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July 31, 2017

Via FAX AND FEDERAL EXPRESS

Karen Mouritsen
State Director
Bureau of Land Management
Eastern States Office
20 M Street SE, Suite 950
Washington, D.C. 20003

Re: ***Protest of the September 21, 2017 Competitive Oil and Gas Lease Sale, Wayne National Forest***

Dear Director Mouritsen:

The Center for Biological Diversity (the "Center"), Heartwood, Ohio Environmental Council, Sierra Club, The Buckeye Environmental Network aka Buckeye Forest Council (BEN), and Athens County Fracking Action Network (collectively "Conservation Groups") hereby file this Protest of the Bureau of Land Management's ("BLM") planned September 21, 2017 Competitive Oil and Gas Lease Sale and the programmatic Final Environmental Assessment for oil and gas leasing in the Wayne National Forest, Marietta Unit of the Athens Ranger District, Monroe, Noble, and Washington Counties, Ohio (DOI-BLM-Eastern States-0030-2016-0002-EA) ("EA"), pursuant to 43 C.F.R. § 3120.1-3. We formally protest the inclusion of each of the three parcels, covering 141.56 acres in the Wayne National Forest's Marietta Unit in Monroe County, Ohio:[1]

Parcel #: ES-001-09/2017	BLM Serial #: OHES 058296 ACQ
Parcel #: ES-002-09/2017	BLM Serial #: OHES 058289 ACQ
Parcel #: ES-003-09/2017	BLM Serial #: OHES 058299 ACQ

PROTEST

I. Protesting Party: Contact Information and Interests

This Protest is filed on behalf of the Center:

Wendy Park, Senior Attorney

[1] All references cited to herein are included in the attached CD and can be found in the "references" folder.

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The Center is a non-profit environmental organization dedicated to the protection and recovery of native species on the brink of extinction and their habitats through science, policy, and environmental law. The Center has and continues to actively advocate for increased protections for species and their habitats in Ohio and the Wayne National Forest. The lands that

will be affected by the proposed lease sale include habitat for listed, rare, and imperiled species that the Center has worked to protect, including the Indiana bat, Northern long-eared bat, fanshell, pink mucket pearly mussel, sheepnose mussel, and snuffbox mussel. The Center also works to reduce greenhouse gas emissions to protect biological diversity, our environment, and public health. The Center has over 52,000 members, including those living in Ohio who have visited these public lands in the Wayne National Forest for recreational, scientific, educational, and other pursuits and intend to continue to do so in the future, and are particularly interested in protecting the many native, imperiled, and sensitive species and their habitats that may be affected by the proposed oil and gas leasing.

The Sierra Club is a national nonprofit organization of approximately 819,000 members dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Ohio Chapter of the Sierra Club has more than 23,000 members in the state of Ohio. For more than four decades, the Sierra Club has worked to protect the Wayne National Forest and Ohio's other public lands from harmful activities such as clear-cutting, mineral extraction, commercial development, pipelines, and oil and gas drilling. Sierra Club members use the public lands in Ohio, including the lands and waters that would be affected by actions under the lease sale, for quiet recreation, scientific research, aesthetic pursuits, and spiritual renewal. These areas would be threatened by increased oil and gas development that could result from the proposed lease sale.

The Ohio Environmental Council is a non-profit environmental organization whose mission is to secure healthy air, land, and water for all who call Ohio home. OEC has over 100 environmental and conservation member organizations and thousands of individual members throughout the state of Ohio. The OEC has a long history of working to protect the ecological integrity, and recreational and aesthetic qualities of the Wayne National Forest. Many of our members have visited these public lands in the Wayne National Forest for recreational, scientific, educational, and other pursuits and intend to continue to do so in the future.

Heartwood is a non-profit regional environmental organization dedicated to protecting the public forests of the Central Hardwood Region. Heartwood represents over seventeen hundred individual members and numerous member organizations who depend on these public lands, including the Wayne National Forest, for recreational, spiritual and ecological purposes. Heartwood members have, do and will continue to use these public lands, including the Wayne National Forest, for non-consumptive purposes and they derive important tangible and intangible ecological benefits from the presence and ecological integrity of these public lands, including the lands that will be affected by the oil and gas leasing proposed by this action.

