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Mary Jo Rugwell
Acting State Director
U.S. Bureau of Land Management
Wyoming State Office
5353 Yellowstone Road
Cheyenne, WY 82003

Re: Protest of May 2016 Competitive Oil and Gas Lease Sale

Dear Ms. Rugwell:

Pursuant to 43 C.F.R. § 3120.1-3, WildEarth Guardians and Physicians for Social Responsibility hereby protest the Bureau of Land Management's ("BLM's") proposals to offer 30 publicly owned oil and gas lease parcels covering 27,070.43 acres of land in the High Desert District Office of Wyoming and to offer 80 parcels totaling 77,385 acres of land in the High Plains and Wind River/Bighorn Basin District Offices of Wyoming for competitive sale on May 3, 2016. These lease parcels include the following, as identified by the BLM's in its Final February and May 2016 Notice of Competitive Lease Sales and related Information Notices:[1]

Parcels to be Auctioned on May 3, 2016 as Identified in the BLM's November 4, 2015 Notice of Competitive Lease Sale

Lease Number	Acres	Field Office	County
WY-1602-001	194.12	Newcastle	Niobrara

[1] In November 2015, the BLM originally provided notice of its proposal to offer competitive oil and gas leases for sale on February 2, 2016, but this sale was canceled due to weather. Although the BLM issued a press release announcing its plans to offer the February lease parcels for sale on May 3, 2016, the agency has not provided formal notice of this proposal in accordance with 43 C.F.R. § 3120.4. This notice would trigger a new opportunity for affected persons to file protests pursuant to 43 C.F.R. § 3120.1-3. WildEarth Guardians and Physicians for Social Responsibility presume the BLM will provide notice of its intent to offer the February parcels for sale on May 3, 2016 consistent with 43 C.F.R. § 3120.4. However, in an abundance of caution, this Protest is directed toward all lease parcels that the BLM has indicated will be offered for sale on May 3, 2016, including the February parcels.

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WY-1602-002	560.00	Newcastle	Niobrara
WY-1602-003	160.00	Newcastle	Niobrara
WY-1602-004	1075.22	Newcastle	Niobrara
WY-1602-005	1003.49	Newcastle	Niobrara
WY-1602-006	2241.48	Newcastle	Niobrara
WY-1602-007	1878.24	Newcastle	Niobrara
WY-1602-008	1200.15	Newcastle	Niobrara
WY-1602-009	2283.49	Newcastle	Niobrara
WY-1602-010	2326.31	Newcastle	Niobrara
WY-1602-011	641.03	Newcastle	Niobrara
WY-1602-012	120.00	Newcastle	Niobrara
WY-1602-013	40.00	Newcastle	Niobrara
WY-1602-014	160.00	Newcastle	Goshen
WY-1602-015	600.31	Newcastle	Niobrara
WY-1602-016	2260.73	Newcastle	Niobrara
WY-1602-017	520.00	Newcastle	Niobrara
WY-1602-018	1967.08	Newcastle	Niobrara
WY-1602-019	400.76	Newcastle	Niobrara
WY-1602-020	603.31	Newcastle	Niobrara
WY-1602-021	240.00	Newcastle	Weston
WY-1602-022	236.27	Newcastle	Weston
WY-1602-023	320.69	Newcastle	Weston
WY-1602-024	199.01	Newcastle	Weston
WY-1602-025	40.00	Casper	Converse
WY-1602-026	320.44	Casper	Converse
WY-1602-027	720.35	Casper	Converse
WY-1602-028	40.00	Newcastle	Crook
WY-1602-029	80.00	Newcastle	Crook
WY-1602-030	76.64	Newcastle	Crook
WY-1602-031	360.00	Casper	Converse
WY-1602-032	274.50	Newcastle	Crook
WY-1602-033	283.76	Newcastle	Crook
WY-1602-034	511.97	Casper	Converse
WY-1602-035	80.00	Casper	Converse
WY-1602-036	160.00	Casper	Converse
WY-1602-037	39.47	Casper	Converse
WY-1602-038	240.00	Casper	Converse
WY-1602-039	2377.59	Casper	Natrona
WY-1602-040	2530.03	Casper	Natrona
WY-1602-041	440.00	Casper	Converse
WY-1602-042	1918.73	Casper	Natrona
WY-1602-044	2240.00	Casper	Natrona
WY-1602-045	2400.00	Casper	Natrona
WY-1602-047	1840.00	Casper	Natrona

WY-1602-048	720.00	Casper	Natrona
WY-1602-049	2120.00	Casper	Natrona
WY-1602-050	1517.37	Casper	Natrona
WY-1602-053	1268.82	Lander	Fremont
WY-1602-054	1579.68	Lander	Fremont
WY-1602-055	939.92	Lander	Fremont
WY-1602-056	1940.24	Casper/Lander	Fremont
WY-1602-057	384.78	Lander	Fremont
WY-1602-065	2400.00	Lander	Fremont
WY-1602-066	1320.00	Lander	Fremont
WY-1602-081	2560.00	Lander	Fremont
WY-1602-082	1421.88	Lander	Fremont
WY-1602-083	40.00	Lander	Fremont
WY-1602-084	160.00	Lander	Fremont
WY-1602-085	80.00	Lander	Fremont
WY-1602-086	1460.00	Lander	Fremont
WY-1602-088	2560.00	Lander	Fremont
WY-1602-089	1688.36	Lander	Fremont
WY-1602-090	720.00	Lander	Fremont
WY-1602-091	1280.00	Lander	Fremont
WY-1602-092	120.00	Lander	Fremont
WY-1602-094	1240.00	Lander	Fremont
WY-1602-095	1187.82	Lander	Fremont
WY-1602-096	80.00	Lander	Fremont
WY-1602-097	280.00	Lander	Fremont
WY-1602-098	80.90	Lander	Fremont
WY-1602-102	320.00	Lander	Fremont
WY-1602-103	2452.51	Lander	Fremont
WY-1602-104	1905.29	Lander	Fremont
WY-1602-105	2400.00	Lander	Fremont
WY-1602-106	2002.76	Lander	Fremont
WY-1602-107	2160.00	Lander	Fremont
WY-1602-108	80.00	Lander	Fremont
WY-1602-116	160.35	Newcastle	Weston
WY-1602-117	72.91	Newcastle	Weston

Parcels to be Auctioned on May 3, 2016 as Identified in the BLM's February 3, 2016 Notice of Competitive Lease Sale

Lease Number	Acres	Field Office	County
WY-1605-001	439.13	Rawlins	Carbon
WY-1605-002	510.00	Rawlins	Carbon
WY-1605-003	1420.00	Rawlins	Carbon
WY-1605-004	120.00	Rawlins	Carbon

WY-1605-005	2105.67	Rawlins	Sweetwater
WY-1605-006	280.00	Rawlins	Sweetwater
WY-1605-007	680.00	Rawlins	Sweetwater
WY-1605-008	720.00	Rawlins	Sweetwater
WY-1605-009	320.00	Rawlins	Sweetwater
WY-1605-010	2031.73	Rawlins	Sweetwater
WY-1605-011	122.01	Rock Springs	Sweetwater
WY-1605-012	1921.04	Rock Springs	Sweetwater
WY-1605-013	640.00	Rock Springs	Sweetwater
WY-1605-014	1751.52	Rock Springs	Sweetwater
WY-1605-015	960.00	Rock Springs	Sweetwater
WY-1605-016	999.67	Rock Springs	Sweetwater
WY-1605-017	197.35	Rock Springs	Lincoln
WY-1605-018	239.85	Rock Springs	Sweetwater
WY-1605-019	679.51	Rock Springs	Sweetwater
WY-1605-020	240.00	Rock Springs	Sweetwater
WY-1605-021	817.68	Rock Springs	Lincoln
WY-1605-022	471.68	Rock Springs	Uinta
WY-1605-023	2240.00	Pinedale	Sublette
WY-1605-024	680.00	Pinedale	Sublette
WY-1605-025	480.00	Kemmerer	Uinta
WY-1605-026	731.02	Kemmerer	Uinta
WY-1605-027	1835.25	Kemmerer	Uinta
WY-1605-028	1200.00	Kemmerer	Uinta
WY-1605-029	797.32	Kemmerer	Uinta
WY-1605-030	1440.00	Kemmerer	Uinta

STATEMENT OF INTEREST

WildEarth Guardians is a nonprofit environmental advocacy organization dedicated to protecting the wildlife, wild places, wild rivers, and health of the American West. On behalf of our members, Guardians has an interest in ensuring the BLM fully protects public lands and resources as it conveys the right for the oil and gas industry to develop publicly owned minerals. More specifically, Guardians has an interest in ensuring the BLM meaningfully and genuinely takes into account the climate implications of its oil and gas leasing decisions and objectively and robustly weighs the costs and benefits of authorizing the release of more greenhouse gas emissions that are known to contribute to global warming.

