

## APPENDIX J — AIR QUALITY IMPACT TABLES

**Table J-1.** Summary of Maximum Modeled Near-field NO<sub>2</sub> Concentrations Compared to Ambient Air Quality Standards and PSD Class II Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Time	Direct Modeled Impact <sup>1</sup>	PSD Class II Increment <sup>1</sup>	Background Concentration <sup>1</sup>	Total Concentration <sup>1</sup>	NAAQS/WAAQS <sup>1</sup>	Percent of NAAQS/WAAQS
No Action	Annual	nm <sup>2</sup>	25	3.4	3.4	100	3
Proposed Action <sup>3</sup>	Annual	18.9	25	3.4	22.3	100	22
Alternative A <sup>3</sup>	Annual	18.9	25	3.4	22.3	100	22
Alternative B <sup>3</sup>	Annual	18.9	25	3.4	22.3	100	22
Preferred Alternative <sup>3</sup>	Annual	18.9	25	3.4	22.3	100	22

<sup>1</sup> In µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.

<sup>2</sup> nm = not modeled.

<sup>3</sup> Assumes 3,100 wells.

**Table J-2.** Summary of Maximum Modeled Near-field CO Concentrations Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Time	Direct Modeled Impact <sup>1</sup>	Background Concentration <sup>1</sup>	Total Concentration <sup>1</sup>	NAAQS/WAAQS <sup>1</sup>	Percent of NAAQS/WAAQS
No Action	1-hour	nm <sup>2</sup>	3,336	3,336.0	40,000	8
	8-hour	nm <sup>2</sup>	1,381	1,381.0	10,000	14
Proposed Action <sup>3</sup>	1-hour	459.1	3,336	3,795.1	40,000	9
	8-hour	266.0	1,381	1,647.0	10,000	16
Alternative A <sup>3</sup>	1-hour	459.1	3,336	3,795.1	40,000	9
	8-hour	266.0	1,381	1,647.0	10,000	16
Alternative B <sup>3</sup>	1-hour	459.1	3,336	3,795.1	40,000	9
	8-hour	266.0	1,381	1,647.0	10,000	16
Preferred Alternative <sup>3</sup>	1-hour	459.1	3,336	3,795.1	40,000	9
	8-hour	266.0	1,381	1,647.0	10,000	16

<sup>1</sup> In µg/m<sup>3</sup>.

<sup>2</sup> nm = not modeled.

<sup>3</sup> Assumes 3,100 wells.

**Table J-3.** Summary of Maximum Modeled Near-field SO<sub>2</sub> Concentrations Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Time	Direct Modeled Impact <sup>1</sup>	Background Concentration <sup>1</sup>	Total Concentration <sup>1</sup>	NAAQS/WAAQS <sup>1</sup>	Percent of NAAQS/WAAQS
No Action	3-hour	nm <sup>2</sup>	132	132.0	1,300	10
	24-hour	nm <sup>2</sup>	43	43.0	365/260	12/17
	Annual	nm <sup>2</sup>	9	9.0	80/60	11/15
Proposed Action <sup>3</sup>	3-hour	103.8	132	235.8	1,300	18
	24-hour	36.7	43	79.7	365/260	22/31
	Annual	5.2	9	14.2	80/60	18/24
Alternative A <sup>3</sup>	3-hour	103.8	132	235.8	1,300	18
	24-hour	36.7	43	79.7	365/260	22/31
	Annual	5.2	9	14.2	80/60	18/24
Alternative B <sup>4</sup>	3-hour	128.3	132	260.3	1,300	20
	24-hour	45.3	43	88.3	365/260	24/34
	Annual	6.4	9	15.4	80/60	19/26
Preferred Alternative <sup>4</sup>	3-hour	128.3	132	260.3	1,300	20
	24-hour	45.3	43	88.3	365/260	24/34
	Annual	6.4	9	15.4	80/60	19/26