The Buckeye Environmental Network aka Buckeye Forest Council (BEN) is a membership-based, grassroots organization dedicated to protecting Ohio's native forests and their inhabitants through education, advocacy and organizing. BEN has advocated for ecological management of the Wayne National Forest as well as Ohio's state forests to protect biodiversity, ecosystem services, including air and water purification, and climate stability since 1992. Many hundreds of BEN members from around Ohio and beyond our region have relied on Wayne

National Forest as a place of solace, protected wild land, native forest biodiversity, and low-impact recreation.

Athens County Fracking Action Network (ACFAN) was formed in 2011 to protect the Wayne National Forest and our region from the risks to air, water, climate, and community economic and public health from the industrial practice of deep shale drilling and high-pressure, high-volume horizontal fracturing (commonly known as fracking). ACFAN's 900+ network members have consistently urged Wayne and BLM personnel to fully evaluate the potential highly significant impacts of fracking before leasing, an irrevocable commitment of resources, with full public input, as required by NEPA. This has not been done in spite of thousands of appeals and documentation of potential impacts with extensive peer-reviewed science through petitions, meetings, letters, and formal protests since October 2011. ACFAN has mobilized government officials from the local to federal levels as well as drinking water suppliers, environmental and tourism organizations, the President of Ohio University, hundreds of residents of Washington, Monroe, and Morgan County, and thousands of other residents of Ohio, the region, and the nation to urge the USFS to authorize an Environmental Impact Statement before further consideration of this dangerous industrial process, as required by NEPA given the scale of likely harm to the human community as well as to the Forest. Especially because the Wayne is Ohio's only National Forest and one of the nation's smallest and most fragmented, members of ACFAN are highly committed to its protection and to the USFS and BLM taking seriously the extreme and well documented public concerns that have been shared extensively with USFS and BLM officials since 2011.

II. Statement of Reasons as to Why the Proposed Lease Sale Is Unlawful:

Nearly all of the omissions and failures of BLM's NEPA analysis identified in our protests of the December 2016 and March 2017 Competitive Oil and Gas Lease Sale, Wayne National Forest ("2016 and 2017 Lease Sales") remain and provide the same bases for our protest against the September 2017 sale. Those protests are incorporated here by reference. As explained in those protests, BLM failed to prepare an Environmental Impact Statement (EIS) analyzing the impacts of competitive oil and gas leasing in the Wayne National Forest. Relatedly, BLM failed to take a hard look at site-specific and cumulative impacts of leasing in the Wayne, and BLM improperly relied on the programmatic EA to analyze those impacts. Our previous protests also highlighted the failure of the BLM to consult with the Fish and Wildlife Service ("FWS") pursuant to Section 7 of the Endangered Species Act (ESA) on the impacts of leasing to threatened and endangered species present in the Wayne National Forest. Finally, the Center's previous comment letters noted NEPA violations on the part of the BLM when it failed to first request the Forest Service's participation in the preparation of the EA, and then subsequently when BLM relied on the Forest Service's consent to leasing without its participation in the NEPA process or its supplementation of the 2006 Forest Plan to address the potential for fracking and other new information and circumstances.

The Conservation Groups therefore, incorporates here by reference and attaches as exhibits our previous comment letters and written protests on the December 2016 and March

2017 Lease Sales including all documents referenced therein.[2] In addition, BLM's proposed decision to lease the parcels listed above is substantively and procedurally flawed for the reasons discussed below, as well as those discussed in (1) the Center et al.'s Notice of Appeal and Petition for Stay of BLM's December 2016 Lease Sale and March 2017 Lease Sale to the Interior Board of Land Appeals ("Appeal"),[3] and (2) the Center et al.'s 60-Day Notice of Intent to Sue, and Supplemental Notice of Intent to Sue Under the Endangered Species Act ("NOI"), which are also incorporated here by reference and attached as exhibits.[4] More detailed explanations of our objections are provided in these exhibits.

A. Further NEPA analysis on spill risks from pipelines and other infrastructure associated with fracking in the Wayne is required.