Physicians for Social Responsibility is a nonprofit organization that works to protect human life from the gravest threats to health and survival. The organization educates and activates the medical and broader health community, and the public, to slow, stop, and reverse global warming and toxic degradation of the environment. Physicians for Social Responsibility has an interest in ensuring the BLM addresses the climate impacts of authorizing more public lands oil and gas development and takes into account the broader public health implications of

more fossil fuel production and consumption. Physicians for Social Responsibility is based in Washington, D.C., but has chapters across the United States.

WildEarth Guardians submitted comments on the BLM's proposed leasing on August 19, 2015 and December 2, 2015. These flagged concerns over the BLM's failure to adequately address the climate impacts of the proposed leasing. As part of these comments, Guardians referenced and attached numerous exhibits. For purposes of this protest, our comments and exhibits are hereby incorporated by reference.

The mailing address to which correspondence regarding this protest should be directed is as follows:

Jeremy Nichols
Climate and Energy Program Director
WildEarth Guardians
2590 Walnut St.
Denver, CO 80205

STATEMENT OF REASONS

WildEarth Guardians and Physicians for Social Responsibility protests the BLM's May 3, 2016 oil and gas lease sale (including the sale of the February 2016 lease parcels) on two grounds: 1) The agency's failure to adequately analyze and assess the climate impacts of the reasonably foreseeable oil and gas development that will result in accordance with the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4331, *et seq.*, and regulations promulgated thereunder by the White House Council on Environmental Quality ("CEQ"), 40 C.F.R. § 1500, *et seq*; and 2) The agency's failure to adequately analyze and assess impacts of leasing and reasonably foreseeable oil and gas development to sage grouse and sage grouse habitat.

NEPA is our "basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). The law requires federal agencies to fully consider the environmental implications of their actions, taking into account "high quality" information, "accurate scientific analysis," "expert agency comments," and "public scrutiny," prior to making decisions. *Id.* at 1500.1(b). This consideration is meant to "foster excellent action," meaning decisions that are well informed and that "protect, restore, and enhance the environment." *Id.* at 1500.1(c).

To fulfill the goals of NEPA, federal agencies are required to analyze the "effects," or impacts, of their actions to the human environment prior to undertaking their actions. 40 C.F.R. § 1502.16(d). To this end, the agency must analyze the "direct," "indirect," and "cumulative" effects of its actions, and assess their significance. 40 C.F.R. §§ 1502.16(a), (b), and (d). Direct effects include all impacts that are "caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a). Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id.* at § 1508.8(b). Cumulative effects include the impacts of all past, present, and reasonably foreseeable actions, regardless of what entity or entities undertake the actions. 40 C.F.R. § 1508.7.

An agency may prepare an environmental assessment ("EA") to analyze the effects of its actions and assess the significance of impacts. *See* 40 C.F.R. § 1508.9; *see also* 43 C.F.R. § 46.300. Where effects are significant, an Environmental Impact Statement ("EIS") must be prepared. *See* 40 C.F.R. § 1502.3. Where significant impacts are not significant, an agency may issue a Finding of No Significant Impact ("FONSI") and implement its action. *See* 40 C.F.R. § 1508.13; *see also* 43 C.F.R. § 46.325(2).

Here, the BLM fell short of complying with NEPA with regards to analyzing and assessing the potentially significant climate impacts of oil and gas leasing and with regards to analyzing and assessing sage grouse impacts. In support of its proposed leasing, the agency prepared three EAs, one for the High Plains District parcels (DOI-BLM-WY-070-EA15-225, hereafter "High Plains EA"), one for parcels in the Wind River and Bighorn Basin Districts (DOI-BLM-WY-R000-2015-0002-EA, hereafter "Wind River-Bighorn EA"), and one for parcels in the High Desert District (DOI-BLM-WY-040-EA15-130, hereafter "High Desert EA").[2] In the EAs, however, the BLM failed to analyze the reasonably foreseeable greenhouse gas emissions that would result from selling the oil and gas lease parcels, failed to assess the significance of any emissions, particularly in terms of carbon costs, and failed to demonstrate that impacts to sage grouse would not be significant.

With regards to climate impacts, the BLM rightfully acknowledges that climate change is a very serious issue and that it is being fueled by the release of human-produced greenhouse gas emissions. *See e.g.* High Desert EA at 42. In all the EAs, the BLM acknowledged findings by the Intergovernmental Panel on Climate Change ("IPCC"), stating:

> The IPCC recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures sine the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Wind River-Bighorn EA at 3-3. Unfortunately, in spite of recognizing these serious climate consequences, the BLM made no effort in the EAs to analyze and assess the reasonably foreseeable greenhouse gas emissions that would result from oil and gas development and the likely climate consequences.

In the High Desert EA, no effort was made to quantify reasonably foreseeable greenhouse gas emissions. *See* High Desert EA at 61-62. The best the BLM could offer in all the High

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[2] The High Plains and Wind River/Bighorn Basin EAs are available on the BLM's website at http://www.blm.gov/style/medialib/blm/wy/information/NEPA/og/2016/ver1.Par.90542.File.dat/EA_HPD.pdf and http://www.blm.gov/style/medialib/blm/wy/information/NEPA/og/2016/ver1.Par.90459.File.dat/EA_WRBBD.pdf. The High Desert EA is available on the BLM's website at http://www.blm.gov/style/medialib/blm/wy/information/NEPA/og/2016/05may/ver2.Par.21370.File.dat/V2_EA.pdf.

Plains and Wind River-Bighorn EAs was the bizarre assertion that an oil and gas well emits only 0.00059 metric tons of carbon dioxide equivalent ("CO2e") annually. *See* High Plains EA at 51 and Wind River-Bighorn EA at 4-3. Yet reports by the BLM have estimated that, depending on the type of oil and gas well, per well greenhouse gas emissions range from 791 to 3,682 tons of CO2e. *See* Exhibit 1, Kleinfelder, "Air Emissions Inventory Estimates for a Representative Oil and Gas Well in the Western United States," report prepared for Bureau of Land Management (March 25, 2013), available online at https://climatewest.files.wordpress.com/2015/03/blm_oandg_rpt_final_032613_21.pdf. These emission estimates, however, do not account for the reasonably foreseeable emissions that would result from the processing, refining, and ultimate combustion of oil and gas. None of the EAs supporting the proposed leasing even attempted to address such reasonably foreseeable impacts.

Instead of using readily available information and methods, including analyses that other BLM offices have been perfectly capable of preparing, the agency instead asserts that it is simply "impossible" to estimate such emissions. *See* High Desert EA at 62, High Plains EA at 51, and Wind River-Bighorn EA at 4-3. The issue, however, is not that it is impossible to estimate emissions, but that BLM believes it cannot estimate emissions as precisely as it prefers to. This is not allowed under NEPA. Although the agency may believe that without definitive development proposals, it cannot project impacts, the whole point of leasing oil and gas is to facilitate development.[3] The BLM cannot claim that the act of leasing carries with it no intention to foster future development. Regardless, because leasing conveys a right to develop, absent any stipulations that provide the agency with authority to constrain or even prevent future development to limit greenhouse gas or climate impacts, the BLM has basis to assert that it is appropriate to wait to conduct its legally required analysis under NEPA, or worse, assert that there would be no reasonably foreseeable emissions associated with its proposed action.

With regards to sage grouse and its habitat, the BLM failed to analyze and assess the impacts of reasonably foreseeable development in light of the fact that scientific studies continue to demonstrate that current management, even under revised RMPs, is insufficient to protect the grouse.

In any case, the BLM has completely failed to provide information and analysis, even brief information and analysis, supporting a FONSI and any decision to sell and issue the aforementioned lease parcels. Either the BLM must prepare an EIS or it cannot proceed with the lease sale as proposed. Below, we detail how BLM's proposal fails to comply with NEPA.

1. The BLM Failed to Analyze and Assess the Direct, Indirect, and Cumulative Impacts of Greenhouse Gas Emissions that Would Result from Issuing the Proposed Lease Parcels

In the EAs, the BLM completely rejected analyzing and assessing the potential direct and indirect greenhouse gas emissions, including carbon dioxide and methane, that would result from

[3] The BLM's argument, that specific development proposals are required before development-related impacts become reasonably foreseeable is also specious as before a parcel of land is leased, no such development proposals can even be proposed.

the reasonably foreseeable development of the proposed leases. Although acknowledging that development of the lease parcels would occur and that greenhouse gas emissions would be produced, no analysis of these emissions was actually prepared.