<sup>1</sup> In µg/m<sup>3</sup>.<sup>2</sup> nm = not modeled.<sup>3</sup> Assumes straight drilling.<sup>4</sup> Assumes directional drilling.**Table J-4.** Summary of Maximum Modeled Near-field PM<sub>10</sub> Concentrations Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Time	Direct Modeled Impact <sup>1</sup>	Background Concentration <sup>1</sup>	Total Concentration <sup>1</sup>	NAAQS/WAAQS <sup>1</sup>	Percent of NAAQS/WAAQS
No Action	24-hour	nm <sup>2</sup>	33	33.0	150	22
	Annual	nm <sup>2</sup>	16	16.0	50	32
Proposed Action <sup>3</sup>	24-hour	74.1	33	107.1	150	71
	Annual	3.4	16	19.4	50	39
Alternative A <sup>3</sup>	24-hour	74.1	33	107.1	150	71
	Annual	3.4	16	19.4	50	39
Alternative B <sup>4</sup>	24-hour	102.1	33	135.1	150	90
	Annual	5.6	16	21.6	50	43
Preferred Alternative <sup>5</sup>	24-hour	94.0	33	127.0	150	85
	Annual	4.7	16	20.7	50	41

<sup>1</sup> In µg/m<sup>3</sup>.<sup>2</sup> nm = not modeled.<sup>3</sup> Assumes 3.8-acre well pads.<sup>4</sup> Assumes 10.0-acre well pads.<sup>5</sup> Assumes 7.0-acre well pads.

**Table J-5.** Summary of Maximum Modeled Near-field PM<sub>2.5</sub> Concentrations Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Time	Direct Modeled Impact <sup>1</sup>	Background Concentration <sup>1</sup>	Total Concentration <sup>1</sup>	NAAQS/WAAQS <sup>1,2</sup>	Percent of NAAQS/WAAQS
No Action	24-hour	nm <sup>3</sup>	13	13.0	65	20
	Annual	nm <sup>3</sup>	5	5.0	15	33
Proposed Action <sup>4</sup>	24-hour	27.0	13	40.0	65	62
	Annual	1.3	5	6.3	15	42
Alternative A <sup>4</sup>	24-hour	27.0	13	40.0	65	62
	Annual	1.3	5	6.3	15	42
Alternative B <sup>5</sup>	24-hour	32.2	13	45.2	65	70
	Annual	1.8	5	6.8	15	45
Preferred Alternative <sup>6</sup>	24-hour	31.0	13	44.0	65	68
	Annual	1.6	5	6.6	15	44

<sup>1</sup> In µg/m<sup>3</sup>.<sup>2</sup> The WAAQS are not yet enforced in Wyoming per Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 2, Section 2(b)(v).<sup>3</sup> nm = not modeled.<sup>4</sup> Assumes 3.8-acre well pads.<sup>5</sup> Assumes 10-acre well pads.<sup>6</sup> Assumes 7-acre well pads.**Table J-6.** Summary of Maximum Modeled Near-field O<sub>3</sub> Concentrations Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Time	Direct Modeled Impact <sup>1</sup>	Background Concentration <sup>1</sup>	Total Concentration <sup>1</sup>	NAAQS/WAAQS <sup>1</sup>	Percent of NAAQS/WAAQS
No Action	1-hour	nm <sup>2</sup>	75.2	75.2	235	32
	8-hour	nm <sup>2</sup>	75.2	75.2	157	48
All Alternatives	1-hour	78.2	75.2	153.4	235	65
	8-hour	54.7	75.2	129.9	157	83

<sup>1</sup> In µg/m<sup>3</sup>.<sup>2</sup> nm = not modeled.