The programmatic EA did not conduct sufficient forest-wide, site-specific, and cumulative impact analysis of spill risks associated with pipelines and other infrastructure within and near the nominated Wayne National Forest parcels. Recent spills involved in the construction of the Rover Pipeline, discussed in depth below, highlight the need for further analysis of (1) spill risks that would result from new leasing and oil and gas activities; and (2) the cumulative impacts of these spill risks in connection with spill risks of past, present, and reasonably foreseeable projects in and around the Wayne (including the Rover Pipeline).[5] In addition, the Pipeline's construction and operation will disturb and destroy habitat for bats and other sensitive species, worsen air and water quality, and industrialize the Wayne's rural and natural landscape, but the impacts of Rover (and many other neighboring projects in and around the Wayne National Forest) are not considered in the cumulative impacts analysis, as further explained in our protest of the March 2017 lease sale.[6]

The Rover Pipeline (the "Pipeline"), currently under construction by Energy Transfer Partners LP (ETP) and its subsidiary Rover Pipeline LLC (Rover), is planned to extend over 700 miles across four states.[7] The Pipeline will transport natural gas from the Marcellus Shale play to delivery points in Michigan and Canada.[8] Portions of the Pipeline run directly adjacent to segments of the Wayne National Forest. Some parts of the Pipeline pass within one mile of two out of three of the nominated September parcels, and within two miles of the remaining parcel. It

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[2] The Center et al.'s November 11, 2016 Protest of the December 2016 Competitive Oil and Gas Lease Sale, Wayne National Forest, attached hereto as Exhibit A; The Center et al.'s February 13, 2017 Protest of the March 2017 Competitive Oil and Gas Lease Sale, Wayne National Forest, attached hereto as Exhibit B; the Center et al.'s May 31, 2016 comment letter on the draft programmatic Environmental Assessment, attached hereto as Exhibit C; the Center et al.'s August 11, 2016 letter to the USDA Forest Service Eastern Regional Office and Forest Supervisor, attached hereto as Exhibit D; Heartwood et al.'s May 31, 2016 comment letter on the draft EA, attached hereto as Exhibit E; and BEN aka BFC's January 22, 2016 scoping comments, attached hereto as Exhibit F.

[3] Attached hereto as Exhibit G and H.

[4] Attached hereto as Exhibit I.

[5] See Rover Pipeline Project Map at Exhibit J.

[6] See Exhibit B at 8, 12-14.

[7] Mandel, Jenny, Ohio takes legal action over Rover construction violations, Environment & Energy News Reporter, (Jul. 11, 2017), https://www.eenews.net/energywire/stories/1060057181/search?keyword=Ohio+takes+legal+action+over+Rover+construction+violations.

[8] *Id.*

seems highly likely that pipelines from lease parcels in the Wayne will feed into the Rover Pipeline.

Numerous accidental spills and legal violations resulting from the Pipeline's construction in Ohio and elsewhere have put the Pipeline under intense public and regulatory scrutiny. The Ohio Environmental Protection Agency (Ohio EPA) has "registered more than 30 environmental complaints since work started on the Pipeline in March, including a leak of at least 2 million gallons — the state says it could be as much as 5 million gallons — of drilling mud in April..." in Stark County.[9] The spill occurred over roughly, "500,000 square feet of wetland near the Tuscarawas River...[such] [d]ischarges can affect water chemistry and potentially suffocate wildlife, fish and microinvertebrates."[10] According to Ohio officials, the drilling mud has the potential to "kill just about everything in that wetland," and the wetland will not recover to its previous pristine, "superior-quality" condition for decades.[11] Ohio has already lost 90 percent of its wetlands.[12]

The spill occurred when horizontal drilling during construction of the Pipeline resulted in a massive backflow of drilling mud shooting back up to the surface. This massive backflow resulted because operators apparently rushed the installation of pipeline in reckless disregard of proper safety protocols, and also due to a lack of oversight by regulators. Despite a full three weeks of inconsistent returns of drilling fluids putting the drilling contractor on notice of a serious potential hazard, ETP apparently failed to make any changes to its drilling operation to avoid a catastrophic spill.[13] In May, and as a result of the April 13 spill, the Federal Energy Regulatory Commission (FERC) blocked work at certain drilling sites for the Pipeline pending further examination by an independent contractor at the site of the spill.[14] The FERC order suspended all horizontal directional drilling (HDD) activities in certain locations until Rover LLC obtained independent third-party contractor proposals to analyze drilling activity at the Tuscarawas River, and adopted plans created by the third party contractor to prevent similar spills in the future.[15] ETP's conduct has also led FERC to double the number of environmental inspectors monitoring the Pipeline construction all along the Pipeline route.[16]

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[9] *Id.*

[10] Renault, Marion, Ohio pipeline construction spill sends 2 million gallons of mud into two Ohio wetlands, The Columbus Dispatch, (Apr. 20, 2017), *available at* http://www.dispatch.com/news/20170420/pipeline-construction-spill-sends-2-million-gallons-of-drilling-mud-into-two-ohio-wetlands.