The BLM appears to assert that estimates of emissions are impossible to determine because it is impossible to determinate what reasonably foreseeable development may occur. However, as the agency notes in the EAs, reasonably foreseeable development scenarios have been analyzed for the High Desert, High Plains, Wind River, and Bighorn Districts through Resource Management Planning. *See* High Desert EA at 60, High Plains EA at 48, and Wind River-Bighorn EA at 4-5. In the Casper Field Office, for example, the agency estimated in a reasonably foreseeable development scenario that up to 2,642 new oil and gas wells are likely to be developed by 2020. *See* Table below.

Table 15. Total wells projected to be drilled within the Casper Field Office area for the base line and each alternative for the period 2001-2020. The projections of the percent of Federal wells drilled for this period is also presented.

Alternative	Coalbed Gas Wells	Non-coalbed Oil and Gas Wells	Total Wells	Percent Federal
Base Line	700	2,100	2,800	71
Alternative A (No Action)	677	1,965	2,642	69
Alternative B	343	655	998	19
Alternative C	642	1,841	2,483	67
Alternative D	678	1,931	2,609	69
Alternative E	679	1,949	2,628	69

Reasonably Foreseeable Development findings from Casper Reasonably Foreseeable Development Scenario report (hereafter "Casper RFDS"). *See* BLM, "Final Reasonably Foreseeable Development Scenario for Oil and Gas, Casper Field Office" (Feb. 3, 2005) at Table 15, available at www.blm.gov/style/medialib/blm/wy/programs/planning/rmps/casper/docs.Par.27322.File.dat/03_rfd.pdf.

For the High Desert District, the BLM also states in its EA that:

> The Reasonably Foreseeable Development (RFD) in the Rawlins RMP assumes that 3,711 federal wells would be put into production over a 20-year life of project assumption (LOP), which equates to approximately 186 wells per year. The RFD was derived for analysis purposes on a field office-wide basis and is not intended to be a development cap. The RFD document for the Kemmerer RMP estimated that approximately 120 wells would be drilled/completed annually for Federal minerals. The

> RFD for Pinedale RMP is 9,150 wells (457/year) and the Green River RMP is 2,400 (120/year).

High Desert EA at 60. Further, the EAs acknowledge that as a result of past leasing, extensive development has occurred in the High Desert, High Plains, Wind River, and Bighorn Districts. The BLM explains in the High Plains EA, for example:

> Over the last 10 years including 2010, leasing Federal oil and gas mineral estate has resulted in a total of 13,436 APDs approved in the Buffalo FO, 882 APDs in Casper FO, and 327 APDs in the Newcastle FO. A total of 14,465 APDs have been approved in the HPD over these last ten years for an annual average of 1,465 APDs; 1,344 APDs per year in Buffalo FO, 88 APDs per year in Casper FO and 33 APDs per year in Newcastle FO. As of 2010, there are over 39,000 producing wells in the HPD consisting of: Buffalo FO with over 31,000, Casper FO with over 5,000 and Newcastle FO with over 3,000.

High Plans EA at 48. Further, in the High Desert EA, the BLM explains:

> Over the last 10 years, the development on federal oil and gas mineral estate in the Kemmerer, Rawlins, Pinedale and Rock Springs field Offices has resulted in an average of 545 wells being spudded annually (approximately 15 in KFO [Kemmerer], 180 in RFO [Rawlins], 235 in PFO [Pinedale], and 115 in RSFO [Rock Springs].

High Desert EA at 59. In these cases, although BLM may not know precisely how many wells will be developed, the agency knows that some wells will clearly be developed, and that over the life of the current Resource Management Plans, a certain number of wells are likely to be developed. This cannot support a conclusion that zero wells will be developed or that there will be zero impacts, which the BLM appears to be advancing in all three EAs.

The BLM's position is all the more egregious given that other BLM Field Offices, including, but not limited to, the Four Rivers Field Office in Idaho, the Billings Field Office in Montana, the Miles City Field Office in Montana, the Royal Gorge Field Office in Colorado, and others have not only estimated reasonably foreseeable greenhouse gas emissions associated with the development of oil and gas leases, but clearly do not believe that such information is not "impossible" to analyze under NEPA.

In the Four Rivers Field Office of Idaho, the BLM utilized an emission calculator developed by air quality specialists at the BLM National Operations Center in Denver to estimate likely greenhouse gases that would result from leasing five parcels. *See* Exhibit 2, BLM, "Little Willow Creek Protective Oil and Gas Leasing," EA No. DOI-BLM-ID-B010-2014-0036-EA (February 10, 2015) at 41, available online at https://www.blm.gov/epl-front-office/projects/nepa/39064/55133/59825/DOI-BLM-ID-B010-2014-0036-EA_UPDATED_02272015.pdf. Relying on a report prepared in 2013 for the BLM by Kleinfelder, which is attached to this Protest as Exhibit 1, the agency estimated that 2,893.7 tons of carbon dioxide equivalent ("CO_2e") would be released per well. *Id.* at 35. Based on the analyzed alternatives, which projected between 5 and 25 new wells, the BLM estimated that total greenhouse gas emissions would be between 14,468.5 tons and 72,342.5 tons annually. *Id.*

In the Miles City Field Office of Montana, the BLM estimated likely greenhouse gas emissions from development of oil and gas leases. To do so, the agency first calculated annual greenhouse gas emissions from oil and gas activity within the Field Offices. *See* Exhibit 18 to Guardians' August 15, 2015 Comments on the High Plains and Wind River-Bighorn EAs at 51. The BLM then calculated total greenhouse gases by assuming that the percentage of acres to be leased within the federal mineral estate of the Field Office would equal the percentage of emissions. *Id.* Although we have concerns over the validity of this approach to estimate emissions (an "acre-based" estimate of emissions is akin to estimating automobile emissions by including junked cars, which has the misleading effect of reducing the overall "per car" emissions), nevertheless it demonstrates that the BLM has the ability to estimate reasonably foreseeable greenhouse gas emissions associated with oil and gas leasing and that such estimates are valuable for ensuring a well-informed decision.[4]

In the Royal Gorge Field Office of Colorado, the BLM contracted with URS Group Inc. to prepare an analysis of air emissions from the development of seven oil and gas lease parcels. *See* Exhibit 3, URS Group Inc., "Draft Oil and Gas Air Emissions Inventory Report for Seven Lease Parcels in the BLM Royal Gorge Field Office," Prepared for BLM, Colorado State Office and Royal Gorge Field Office (July 2013). This report estimated emissions of carbon dioxide and methane on a per-well basis and estimated the total number of wells that could be developed in these seven parcels. *See* Exhibit 1 at 3 and 5. This report was later supplanted by the Colorado Air Resource Management Modeling Study, or CARMMS, which estimated reasonably foreseeable emissions of greenhouse gases, criteria pollutants, and hazardous air pollutants associated with oil and gas development throughout Colorado, as well as part of New Mexico, and modeled air quality impacts. *See* Exhibit 4, ENVIRON, "Colorado Air Resource Management Modeling Study (CARMMS) 2021 Modeling Results for the High, Low and Medium Oil and Gas Development Scenarios," Prepared for BLM Colorado State Office (January 2015), available online at http://www.blm.gov/style/medialib/blm/co/information/nepa/air_quality.Par.97516.File.dat/CARMMS_Final_Report_w-appendices_012015.pdf. As part of the CARMMS report, the BLM estimated per well emissions, including greenhouse gas emissions, in tons per year, as follows:

Phase	PM_{10}	$PM_{2.5}$	VOC	CO	NO_X	SO_2	CO_2	CH_4	N_2O	HAP
Conventional Construction	5.21	0.64	0.05	0.23	0.72	0.02	108.1	0.00	0.00	0.01
CBM Construction	3.37	0.44	0.03	0.12	0.36	0.01	56.58	4.06	0.00	0.00
Conventional Production	1.15	0.15	6.67	1.30	0.73	0.00	251.9	17.14	0.00	0.43
CBM Production	2.25	0.25	13.10	1.13	0.62	0.00	181.6	19.05	0.00	1.31

[4] In addition to the Miles City Field Offices, the BLM estimated greenhouse gas emissions associated with oil and gas leasing in the Billings, Butte, and Dillon Field Offices.

Using these CARMMS estimates, as well as assumptions used in the agency's reasonably foreseeable development scenario analyses, it appears relatively straightforward for the agency to estimate total greenhouse gas emissions, at least on a cumulative basis. For instance, in the Casper Field Office, the agency concluded in 2005 that up to 2,100 new conventional oil and gas wells could be drilled in the area by 2020. *See* Casper RFD at Table 15. 2,100 new wells would amount to 227,010 tons of carbon dioxide for construction (2,100 wells * 108.1 tons of CO_2) and 528,990 tons/year for production (2,100 wells * 251.9 tons/year), for a total of 756,000 tons of CO_2 annually.

