new information or changed circumstances are within the scope and range of effects considered in the original analysis.

The Marietta Environmental Assessment is deficient as an EA for the Marietta Unit, but it also fails to meet NEPA requirements because it is tiered off an Environmental Impact Statement that needs considerable supplementation and cannot be considered valid for the pending leasing decision.

For these reasons, and for the reasons set forth in our previous comments submitted to the BLM and FS regarding the proposed opening up of Wayne National Forest to high-volume horizontal hydraulic fracturing, which prior comments are hereby incorporated by reference, we urge that leasing be halted, that the Finding of No Significant Impact be held for naught and denied, and that a Supplemental Environmental Impact Statement be compiled which includes all three units of the Wayne National Forest within its scope.

Thank you very much.

Respectfully,

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