[11] Mufson, Steven, Pipeline spill by Dakota Access company could have a "deadly effect", The Washington Post, (May 8, 2017 *available at* https://www.washingtonpost.com/news/energy-environment/wp/2017/05/08/pipeline-spill-by-dakota-access-company-could-have-a-deadly-effect/?utm_term=.0ff8270e7d7f; Renault, Marion, Feds shut down new drilling along Rover pipeline project, Columbia Dispatch (May 11, 2017), available at http://www.dispatch.com/news/20170511/feds-shut-down-new-drilling-along-rover-pipeline-project.

[12] *Id.*

[13] Federal Energy Regulatory Commission, Re: Tuscarawas River Horizontal Drilling Inadvertent Release, Docket No. CP15-93-000 § 375.308(x), Order No. 20170510-3009, (May 10 2017), at 2 ("FERC Drilling Suspension Order").

[14] Mints, Sam, Drilling for interstate project is halted after Ohio spills, Environment and Energy News Reporter, (May 10, 2017), *available at* https://www.eenews.net/eenewspm/stories/1060054373/search?keyword=Drilling+for+interstate+project+is+halted+after+Ohio+spills.

FERC Drilling Suspension Order at 2-3. *See Also* Federal Energy Regulatory Commission, Re: Tuscarawas River Horizontal Directional Drill - Drilling Fluid Composition, Docket No. CP15-93-000 § 375.308(x), Order No.

ETP led regulators to believe that the spill contained only non-toxic, but environmentally harmful, drilling "mud."[17] In June, however, diesel fuel was detected in the spilled mud in at least three separate locations, in violation of the terms of ETP's permit for mud composition, as well as its permit for the storage of the leaked material in a quarry located roughly "1,000 feet from the city of Massillon's public water system intake."[18] At least two public water sources and 11 private wells are being tested for diesel contamination. ETP's apparent concealment of the presence of diesel allowed ETP to store the waste in this sensitive location.[19] The violations prompted the Ohio EPA to increase fines levied against ETP from over $400,000 to over $900,000.[20]

This massive spill is by no means an isolated incident. As of May 2017, the Ohio EPA has fined ETP for 18 separate spills, including at least seven spills that have impacted waterways, wetlands, and public drinking water sources.[21] Eighteen storm water permit violations have also been reported.[22] This includes a spill of 50,000 gallons on April 14 occurring just one day after the Stark County spill and also impacting a sensitive wetland in Richland County.[23] The pattern of non-compliance with the State's environmental laws has prompted the Ohio EPA to request the state's attorney general to initiate civil proceedings for violations of environmental laws addressing air and water quality,[24] and has also led the Ohio EPA to issue further enforcement

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20170601-4009, (Jun. 1 2017) (initiating investigation into presence of hydrocarbons in drilling mud released during the Stark County spill); and Federal Energy Regulatory Commission, Re: Mitigation Measures Necessary for In-Service Authorization, Docket No. CP15-93-000 § 375.308(x), Order No. 20170712-3041, (Jul. 12 2017) (implementing further mitigation measures for rehabilitation and restoration of areas affected by the Stark County spill).

[16] FERC Drilling Suspension Order at 3.

[17] Mufson, Steven, Pipeline spill by Dakota Access company could have a "deadly effect", The Washington Post, (May 8, 2017), *available at* https://www.washingtonpost.com/news/energy-environment/wp/2017/05/08/pipeline-spill-by-dakota-access-company-could-have-a-deadly-effect/?utm_term=.0ff8270e7d7f.

[18] Mandel, Jenny, Diesel found in Ohio Rover spill draws new fines, Environment & Energy News Reporter, (Jun. 9, 2017), *available at* https://www.eenews.net/energywire/stories/1060055786/search?keyword=Diesel+found+in+Ohio+Rover+spill+draws+new+penalties.

[19] *Id.*

[20] *Id.*

[21] Mufson, Steven, Pipeline spill by Dakota Access company could have a "deadly effect", The Washington Post, (May 8, 2017), *available at* https://www.washingtonpost.com/news/energy-environment/wp/2017/05/08/pipeline-spill-by-dakota-access-company-could-have-a-deadly-effect/?utm_term=.0ff8270e7d7f; Renault, Marion, Feds shut down new drilling along Rover pipeline project, Columbia Dispatch (May 11, 2017), *available at* http://www.dispatch.com/news/20170511/feds-shut-down-new-drilling-along-rover-pipeline-project; Sierra Club Ohio Chapter, Rover Pipeline Proves to be Disastrous Update (May 31, 2017), *available at* http://www.sierraclub.org/ohio/blog/2017/05/rover-pipeline-proves-be-disastrous-update.