Although the BLM may assert that such information is not possible to analyze, there is no basis for such a claim. Not only has the agency estimated reasonably foreseeable development and disclosed in the EAs that greenhouse gas emissions are a likely reasonably foreseeable consequence of issuing the leases and conveying the rights for leaseholders to develop, but using the agency's own logic, this would mean that any analysis of future environmental impacts would be incredibly uncertain. Of course, this would completely undermine NEPA's mandate that significance be based on "uncertain[ty]." 40 C.F.R. § 1508.27(b)(5). Indeed, if the climate impacts of oil and gas leasing are, as the BLM asserts, so uncertain, then an EIS is justified. As CEQ states, whether or not impacts are significant, and therefore trigger the need to prepare an EIS, are based on whether impacts are "highly uncertain or involve unique or unknown risks." *Id.* The BLM cannot summarily dismiss significant issues, such as climate change, on the basis of uncertainty without assessing whether this uncertainty necessitates preparation of an EIS.

Regardless, the agency's arguments in the EAs are belied by the fact that, as just discussed, other BLM Field Offices clearly believe that an analysis of reasonably foreseeable greenhouse gas emissions is not only reasonable, but also possible and useful.

Adding to the shortcomings in the EAs is that the BLM failed to analyze the cumulative impacts of greenhouse gas emissions from past, present, and reasonably foreseeable oil and gas development. As noted above, other BLM Field Offices, including several Montana Field Offices, have analyzed the likely greenhouse gas emissions that would result based on the BLM's own reasonably foreseeable development scenarios. *See e.g.* Exhibit 18 to Guardians' August 15, 2015 EA Comments at 51. In Colorado, the BLM estimated the likely greenhouse gas emissions that would result from the reasonably foreseeable development projected in each field office. *See* Exhibit 5, BLM, "CARMMS GHG Emissions," available online at http://www.blm.gov/style/medialib/blm/co/information/nepa/air_quality.Par.54983.File.dat/CARMMS%20GHG%20Data.xlsx. In this case, the BLM has not made any attempt to estimate greenhouse gas emissions that would result from oil and gas development likely to occur under the agency's reasonably foreseeable development scenarios for any Field Office in the High Desert, High Plains, Wind River, or Bighorn Basin Districts.

In all three EAs, BLM appears to insinuate that greenhouse gas emissions from reasonably foreseeable oil and gas development would simply be insignificant, for example asserting in the High Plains and Wind River-Bighorn EAs that a single well would only emit 0.00059 metric tons of CO2e annually. This assertion, however, defies the required scope of the BLM's analysis. Under NEPA, an agency must analyze the impacts of "similar" and "cumulative" actions in the same NEPA document in order to adequately disclose impacts in an

EIS or provide sufficient justification for a FONSI in an EA. *See* 40 C.F.R. §§ 1508.25(a)(2) and (3). Here, the BLM was required to at least take into account the greenhouse gas emissions resulting from other proposed oil and gas leasing in Wyoming, if not beyond, as well as related oil and gas development, and to analyze the impacts of these actions in terms of their direct, indirect, and cumulative impacts. At a minimum, it would appear the BLM was required to analyze the impacts of leasing in the High Desert, High Plains, Wind River, and Bighorn Basin Districts in a single NEPA document. The failure to conduct such an analysis underscores that FONSIs are not warranted.[5]

The failure to address cumulative greenhouse gas emissions is made worse by the fact that the underlying Final EISs prepared for the Kemmerer, Pinedale, Green River, Rawlins, Rock Springs, Lander, Newcastle, and Casper Field Offices' Resource Management Plans nowhere analyze or assess greenhouse gas emissions associated with oil and gas development. In light of this, the BLM clearly has no basis to conclude that greenhouse gas emissions resulting from the reasonably foreseeable impacts of oil and gas development associated with the proposed leasing would not be significant. Without any analysis of cumulative greenhouse emissions whatsoever, the agency's proposed FONSIs are unsupported under NEPA.

The BLM finally attempts to argue that an analysis of greenhouse gas emissions is more appropriate at the drilling stage. We have yet to see the BLM actually prepare such a site-specific analysis in conjunction with an oil and gas lease development proposal. As WildEarth Guardians pointed out in its comments, no such analysis is ever conducted by the BLM. *See* Exhibits 7 and 8 to Guardians' August 15, 2015 Comments. What's more, this argument has no merit as the agency has proposed no stipulations that would grant the BLM discretion to limit, or outright prevent, development of the proposed leases on the basis of greenhouse gas emissions and/or climate concerns. The BLM is effectively proposing to make an irreversible commitment of resources, which is the hallmark of significance under NEPA. *See* 42 U.S.C. § 4332(c)(v) and 40 C.F.R. § 1502.16. The failure to prepare an EIS—or any analysis for that matter—to address the potentially significant reasonably foreseeable greenhouse gas emissions that would result from the proposed leases is contrary to NEPA.

2. The BLM Failed to Analyze the Costs of Reasonably Foreseeable Carbon Emissions Using Well-Accepted, Valid, Credible, GAO-Endorsed, Interagency Methods for Assessing Carbon Costs that are Supported by the White House

Compounding the failure of the BLM to make any effort to estimate the greenhouse gas emissions that would result from reasonably foreseeable oil and gas development is that the agency also rejected analyzing and assessing these emissions in the context of their costs to society. It is particularly disconcerting that the agency refused to analyze and assess costs using the social cost of carbon protocol, a valid, well-accepted, credible, and interagency endorsed method of calculating the costs of greenhouse gas emissions and understanding the potential significance of such emissions.

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[5] It also indicates the BLM may be inappropriately piecemealing, or segmenting, its analysis under NEPA in an attempt to avoid preparing an EIS.

The social cost of carbon protocol for assessing climate impacts is a method for "estimat[ing] the economic damages associated with a small increase in carbon dioxide (CO2) emissions, conventionally one metric ton, in a given year [and] represents the value of damages avoided for a small emission reduction (i.e. the benefit of a CO2 reduction)." Exhibit 13 to Guardians' August 15, 2015 EA Comments. The protocol was developed by a working group consisting of several federal agencies, including the U.S. Department of Agriculture, U.S. Environmental Protection Agency ("EPA"), CEQ, and others, with the primary aim of implementing Executive Order 12866, which requires that the costs of proposed regulations be taken into account.

In 2009, an Interagency Working Group was formed to develop the protocol and issued final estimates of carbon costs in 2010. These estimates were revised in 2013 by the Interagency Working Group, which at the time consisted of 13 agencies, including the Department of Agriculture, and again revised in 2015. *See* Exhibit 16 to Guardians' August 15, 2015 EA Comments.

Depending on the discount rate and the year during which the carbon emissions are produced, the Interagency Working Group estimates the cost of carbon emissions, and therefore the benefits of reducing carbon emissions, to range from $10 to $212 per metric ton of carbon dioxide. *See* Chart Below. In July 2014, the U.S. Government Accountability Office ("GAO") confirmed that the Interagency Working Group's estimates were based on sound procedures and methodology. *See* Exhibit 19 to Guardians' August 15, 2015 EA Comments.

Revised Social Cost of CO_2, 2010 – 2050 (in 2007 dollars per metric ton of CO_2)

Discount Rate Year	5.0% Avg	3.0% Avg	2.5% Avg	3.0% 95th
2010	10	31	50	86
2015	11	36	56	105
2020	12	42	62	123
2025	14	46	68	138
2030	16	50	73	152
2035	18	55	78	168
2040	21	60	84	183
2045	23	64	89	197
2050	26	69	95	212

Most recent social cost of carbon estimates presented by Interagency Working Group on Social Cost of Carbon. The 95th percentile value is meant to represent "higher-than-expected" impacts from climate change.

Although often utilized in the context of agency rulemakings, the protocol has been recommended for use and has been used in project-level decisions. For instance, the EPA recommended that an EIS prepared by the U.S. Department of State for the proposed Keystone XL oil pipeline include "an estimate of the 'social cost of carbon' associated with potential increases of GHG emissions." Exhibit 17 to Guardians' August 15, 2015 EA Comments.

More importantly, the BLM has also utilized the social cost of carbon protocol in the context of oil and gas leasing. In recent Environmental Assessments for oil and gas leasing in Montana, the agency estimated "the annual SCC [social cost of carbon] associated with potential development on lease sale parcels." Exhibit 18 to Guardians' August 15, 2015 EA Commentsat 76. In conducting its analysis, the BLM used a "3 percent average discount rate and year 2020 values," presuming social costs of carbon to be $46 per metric ton. *Id.* Based on its estimate of greenhouse gas emissions, the agency estimated total carbon costs to be "$38,499 (in 2011 dollars)." *Id.* In Idaho, the BLM also utilized the social cost of carbon protocol to analyze and assess the costs of oil and gas leasing. Using a 3% average discount rate and year 2020 values, the agency estimated the cost of carbon to be $51 per ton of annual CO_2e increase. *See* Exhibit 2 at 81. Based on this estimate, the agency estimated that the total carbon cost of developing 25 wells on five lease parcels to be $3,689,442 annually. *Id.* at 83.

To be certain, the social cost of carbon protocol presents a conservative estimate of economic damages associated with the environmental impacts climate change. As the EPA has noted, the protocol "does not currently include all important [climate change] damages." Exhibit 13 to Guardians' August 15, 2015 EA Comments. As explained:

> The models used to develop [social cost of carbon] estimates do not currently include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature because of a lack of precise information on the nature of damages and because the science incorporated into these models naturally lags behind the most recent research.

Id. In fact, more recent studies have reported significantly higher carbon costs. For instance, a report published this month found that current estimates for the social cost of carbon should be increased six times for a mid-range value of $220 per ton. *See* Exhibit 15 to Guardians' August 15, 2015 EA Comments at 2. In spite of uncertainty and likely underestimation of carbon costs, nevertheless, "the SCC is a useful measure to assess the benefits of CO2 reductions," and thus a useful measure to assess the costs of CO2 increases. Exhibit 13 to Guardians' August 15, 2015 EA Comments.

That the economic impacts of climate change, as reflected by an assessment of social cost of carbon, should be a significant consideration in agency decisionmaking, is emphasized by a recent White House report, which warned that delaying carbon reductions would yield significant economic costs. *See* Exhibit 6, Executive Office of the President of the United States, "The Cost of Delaying Action to Stem Climate Change" (July 2014), available online at https://www.whitehouse.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change.pdf. As the report states:

> [D]elaying action to limit the effects of climate change is costly. Because CO_2 accumulates in the atmosphere, delaying action increases CO_2 concentrations. Thus, if a policy delay leads to higher ultimate CO_2 concentrations, that delay produces persistent economic damages that arise from higher temperatures and higher CO_2 concentrations. Alternatively, if a delayed policy still aims to hit a given climate target, such as limiting CO_2 concentration to given level, then that delay means that the policy, when

implemented, must be more stringent and thus more costly in subsequent years. In either case, delay is costly.

Exhibit 6 at 1.

The requirement to analyze the social cost of carbon is supported by the general requirements of NEPA, specifically supported in federal case law, and by Executive Order 13,514. As explained, NEPA requires agencies to analyze the consequences of proposed agency actions and consider include direct, indirect, and cumulative consequences. In terms of oil and gas leasing, an analysis of site-specific impacts must take place at the lease stage and cannot be deferred until after receiving applications to drill. *See New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 717-18 (10th Cir. 2009); *Conner v. Burford,* 848 F.2d 1441 (9th Cir.1988); *Bob Marshall Alliance v. Hodel,* 852 F.2d 1223, 1227 (9th Cir.1988).

To this end, courts have ordered agencies to assess the social cost of carbon pollution, even before a federal protocol for such analysis was adopted. In 2008, the U.S. Court of Appeals for the Ninth Circuit ordered the National Highway Traffic Safety Administration to include a monetized benefit for carbon emissions reductions in an Environmental Assessment prepared under NEPA. *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1203 (9th Cir. 2008). The Highway Traffic Safety Administration had proposed a rule setting corporate average fuel economy standards for light trucks. A number of states and public interest groups challenged the rule for, among other things, failing to monetize the benefits that would accrue from a decision that led to lower carbon dioxide emissions. The Administration had monetized the employment and sales impacts of the proposed action. *Id.* at 1199. The agency argued, however, that valuing the costs of carbon emissions was too uncertain. *Id.* at 1200. The court found this argument to be arbitrary and capricious. *Id.* The court noted that while estimates of the value of carbon emissions reductions occupied a wide range of values, the correct value was certainly not zero. *Id.* It further noted that other benefits, while also uncertain, were monetized by the agency. *Id.* at 1202.

More recently, a federal court has done likewise for a federally approved coal lease. That court began its analysis by recognizing that a monetary cost-benefit analysis is not universally required by NEPA. *See High Country Conservation Advocates v. U.S. Forest Service*, 52 F.Supp.3d 1174 (D. Colo. 2014), citing 40 C.F.R. § 1502.23. However, when an agency prepares a cost-benefit analysis, "it cannot be misleading." *Id.* at 1182 (citations omitted). In that case, the NEPA analysis included a quantification of benefits of the project. However, the quantification of the social cost of carbon, although included in earlier analyses, was omitted in the final NEPA analysis. *Id.* at 1196. The agencies then relied on the stated benefits of the project to justify project approval. This, the court explained, was arbitrary and capricious. *Id.* Such approval was based on a NEPA analysis with misleading economic assumptions, an approach long disallowed by courts throughout the country. *Id.*

A recent op-ed in the New York Times from Michael Greenstone, the former chief economist for the President's Council of Economic Advisers, confirms that it is appropriate and acceptable to calculate the social cost of carbon when reviewing whether to approve fossil fuel

extraction. *See* Exhibit 7, Greenstone, M., "There's a Formula for Deciding When to Extract Fossil Fuels," *New York Times* (Dec. 1, 2015), available online at http://www.nytimes.com/2015/12/02/upshot/theres-a-formula-for-deciding-when-to-extract-fossil-fuels.html?_r=0.

In light of all this, it appears more than reasonable to have expected the BLM to take into account carbon costs as part of its NEPA analyses. The agency did not. Instead, the BLM rejected the notion that a social cost of carbon analysis was appropriate, implicitly concluding that there would be no cost associated with the proposed oil and gas leasing.

In response to Guardians' comments on the EAs, the BLM reiterated its position that it is impossible to analyze the reasonably foreseeable greenhouse gas emissions associated with the proposed leasing. As explained earlier, there is no support for this assertion. Further, absent any stipulations that would retain discretion for the BLM to reject future drilling proposals, the agency lacks any authority or ability to meaningfully limit future emissions to address carbon costs. At a minimum, any claimed uncertainty associated with greenhouse gas emissions simply means the proposed leasing poses significant impacts to the environment and that the BLM was required to prepare an EIS.

The fact that the BLM has, in the context of other oil and gas lease sale environmental analyses, clearly acknowledged that social cost of carbon analyses are appropriate, useful, and possible, the refusal of the agency to similarly undertake such analyses in the context of the High Desert, High Plains, and Wind River-Bighorn EAs is unsupported under NEPA and cannot stand to support the decision to offer the aforementioned lease parcels for sale and issuance in May 2016.

3. The BLM Failed to Appropriately Analyze and Assess Impacts to Sage Grouse

Parcels WY-1605-2, 4, 5, 6, 7, 15, 16, and 25 as well as Parcels WY-1602-044, 045, 047, 048, 056, 057, 081, 082, 084, 085, and 086, are completely or partially within sage grouse Priority Habitat Management Areas ("PHMAs"). Parcels WY-1605-001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, and 028, and also Parcels WY-1602-002, 003, 005, 006, 007, 008, 009, 010, 012, 013, 015, 016, 017, 018, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 044, 082, 084, 085, 086, 088, 092, 094, 095, 096, 097, 098, 106, and 107 are completely or partially within sage grouse General Habitat Management Areas ("GHMAs"). We remain concerned that sage grouse stipulations prescribed in BLM land-use plan amendments and revisions to protect greater sage grouse are scientifically unsound, legally invalid, and fail to grant an adequate level of protection to allow for the survival of greater sage grouse in the context of development on oil and gas leases, and therefore protest these parcels. Under BLM's greater sage grouse plan amendments and revisions, the agency made an explicit commitment to prioritize oil and gas leasing and development outside PHMAs (which include Sagebrush Focal Areas ("SFAs")) and GHMAs. Particularly relevant to this lease sale:

> "Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMAs and GHMAs. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMAs and GHMAs, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG." Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved RMP Amendment for Greater Sage-Grouse at 24.

To comply with this direction, BLM should require leaseholders to diligently explore for and develop all existing fluid mineral leases, prioritizing those outside sage grouse habitats, before any new leases are offered at auction inside designated sage grouse habitats. Thus, all sage grouse parcels in this lease sale should be removed from the auction.

We agree with BLM's recommendations to defer offering for sale a number of parcels for the May 3, 2016 lease sale. It is a wise decision to defer the long-term commitment of mineral leases in areas that are sensitive sage grouse habitats. This is consistent with the Presidential Memorandum of November 6, 2015 titled "Mitigating Impacts on Natural Resources From Development and Encouraging Related Private Investment," which directs federal agencies "to avoid and then minimize harmful effects to land, water, wildlife, and other ecological resources (natural resources) caused by land- or water-disturbing activities… ." 80 Fed. Reg. 68743, 68744. This Presidential Memorandum also directs agencies to identify areas "where natural resource values are irreplaceable"; sage grouse habitats clearly fall into this category, as there is no demonstrated possibility of creating or restoring sage grouse habitats once they have been destroyed due to the fragility and long recovery times of the sagebrush habitats upon which the grouse depend.