[22] Mandel, Jenny, Diesel found in Ohio Rover spill draws new fines, Environment & Energy News Reporter, (Jun. 9, 2017), *available at* https://www.eenews.net/energywire/stories/1060055786/search?keyword=Diesel+found+in+Ohio+Rover+spill+draws+new+penalties.

[23] Mufson, Steven, The company behind the Dakota Access pipeline is in another controversy, Washington Post, (Apr. 27, 2017), *available at* https://www.washingtonpost.com/news/energy-environment/wp/2017/04/27/the-company-behind-the-dakota-access-pipeline-is-in-another-controversy/?utm_term=.fd37869145a2.

[24] Mandel, Jenny, Ohio takes legal action over Rover construction violations, Environment & Energy News Reporter, (Jul. 11, 2017),

orders against Rover for violations of state and federal environmental laws.[25] Nor are the issues with the Pipeline limited to Ohio. The West Virginia Department of Environmental Protection also ordered that construction on the Pipeline be halted following violations of water and waste management provisions in its permit.[26]

New information about the numerous permit violations and spills resulting from the construction of the Rover Pipeline requires BLM to reconsider the increased potential for pipeline and other infrastructure or equipment leaks and spills that would arise with increased fracking in the Wayne. The EA improperly minimizes the risk of such leaks and spills, underestimates the potential volumes and severity, and assumes that legal requirements and mitigation measures are sufficient to mitigate leaks and spills, despite growing evidence to the contrary. Rover's use of diesel in violation of permit requirements, concealment of this fact, and disregard of many other permit conditions (e.g., open burning, discharge of untreated wastewater to waterways, and demolition of a culturally significant 177-year-old farmhouse, in violation of its permit)[27] demonstrates the potential for operators to disregard the law and permit conditions, resulting in more frequent and severe leaks and spills than the EA assumes.

In addition, the extensive and persistent problems with the Rover Pipeline, which will pass directly adjacent to or within close proximity of the September parcels (and parcels already sold in prior lease sales), were not considered in the cumulative impacts analysis of the programmatic EA. Instead, the programmatic EA generally points to the anticipated "adherence to required laws and regulations, SOPs, and best management practices…to minimize the potential for significant adverse cumulative effects."[28] The blanket assertion by the BLM that those mechanisms are sufficient to minimize significant adverse cumulative spill effects is belied by the pattern of permit and other legal violations by Rover and ETP highlighted above. Moreover, those mitigation measures are based on flawed estimates of potential spill volumes. In its discussion on the cumulative effects from wastes, the programmatic EA cites to section 4.7 (analyzing "wastes, hazardous or solid") to illustrate the types of laws, regulations, SOPs, and

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https://www.eenews.net/energywire/stories/1060057181/search?keyword=Ohio+takes+legal+action+over+Rover+construction+violations.

[25] Ohio Environmental Protection Agency, In the Matter of Rover Pipeline LLC, Directors Final Findings and Orders, (Jul. 7, 2017), http://epa.ohio.gov/Portals/35/enforcement/Rover.pdf.

[26] Mintz, Sam, W.Va. halts construction on Rover, Environment and Energy News Reporter, (Jul. 24, 2017), *available at* https://www.eenews.net/greenwire/stories/1060057811/search?keyword=W.Va.+halts+construction+on+Rover; See also West Virginia Department of Environmental Protection Order No. 8749, (Jul. 17, 2017), https://www.eenews.net/assets/2017/07/24/document_gw_07.pdf.

[27] Renault, Marion, Feds shut down new drilling along Rover pipeline project, Columbia Dispatch (May 11, 2017), available at http://www.dispatch.com/news/20170511/feds-shut-down-new-drilling-along-rover-pipeline-project; Mufson, Steven, The company behind the Dakota Access pipeline is in another controversy, Washington Post, (Apr. 27, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/04/27/the-company-behind-the-dakota-access-pipeline-is-in-another-controversy/?utm_term=.fd37869145a2; Mandel, Jenny, Diesel found in Ohio Rover spill draws new fines, Environment & Energy News Reporter, (Jun. 9, 2017), https://www.eenews.net/energywire/stories/1060055786/search?keyword=Diesel+found+in+Ohio+Rover+spill+draws+new+penalties.