Parcels WY-1602-044, 045, 046, 047, 048, 056, 057, 082, 084, 085, and 086 fall entirely or partially within sage grouse Priority Habitat Management Areas based on our GIS analyses, yet are not earmarked for even partial deferral. These parcels should be deferred from the lease auction to protect irreplaceable sage grouse habitats.

BLM chose not to consider deferring all parcels that fall within sage grouse PHMAs. See, e.g., Wind River-Bighorn EA at 2-3. This alternative is a fully reasonable and well-reasoned option, and BLM's explanation for why it was not considered in detail is inconsistent with the precepts of NEPA. Nothing precludes BLM from adopting stronger protection measures for sage grouse than are explicitly prescribed under current planning guidance. Under NEPA, BLM must consider a range of reasonable alternatives, including those that are outside the agency's authority to implement. In this case, such an alternative would be fully within BLM's authority to implement.

We request that all parcels listed above be deferred from the lease sale. BLM should do its best to keep largely unleased areas of public land in designated sage grouse habitats unleased, regardless of mineral ownership patterns. Since 1965, grouse populations have declined significantly, and these declines continue in recent years, with the risk of sage grouse extirpation

a sizeable threat over large portions of the species' range.[6] These declines are attributable at least in part to habitat loss due to mining and energy development and associated roads, and to habitat fragmentation due to roads and well fields. Oil and gas development poses perhaps the greatest threat to sage grouse viability in the region. The area within 5.3 miles of a sage grouse lek is crucial to both the breeding activities and nesting success of local sage grouse populations. In a study near Pinedale, Wyoming, sage grouse from disturbed leks where gas development occurred within 3 km of the lek site showed lower nesting rates (and hence lower reproduction), traveled farther to nest, and selected greater shrub cover than grouse from undisturbed leks.[7] According to this study, impacts of oil and gas development to sage grouse include (1) direct habitat loss from new construction, (2) increased human activity and pumping noise causing displacement, (3) increased legal and illegal harvest, (4) direct mortality associated with reserve pits, and (5) lowered water tables resulting in herbaceous vegetation loss. These impacts have not been thoroughly evaluated with full NEPA analysis.

In addition, many parcels contain designated sage grouse General Habitat Management Areas (GHMAs) under the BLM sage grouse plan amendments and revisions, including Parcels WY-1605-001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, and 028, and also Parcels WY-1602-002, 003, 005, 006, 007, 008, 009, 010, 012, 013, 015, 016, 017, 018, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 044, 082, 084, 085, 086, 088, 092, 094, 095, 096, 097, 098, 106, and 107 are completely or partially within sage grouse General Habitat Management Areas ("GHMAs") according to our lease screens; we protest all of these parcels for the reasons set forth below. BLM's failure to note which parcels in the February 2016 EAs that overlap with sage grouse GHMAs is a failure of NEPA's baseline information and hard look requirements. All portions of these parcels falling within GHMAs should be deferred as well, in order to implement the Mitigation Policy outlined earlier in these comments. The scientific information outlined elsewhere in these comments applies equally to GHMA, and the potential for significant impacts to sage grouse lek populations from oil and gas development springing from this lease sale is just as legally required in GHMA as in PHMA or SFA areas. In particular, the 0.25-mile 'No Surface Occupancy' buffers and 2-mile Timing Limitation Stipulations prescribed for PHMAs under BLM plans have explicitly been tested and found to result in significant negative impacts to sage grouse populations in the context of oil and gas development.[8] According to Apa et al. (2008), "Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi., and 1.0 mi. result in estimated lek persistence of 5%, 11%, 14%, and 30%."[9] BLM's own NEPA

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[6] Garton, E.O., A.G. Wells, J.A. Baumgardt, and J.W. Connelly. 2015. Greater sage-grouse population dynamics and probability of persistence. Final Report to Pew Charitable Trusts, 90 pp. Online at http://www.pewtrusts.org/~/media/assets/2015/04/garton-et-al-2015-greater-sagegrouse-population-dynamics-and-persistence-31815.pdf.

[7] Lyon, A.G. 2000. The potential effects of natural gas development on sage-grouse (*Centrocercus urophasianus*) near Pinedale, Wyoming. M.S. Thesis, Univ. of Wyoming, 121 pp.

[8] Holloran 2005.

[9] Apa, T., J. Bohne, T. Christiansen, J. Herbert, B. James, R. Northrup, D. Olsen, A. Robinson, P. Schnurr, T.O. Smith, and B. Walker. 2008. Using the Best Available Science to Coordinate

analysis for a recent Miles City Field Office oil and gas leasing EA[10] provides a thorough synopsis:

> "Sage grouse are offered species specific protections through a stipulation. Under Alternative B, ¼ mile NSO buffers and 2 mile timing buffers would apply where relevant. Based on research, these stipulations for sage grouse are considered ineffective to ensure that sage grouse can persist within fully developed areas. With regard to existing restrictive stipulations applied by the BLM, (Walker et al. 2007a) research has demonstrated that the 0.4-km (0.25 miles) NSO lease stipulation is insufficient to conserve breeding sage-grouse populations in fully developed gas fields because this buffer distance leaves 98 percent of the landscape within 3.2 km (2 miles) open to full-scale development. Full-field development of 98 percent of the landscape within 3.2 km (2 miles) of leks in a typical landscape in the Powder River Basin reduced the average probability of lek persistence from 87 percent to 5 percent (Walker et al. 2007a).

According to Walker et al. (2007),[11]

> Current lease stipulations that prohibit development within 0.4 km of sage-grouse leks on federal lands are inadequate to ensure lek persistence and may result in impacts to breeding populations over larger areas. Seasonal restrictions on drilling and construction do not address impacts caused by loss of sagebrush and incursion of infrastructure that can affect populations over long periods of time.

In its 2010 Final Rule[12] finding the greater sage grouse "warranted, but precluded" for listing under the Endangered Species Act, the U.S. Fish and Wildlife Service made the following observations based on the best available scientific and commercial information:

> The rationale for using a 0.4-km (0.25-mi) buffer as the basic unit for active lek protection is not clear, as there is no support in published literature for this

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Conservation Actions that Benefit Greater Sage-grouse Across States Affected by Oil & Gas Development in Management Zones I-II (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming). Unpublished multi-state report of game and fish agencies, 10 pp. Online at http://www.ourpubliclands.org/files/upload/ti-State_ScienceGroupDocument_FINAL_01-28-08.pdf.

[10] *See* Exhibit 18 to Guardians' August 15, 2015 Comments on High Plains and Wind River-Bighorn EAs, Miles City October 2014 Oil and Gas Leasing EA, Environmental Assessment DOI-BLM-MT-C020-2014-0091-EA, May 19, 2014 at 60.

[11] Walker, B.L., D.E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Management 71(8):2644-2654.

[12] 75 Fed. Reg. 13978, March 23, 2010.

distance affording any measure of protection.... this distance appears to be an artifact from the 1960s attempt to initiate planning guidelines for sagebrush management and is not scientifically based (Roberts 1991).

In light of the overwhelming scientific evidence that the application of 0.25-mile NSO buffers and 2-mile timing stipulations are grossly inadequate to conserve sage grouse and their habitats in GHMA (or indeed elsewhere), BLM cannot rely on such current, scientifically unsound and invalid stipulations for the issuance of oil and gas leases in GHMA.

Many parcels are located within 5.3 miles of one or more active sage grouse leks. The lands within 5.3 miles of active leks are typically used for nesting,[13] a sensitive life history period when sage grouse are sensitive to disturbance from oil and gas drilling and production activities. The current standard sage grouse stipulations that apply outside PHMAs are biologically inadequate, and their effectiveness has not been established by BLM. Indeed, scientific studies demonstrate that these mitigation measures fail to maintain sage grouse populations in the face of full-field development, and significant impacts in terms of displacement of sage grouse from otherwise suitable habitat as well as significant population declines have been documented.[14] BLM should not issue these sage grouse parcels unless a rigorous set of stipulations, far stronger than those provided in the EA (such as NSO stipulations), are applied to the parcels. This should include at minimum 4-mile No Surface Occupancy stipulations around active leks, in accordance with the recommendations of BLM's own subject-matter experts.[15] If these stipulations are implemented together with even stronger measures for PHMAs and Connectivity Areas, the BLM could make a credible case that impacts from leasing would not result in significant impacts.

Outside PHMAs, current sage grouse lease stipulations provide an NSO stipulation of ¼ mile around active sage grouse leks. This is known to bean inadequate amount of protection for the lekking grouse during the breeding period, nevermind for hens nesting on lands surrounding

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[13] Holloran, M. J. and S. H. Anderson. 2005. Spatial distribution of Greater Sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107(4): 742-752.