[28] Bureau of Land Management, Final Environmental Assessment for oil and gas leasing in the Wayne National Forest, Marietta Unit of the Athens Ranger District, Monroe, Noble, and Washington Counties, Ohio (DOI-BLM-Eastern States-0030-2016-0002-EA), (Oct. 2016), at 127.

best management practices that would help mitigate potential significant adverse effects.[29] The efficacy of those practices, however, is based on spill volume estimates provided, previously in section 4.7 that dramatically underestimate potential spill volumes when compared to the known Rover Pipeline spills highlighted above. Section 4.7 estimates that pipeline spills are not expected to surpass 1,000 gallons, while truck spills are not expected to release more than 10,000 gallons.[30] These estimates are at best several times lower, and at worst a full order of magnitude lower, than the 50,000-gallon spill that took place on April 14, and are several orders of magnitude lower than the April 13 spill of two million gallons. Moreover, the EA does not even contemplate the potential for HDD-backflow spills that have occurred during Rover's construction. Taken in proper context, the analysis in the EA is insufficient to account for cumulative effects of BLM's December 2016 authorization opening up the Wayne National Forest to new oil and gas leasing, including the proposed September lease parcels, in connection with other activities, including the ongoing development and eventual operation of the Rover Pipeline.

B. The EA's evaluation of potential risks from induced seismicity resulting from hydraulic fracturing is flawed and requires further analysis.

In its analysis on potential induced seismic events resulting from oil and gas operations, the BLM notes that the actual process of hydraulic fracturing does not itself present a "high risk for inducing felt seismic events," and while wastewater injection wells "pose some risk for induced seismicity…few events have been documented over the past several decades relative to the large number of disposal wells in operation."[31] Recent studies indicate, however, that the hydraulic fracturing process may present a greater risk of induced seismicity than the EA contemplates, but these studies are not considered in the EA. The EA also fails to recognize or analyze potential risks to sensitive infrastructure in and around the Wayne National Forest. In light of increased concern regarding induced seismicity from drilling, fracking and extraction, there is growing support for the use of "exclusions zones" within certain distances of sensitive infrastructure, including dams. The EA, while contemplating the implementation of limited monitoring measures, does not address the potential induced seismicity risks to sensitive infrastructure from wastewater injection, or similar risks resulting from hydraulic fracturing.

i. Recent studies indicate a greater risk of induced seismicity from the fracking process than contemplated in the EA.

The BLM must take into account a new study that analyzes the recent seismic activity in the northern Montney Play of British Columbia, and links it with hydraulic fracturing in the region.[32] After both the size and number of induced earthquakes in the western Canadian sedimentary basin increased significantly in recent years, regulations were put in effect to control and monitor activities in certain areas where abnormal seismic patterns were observed.[33] This study concludes

[29] *Id.*
[30] *Id.* at 107.
[31] *Id.* at 102
[32] Mahani, Alireza B. et al., Fluid Injection and Seismic Activity in the Northern Montney Play, British Columbia, Canada, with Special Reference to the 17 August 2015 Mw 4.6 Induced Earthquake, 107 Bulletin of the Seismological Soc'y of Am. 542 (2017).
[33] *Id.*

that "it is important to study induced seismicity because an increase in the number of events associated with oil and gas activity can have a significant impact on the regional seismic-hazard assessment, especially at sites close to the sources."[34]

The largest event to occur in the vicinity of oil and gas operations was the August 2015 earthquake in the northern Montney Play of British Columbia, where long-term fluid injection and multistage hydraulic fracturing have been taking place for decades.[35] The earthquake had a magnitude of 4.6 and its epicenter was located at a distance of 1.5 km to the southwest of a hydraulic fracturing pad.[36] The number of M3+ events increased from 33 in 2008 to 97 in 2015.[37] Recent studies in the northeast British Columbia region have revealed that this increase seems to be specifically associated with the hydraulic fracturing increase in the area.[38]

Temporal and spatial seismic activity correlation with fluid injection in the region revealed that these events are better correlated with the hydraulic fracturing process itself other than with other types of injection.[39] This study observed several characteristics in seismicity during 2015 in northeast British Columbia. First, the seismicity pattern was different before and after August 2015.[40] With the exception of February, much of the seismicity appeared to be sporadic throughout the region before August.[41] However, after August 2015, seismicity was clustered in the northwest–southeast direction, compatible with the orientation of faults within the Rocky Mountain fold-and-thrust belt.[42] Additionally, the number of seismic events has increased significantly since August 2015.[43] Thus, the study concluded that "because the number of seismic stations in the Progress Energy network remained the same, the increase in the number of seismic events must be due to the occurrence of events rather than increase in the network capability to record more events."[44]

To further investigate the correlation between seismicity and fluid injection from hydraulic fracturing, a statistical cross correlation test was performed between earthquakes and hydraulic fracturing operations.[45] The results of the analysis compared the daily earthquake counts with the reported daily injection volumes for all hydraulic fracturing wells in the study region.[46] When seismic activity and injection volumes from hydraulic fracturing wells were used to compare, since October 2014, the background seismicity with the activity in 2015, it was found that "[s]eismicity within the three-month period before 2015 was comparable to the background activity during the period in 2015 when less intensive hydraulic fracturing injection was taking

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[34] *Id.*
[35] *Id.*
[36] *Id.* at 551.
[37] *Id.* at 543.
[38] *Id.*
[39] *Id.* at 545.
[40] *Id.* at 544.
[41] *Id.* at 544–545.
[42] *Id.* at 545.
[43] *Id.*
[44] *Id.*
[45] *Id.* at 545.
[46] *Id.*

place."[47]

In sum, this study concludes that based on the temporal and spatial correlation of fluid injection in the region with seismic activity, and the higher injection volumes from hydraulic fracturing operations than from disposal wells, local seismic events are best correlated with hydraulic fracturing operations rather than with other types of injections.[48] This study supports concerns that we have previously raised that fluid injection from the hydraulic fracturing process itself, and not just solely from wastewater disposal, can cause induced seismicity in and around the Wayne National Forest.

It is well documented that fracking in Ohio and Pennsylvania has caused earthquakes.[49] A 2015 study showed that 77 earthquakes occurring in March 2014 near Youngstown, Ohio resulted when fracking triggered a microfault previously unknown to operators and regulators, including a magnitude 3.0 earthquake.[50] The EA lacks any meaningful discussion of these risks. According to the Ohio Department of Natural Resources:

> The origins of Ohio earthquakes, as with earthquakes throughout the eastern United States, are poorly understood. Those in Ohio appear to be associated with ancient zones of weakness in the Earth's crust that formed during rifting and continental collision events about a billion years ago. These zones are characterized by deeply buried and poorly known faults, some of which serve as the sites for periodic release of strain that is constantly building up in the North American continental plate due to continuous movement of the tectonic plates that make up the Earth's crust.[51]

On April 2, 2017, a 3.0 earthquake occurred in the Marietta Unit of the Wayne National Forest near Graysville, a site within five miles of eight Utica shale fracking sites.[52] This area of southeastern Ohio does not have a long history of earthquake activity.[53] Fracking operations within the vicinity of the earthquake's epicenter were suspended, and the Ohio Department of Natural Resources is investigating whether fracking may have caused the earthquake. Another

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[47] *Id.* at 545–546.
[48] *Id.* at 551.
[49] *See also* Skoumal, Robert, et al., Earthquakes Induced by Hydraulic Fracturing in Poland Township, Ohio, 105 Bull. of the Seismol. Soc'y of America 1: 189 (2015); Frazier, Reid, Pennsylvania confirms first fracking-related earthquakes, The Allegheny Front / StateImpact NPR (Feb 18, 2017), *available at* https://stateimpact.npr.org/pennsylvania/2017/02/18/pennsylvania-confirms-first-fracking-related-earthquakes/.
[50] Arenschield, Laura, Study ties 77 Ohio earthquakes to two fracking wells, Columbus Dispatch (Jan. 8, 2015) ("Arenschield 2015"), available at http://www.dispatch.com/content/stories/local/2015/01/08/Research-ties-Ohio-quakes-to-fracking.html
[51] Hanson, Earthquakes and seismic risk in Ohio, *available at* http://geosurvey.ohiodnr.gov/earthquakes-ohioseis/seismic-risk-in-ohio
[52] Renault, Marion, Ohio investigates cause of weekend earthquake in drilling region, Columbus Dispatch (April 4, 2017) ("Renault 2017"), *available at* http://www.dispatch.com/news/20170404/ohio-investigates-cause-of-weekend-earthquake-in-drilling-region.
[53] *Id.*

earthquake of 3.4 magnitude occurred in Noble County on June 2, 2017.[54] It is unclear whether this earthquake was naturally caused or induced by fracking. However, again, this area of southeastern Ohio has only experienced earthquake activity in recent years, likely due to fracking activities.[55]