[14] Walker, B.L., D.E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Management 71(8):2644-2654; *see also* Apa, T., J. Bohne, T. Christiansen, J. Herbert, B. James, R. Northrup, D. Olsen, A. Robinson, P. Schnurr, T.O. Smith, and B. Walker. 2008. Using the Best Available Science to Coordinate Conservation Actions that Benefit Greater Sage-grouse Across States Affected by Oil & Gas Development in Management Zones I-II (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming). Unpublished multi-state report of game and fish agencies, 10 pp. Online at http://www.ourpubliclands.org/files/upload/ti-State_ScienceGroupDocument_FINAL_01-28-08.pdf.

[15] Sage-grouse National Technical Team. 2011. A Report on National Greater Sage-grouse Conservation Measures. Available at www.blm.gov/pgdata/etc/medialib/blm/co/programs/wildlife.Par.73607.File.dat/GrSG%20Tech%20Team%20Report.pdf.

the lek. Studies have shown that the majority of hens nest within 3 miles of a lek, and that a 5.3-mile buffer would encompass almost all nesting birds in some cases. For Core Areas, the most scientifically supportable metric for NSO buffers would be 2 miles from the lek to protect breeding activities (after Holloran 2005, finding impacts from post-drilling production extend 1.9 miles from the wellsite)[4] and 5.3 miles to protect nesting birds, with the understanding that the impacts of drilling and production activity would extend into the NSO buffer area from wells arrayed along its edge.

Because leks sites are used traditionally year after year and represent selection for optimal breeding and nesting habitat, it is crucially important to protect the area surrounding lek sites from impacts. In his University of Wyoming dissertation on the impacts of oil and gas development on sage grouse, Matthew Holloran stated, "current development stipulations are inadequate to maintain greater sage grouse breeding populations in natural gas fields."[16] (Notably, these exact stipulations are being applied by BLM in this lease sale for GHMA sage grouse habitat parcels). The area within 5.3 miles of a sage grouse lek is crucial to both the breeding activities and nesting success of local sage grouse populations. At minimum, the prohibition of surface disturbance within 4 miles of a sage grouse lek is the absolute minimum starting point for sage grouse conservation.

Other important findings on the negative impacts of oil and gas operations on sage grouse and their implications for the species are contained in three studies recently accepted for publication.[17] Sage grouse mitigation measures have been demonstrated to be ineffective at maintaining this species at pre-development levels in the face of oil and gas development by Holloran (2005) and Naugle et al. (2006). This latter study found an 85% decline of sage grouse populations in the Powder River Basin of northeastern Wyoming since the onset of coalbed methane development there. BLM has repeatedly failed to provide any analysis, through field experiments or literature reviews, examining the effectiveness of the standard quarter-mile buffers where disturbance would be "avoided." There is substantial scientific information in recent studies describing the impacts of oil and gas development to sage grouse. It is incumbent upon BLM to consider the most recent scientific evidence regarding the status of this species and to develop mitigation measures which will ensure the species is not moved toward listing under the Endangered Species Act. It is clear from the scientific evidence that the current protections are inadequate and are contributing to the further decline of the bird's populations. This

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[16] M. Holloran. Dec. 2005. Greater Sage-Grouse Population Response to Natural Gas Field Development in Western Wyoming, at 57.

[17] Doherty, K.E., D.E. Naugle, B.L. Walker, and J.M. Graham. 2008. Greater sage-grouse winter habitat selection and energy development. Journal of Wildlife Management 72:187-195.
Walker, B.L., D.E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Management 71:2644-2654.
Walker, B.L., D.E. Naugle, K.E. Doherty, and T.E. Cornish. 2007. West Nile virus and greater sage-grouse: estimating infection rate in a wild bird population. Avian Diseases 51:In Press.

information constitutes significant new information that requires amendment of the Resource Management Plans before additional oil and gas leasing can move forward.

State agency biologists have reached a consensus that the Timing Limitation Stipulations proposed for sage grouse in this lease sale are ineffective in the face of standard oil and gas development practices.[18] These stipulations have likewise been condemned as inadequate by the U.S. Fish and Wildlife Service and renowned sage grouse expert Dr. Clait Braun. The BLM itself has been forced to admit that "New information from monitoring and studies indicate that current RMP decisions/actions may move the species toward listing…conflicts with current BLM decision to implement BLM's sensitive species policy" and "New information and science indicate 1985 RMP Decisions, as amended, may not be adequate for sage grouse."[19] Continued application of stipulations known to be ineffective in the face of strong evidence that they do not work, and continuing to drive the sage grouse toward ESA listing in violation of BLM Sensitive Species policy, is arbitrary and capricious and an abuse of discretion under the Administrative Procedures Act.

The restrictions contained in the recent Wyoming Greater Sage-Grouse Resource Management Plan Amendments and revisions are scientifically unsound and ineffective. Within Core Areas, the IM allows surface disturbing activity and surface occupancy just six tenths (0.6) of a mile from occupied sage-grouse leks, a far cry from the science-based 4-mile buffer recommended by the BLM's own National Technical Team, and inconsistent with the findings of Manier et al. (2014), who described the range of appropriate lek buffers as 3.1 to 5 miles.[20] By acreage, a 0.6-mile buffer encompasses less than 4% of the nesting habitat contained within the 4-mile buffer recommended by agency experts, and therefore does essentially nothing to protect sensitive nesting habitats. Even less protective, restrictions outside Core or Connectivity Areas allow surface disturbing activities and surface occupancy as close as one quarter (0.25) of a mile from leks.[21] BLM has too great an abundance of data to the contrary to continue with

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[18] Apa, T., J. Bohne, T. Christiansen, J. Herbert, B. James, R. Northrup, D. Olsen, A. Robinson, P. Schnurr, T.O. Smith, and B. Walker. 2008. Using the Best Available Science to Coordinate Conservation Actions that Benefit Greater Sage-grouse Across States Affected by Oil & Gas Development in Management Zones I-II (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming). Unpublished multi-state report of game and fish agencies, 10 pp. Online at http://www.ourpubliclands.org/files/upload/ti-State_ScienceGroupDocument_FINAL_01-28-08.pdf.

[19] Sage grouse plan amendment land user information meeting PowerPoint, available online at http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/bfodocs/sagegrouse.Par.94571.File.dat/May28_InfoMtg.pdf.

[20] Manier, D.J., Bowen, Z.H., Brooks, M.L., Casazza, M.L., Coates, P.S., Deibert, P.A., Hanser, S.E., and Johnson, D.H. 2014. Conservation buffer distance estimates for Greater Sage-Grouse—A review: U.S. Geological Survey Open-File Report 2014–1239, 14 p., http://dx.doi.org/10.3133/ofr20141239.

[21] *Id.*

scientifically unsound stipulations. BLM should apply the recommendations of the National Technical Team instead, and in the meantime defer leasing until these recommendations can be formally adopted through the plan amendment/revision process.

The vague stipulations included in BLM's Notice of Competitive Oil and Gas Lease Sale for particular parcels do little to clarify to the interested public or potential lessees what restrictions might actually apply to protect sage grouse populations. For example, for some parcels, BLM imposes a Timing Limitation Stipulation and a Controlled Surface Use Stipulation. Such acceptable plans for mitigation of anticipated impacts must be prepared prior to issuing the lease in order to give the public full opportunity to comment, and to abide by the Department of Interior's stated new policy to complete site-specific environmental review at the leasing stage, not the APD stage. Without site-specific review and opportunity for comment, neither the public nor potential lessees can clearly gauge how restrictive or lax "acceptable plans for mitigation" might be, and whether they comply with federal laws, regulations, and agency guidelines and policies. Thus, absent such review, the leases should not issue at all.

BLM has the scientific information needed to recognize that any use of these parcels will result in further population declines, propelling the sage grouse toward a listing under the Endangered Species Act, a ruling that is slated to be revisited in 2020. Again, it is in all interested parties favor (conservation groups, potential lessees, BLM and other federal agencies) for BLM to determine specific "modifications" prior to issuing leases, such as NSO restrictions. If the BLM fails to do so through site-specific environmental review before the APD stage, the agency will not adhere to the directive of Secretary Salazar and the Department of Interior's announced leasing reforms.

No parcels which contain sage grouse leks, nesting habitat, breeding habitat, wintering habitat and brood-rearing habitat should be offered at auction. We request that these parcels be withdrawn from the lease sale. Failing withdrawal of the parcels, parcel-by-parcel NEPA analysis should occur (we have seen no evidence of this in the High Plains, High Desert, and Wind River-Bighorn Basin Leasing EAs in question), and 4-mile NSO buffer stipulations must be placed on all lease parcels with sage grouse leks. It is critical that these stipulations be attached at the leasing stage, when BLM has the maximum authority to restrict activities on these crucial habitats for the protection of the species, and that no exceptions to the stipulations be granted. BLM's failure to do so will permit oil and gas development activities which will contribute to declining sage grouse populations and ultimately listing by the U.S. Fish and Wildlife Service as a threatened or endangered species, in violation of BLM's duty to take all actions necessary to prevent listing under its Sensitive Species Manual.

We remain concerned that development activities on the sage grouse parcels noted above will result in significant impacts to sage grouse occupying these parcels and/or the habitats nearby, and the BLM's programmatic NEPA underlying this lease sale does not adequately address these significant impacts.

The parcels protested in this section are entirely or partially within PHMAs and GHMAs designated for sage grouse protection. In addition to the concerns outlined above, these parcels cannot be legally offered for sale because the Resource Management Plan and EIS underlying

them contain significant legal deficiencies. In the past, BLM has noted that the deferral of sage grouse PHMA (sometimes termed "Core Area" in Wyoming parcels is largely responsible for overall reductions in PHMA acreage leased and therefore reduced threats to sage grouse:

> The relatively subdued pace of new leasing in Core Areas is the direct result of the application of the BLM's sage-grouse leasing screen, whereby many parcels in recent sales have been deferred from sale until the sage-grouse RMP amendments and ongoing plan revisions are completed.

Wind River-Bighorn EA at 4-44, and see graph on same page. The cessation of deferral for PHMAs in this lease auction will reverse this progress.

Since the greater sage grouse is a BLM Sensitive Species and remains an open possibility for listing under the Endangered Species Act in 2020, the leasing of these lands under biologically inadequate stipulations is a violation of BLM Sensitive Species Policy, and constitutes undue degradation of sage grouse habitats and populations. Because alternate stipulations that are indeed biologically sufficient are available, and their implementation would avert significant impacts to sage grouse populations, the impacts incurred as a result of developing the leases in question are completely unnecessary.

The No Surface Occupancy stipulation of 0.6 miles surrounding lek locations is insufficient to prevent significant impacts to lek populations based on the best available science. No scientific study has ever recommended a 0.6-mile lek buffer. In Wyoming, Holloran (2005) examined thresholds of distance from oil and gas wells and access roads (accessing 5 or more wellpads), and found that significant impacts to sage grouse lek populations occurred when a well or access road was sited within 1.9 miles of a sage grouse lek, irrespective of whether the intrusion was visible from the lek itself.[22] Manier et al. (2014) reviewed the available scientific literature and determined that buffers in the range of 3.1 to 5 miles from the lek were appropriate based on the best available science.[23] A 0.6-mile NSO buffer does not fall within this range. The agency's own experts conducted an earlier review of the best available science (National Technical Team 2011) and recommended no future leasing in sage grouse Priority Habitats, and applying a 4-mile No Surface Occupancy buffer around leks for previously existing leases.

The programmatic RMP allows a 5% level of surface disturbance within sage grouse Core Areas, a level of surface disturbance that is incompatible with maintaining sage grouse populations and preventing population declines caused by excessive habitat destruction and fragmentation. No scientific study supports this level of surface disturbance. The National Technical Team (2011) recommended a 3% disturbance cap, to be applied on a per-square-mile-

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[22] M. Holloran. Dec. 2005. Greater Sage-Grouse Population Response to Natural Gas Field Development in Western Wyoming, at 57.

[23] Manier, D.J., Bowen, Z.H., Brooks, M.L., Casazza, M.L., Coates, P.S., Deibert, P.A., Hanser, S.E., and Johnson, D.H. 2014. Conservation buffer distance estimates for Greater Sage-Grouse—A review: U.S. Geological Survey Open-File Report 2014–1239, 14 p., http://dx.doi.org/10.3133/ofr20141239.

section basis. Knick et al. (2013) found that virtually all active leks were surrounded by lands with less than 3% surface disturbance.[24] No scientific study supports the 5% threshold.

The recently adopted Greater Sage-Grouse RMP Amendments and Revisions RMP also prescribe the use of a Disturbance Density Calculation Tool (DDCT) or equivalent method (often called "project analysis area") to arrive at the density of wellsites as well as the overall disturbance percentage. Because the DDCT area is always much larger than the project area when sage grouse leks are present within 4 miles of the project area boundary, this method always underestimates the density of disturbances in cases where sage grouse breeding habitat is potentially affected by development. This allows a density of development inside the project area that far exceeds scientifically determined thresholds at which significant sage grouse population declines occur. No scientific study has ever tested what would be the thresholds of disturbance causing significant impacts to sage grouse populations using a DDCT. The National Technical Team (2011), by contrast, recommends that well and disturbance densities be calculated on a square-mile-section basis, not using a larger area.

Current stipulations to protect sage grouse from oil and gas-related noise are inadequate. Noise can mask the breeding vocalizations of sage grouse (Blickley and Patricelli 2012),[25] displaces grouse from leks (Blickley et al. 2012a),[26] and causes stress to the birds that remain (Blickley et al. 2012b).[27] According to Blickley et al. (2010),

> The cumulative impacts of noise on individuals can manifest at the population level in various ways that can potentially range from population declines up to regional extinction. If species already threatened or endangered due to habitat loss avoid noisy areas and abandon otherwise suitable habitat because of a particular sensitivity to noise, their status becomes even more critical.

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[24] Knick, S.T., S.E. Hanser, and K.L. Preston. 2013. Modeling ecological minimum requirements for distribution of greater sage-grouse leks – Implications for population connectivity across their western range, USA. Ecology and Evolution 3: 1539-1551.

[25] Blickley, J.L., and G.L. Patricelli. 2012. Potential acoustic masking of greater sage-grouse (*Centrocercus urophasianus*) display components by chronic industrial noise. Ornith. Monogr. 74: 23-35.

[26] Blickley, J.L., D. Blackwood, and G.L. Patricelli. 2012a. Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks. Conserv. Biol. 26:461-471.

[27] Blickley J.L., Word K.R., Krakauer A.H., Phillips J.L., Sells S.N., et al. 2012b. Experimental Chronic Noise Is Related to Elevated Fecal Corticosteroid Metabolites in Lekking Male Greater Sage-Grouse (*Centrocercus urophasianus*). PLoS ONE 7(11): e50462. doi:10.1371/journal.pone.0050462.

Noise must be limited to a maximum of 10 dBA above the ambient natural noise level after the recommendations of Patricelli et al. (2012); the ambient noise level in central Wyoming was found to be 22 dBA (Patricelli et al. 2012) and in western Wyoming it was found to be 15 dBA (Ambrose and Florian 2014, Ambrose 2015; Ambrose et al. 2015).[28] Exhibit 8 provides a review of the relevant literature on noise including analysis that indicates sage grouse lek population declines once noise levels exceed the 25 dBA level. With this in mind, ambient noise levels should be defined as 15 dBA and allowable cumulative noise should be limited to 25 dBA in occupied breeding, nesting, brood-rearing, and wintering habitats, which equates to 10 dBA above the scientifically-derived ambient threshold.

In addition, it is critically important for BLM to identify and protect winter concentration areas. *See* Exhibit 9. Oil and gas development has known impacts on sage grouse (Doherty et al. 2008).[29] Thus far, the location of these habitats remains largely undetermined. These lands should be closed to fluid mineral leasing, with Conditions of Approval applying NSO stipulations inside and within 2 miles of these areas. The proposal to simply apply timing stipulations to these areas is insufficient because it allows construction of wellpads and roads known to be deleterious to wintering sage grouse inside these key habitats as long as construction/drilling occurs outside the winter season, and further allows production-related activities throughout winter. Thus, the sage grouse may return to their winter habitats to find an industrialized, fragmented habitat that no longer has any habitat function due to the birds' avoidance of such areas

Sincerely,

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[28] Ambrose, S. 2015. Review of Greens Hollow Sound Study by Tetra Tech (2008), and Summary of Sound Level Measurements at Wildcat Knolls Lek, March 29-31, 2015. Unpublished report, 11 pp.; Ambrose, S., and C. Florian. 2014. Sound levels at greater sage-grouse leks, Pinedale Anticline Project Area, Wyoming, April 2013. Unpublished report prepared for the Wyoming Game and Fish Department, 133 pp. Available online at http://www.wy.blm.gov/jio-papo/papo/wildlife/reports/sage-grouse/2013GSGacoustic-rpt.pdf; Ambrose, S., C. Florian, and J. MacDonald. 2014. Sound levels at greater sage-grouse leks in the Pinedale Anticline Project Area, WY, April 2013-2014. Unpublished report prepared for the Wyoming Game and Fish Department, 79 pp.

[29] Doherty, K.E., D.E. Naugle, B.L. Walker, and J.M. Graham. 2008. Greater sage-grouse winter habitat selection and energy development. J. Wildl. Manage. 72:187-195.

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