In light of these risks, a recent study that outlines a framework for risk assessment to analyze potential harm to sensitive infrastructure from induced seismicity in Canada, recommends an "exclusion zone within a 5 km radius (in horizontal space) surrounding vulnerable high-consequence facilities...[and] and monitoring and response protocol to ensure that activity rates beyond the exclusion zone, to approximately 25 km, are kept below a specified limit."[56] The study stresses that these recommendations are meant to address induced seismicity from the hydraulic fracturing process, and that wastewater disposal wells may require a larger exclusion zone of 10 km.[57] As noted above, the BLM has failed to give any serious consideration to either the issue of induced seismicity from the fracking process or the associated risks to sensitive infrastructure—e.g., pipelines, bridges, dams, and lakes--and must analyze this potential threat in an EIS.

C. The EA cannot rely on BLM's fracking rule, EPA's methane rule, or BLM's waste prevention rule to ensure mitigation of any adverse effects from oil and gas operations in the Wayne National Forest.

To the extent that the EA relies on either BLM's rule regulating fracking on public lands (80 Fed. Reg. 16128), the U.S. Environmental Protection Agency's (EPA) "methane rule" (found at 81 Fed. Reg. 35824), BLM's "waste prevention rule" (found at 81 Fed. Reg. 83008), those rules cannot provide the basis for mitigation measures or support the leasing decisions. This is because the legal status, and/or effective date of these rules are unclear. On July 25, 2017, BLM proposed to withdraw the rule regulating hydraulic fracturing on public lands.[58] Regarding the waste prevention rule, the BLM recently postponed certain compliance dates for that rule.[59] BLM's decision to postpone the effective date of the rule is being challenged by environmental groups.[60] Similarly, the EPA has attempted to delay when key provisions of the rule take effect, by up to two years. A D.C. Circuit Court decision, however, ordered the EPA to reinstate those

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[54] Lowe, John, Earthquake rattles homes in Guernsey, Noble, Belmont counties, The Daily & Sunday Jeffersonian (June 3, 2017), available at http://www.daily-jeff.com/local%20news/2017/06/03/earthquake-rattles-homes-in-guernsey-noble-belmont-counties.

[55] *See* Renault 2017.

[56] Atkinson, Gail, Strategies to prevent damage to critical infrastructure due to induced seismicity. Department of Earth Sciences, Western University, Canada (2017) ("Atkinson 2017"), available at http://www.inducedseismicity.ca/wp-content/uploads/Atkinson2017-FACETS.pdf.

[57] *Id.*

[58] Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands; Rescission of a 2015 Rule, 84 Fed. Reg. 34464 (July 25, 2017).

[59] Bureau of Land Management, Waste Prevention, Production Subject to Royalties, and Resource Conservation; Postponement of Certain Compliance Dates, FR Doc. 2017-12325, (Jun. 15, 2017), *available at* https://s3.amazonaws.com/public-inspection.federalregister.gov/2017-12325.pdf.

[60] Gilmer, Ellen, Enviros, industry wrestle over fate of standards in court, Environment and Energy News Reporter, (Jul. 28, 2017), *available at* https://www.eenews.net/energywire/stories/1060058063/print.

restrictions[61]; industry groups have requested an en banc hearing to reconsider that decision.[62] Given the legal uncertainty of these rules, and especially given BLM's attempt to rollback or stay its own rules, BLM cannot rely on these regulations in its analysis of mitigation in the EA or in its Finding of No Significant Impact.

III. Conclusion

Unconventional oil and gas development not only fuels the climate crisis but entails significant public health risks and harms to the environment. Accordingly, BLM should cancel the lease auction, or else prepare an EIS that thoroughly analyzes the effects of the proposed lease auction, as compared to the alternative of no new fossil fuel leasing and no fracking or other unconventional well stimulation methods within the WNF planning area. BLM must also consult under Section 7 of the ESA, prior to allowing the proposed action to move forward. Thank you for your consideration of these comments.

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[61] *Id.*; *see also Clean Air Council v. Pruitt*, No. 17-1145, 2017 U.S. App. LEXIS 11803, at *1 (D.C. Cir. July 3, 2017).

[62] Gilmer, Ellen, Enviros, industry wrestle over fate of standards in court, Environment and Energy News Reporter, (Jul. 28, 2017), *available at* https://www.eenews.net/energywire/stories/1060058063/print.