**Table J-7.** Summary of Maximum Modeled HAP Concentrations from Direct Project Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative	Averaging Period	Benzene			Toluene			Ethylbenzene			Xylene			n-Hexane			Formaldehyde		
		Health-based Level <sup>1,2</sup>	Concentration <sup>2</sup>	Percent of Health-based Standard	Health-based Level <sup>1,2</sup>	Concentration <sup>2</sup>	Percent of Health-based Standard	Health-based Level <sup>1,2</sup>	Concentration <sup>2</sup>	Percent of Health-based Standard	Health-based Level <sup>1,2</sup>	Concentration <sup>2</sup>	Percent of Health-based Standard	Health-based Level <sup>1,2</sup>	Concentration <sup>2</sup>	Percent of Health-based Standard	Health-based Level <sup>1,2</sup>	Concentration <sup>2</sup>	Percent of Health-based Standard
No Action <sup>3</sup>	1-Hour	1,300	0.0	0.0	37,000	0.0	0.0	35,000	0.0	0.0	22,000	0.0	0.0	39,000	0.0	0.0	94	0.0	0.0
	Annual	30	0.0	0.0	400	0.0	0.0	1,000	0.0	0.0	430	0.0	0.0	200	0.0	0.0	9.8	0.0	0.0
Proposed Action <sup>4</sup>	1-Hour	1,300	996	76.6	37,000	1,994	5.4	35,000	109	0.3	22,000	1,085	4.9	39,000	536	1.4	94	31.9	33.9
	Annual	30	0.85	2.8	400	1.73	0.4	1,000	0.09	0.01	430	0.93	0.2	200	0.35	0.2	9.8	0.02	0.2
Alternative A <sup>4</sup>	1-Hour	1,300	996	76.6	37,000	1,994	5.4	35,000	109	0.3	22,000	1,085	4.9	39,000	536	1.4	94	31.9	33.9
	Annual	30	0.85	2.8	400	1.73	0.4	1,000	0.09	0.01	430	0.93	0.2	200	0.35	0.2	9.8	0.02	0.2
Alternative B <sup>5</sup>	1-Hour	1,300	309	23.8	37,000	619	1.7	35,000	34	0.1	22,000	337	1.5	39,000	166	0.4	94	31.9	33.9
	Annual	30	0.85	2.8	400	1.73	0.4	1,000	0.09	0.01	430	0.93	0.2	200	0.35	0.2	9.8	0.02	0.2
Preferred Alternative <sup>5</sup>	1-Hour	1,300	996	76.6	37,000	1,994	5.4	35,000	109	0.3	22,000	1,085	4.9	39,000	536	1.4	94	31.9	33.9
	Annual	30	0.85	2.8	400	1.73	0.4	1,000	0.09	0.01	430	0.93	0.2	200	0.35	0.2	9.8	0.02	0.2

<sup>1</sup> Based on EPA (2002).  
<sup>2</sup> In µg/m<sup>3</sup>.  
<sup>3</sup> No Action Alternative was not modeled.  
<sup>4</sup> Assumes 5-acre well spacing.  
<sup>5</sup> Assumes 40-acre well spacing.

**Table J-8.** Summary of Long-Term MLE and MEI Cancer Risk Analyses, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative	HAP Constituent	Modeled Concentration <sup>2</sup>	Unit Risk Factor <sup>3</sup>	MLE		MEI		
				Exposure Adjustment Factor	Cancer Risk	Unit Risk Factor <sup>3</sup>	Exposure Adjustment Factor	Cancer Risk
No Action <sup>4</sup>	Benzene	0.0	--	--	--	--	--	--
	Formaldehyde	0.0	--	--	--	--	--	--
	Total Combined							
Proposed Action	Benzene	0.85	7.8E-06	0.0949	6.3E-07	7.8E-06	0.71	4.73E-06
	Formaldehyde	0.02	1.3E-05	0.0949	2.0E-08	1.3E-05	0.71	1.80E-07
	Total Combined				6.5E-07			4.9E-06
Alternative A	Benzene	0.85	7.8E-06	0.0949	6.3E-07	7.8E-06	0.71	4.73E-06
	Formaldehyde	0.02	1.3E-05	0.0949	2.0E-08	1.3E-05	0.71	1.80E-07
	Total Combined				6.5E-07			4.9E-06
Alternative B	Benzene	0.85	7.8E-06	0.0949	6.3E-07	7.8E-06	0.71	4.73E-06
	Formaldehyde	0.02	1.3E-05	0.0949	2.0E-08	1.3E-05	0.71	1.80E-07
	Total Combined				6.5E-07			4.9E-06
Preferred Alternative	Benzene	0.85	7.8E-06	0.0949	6.3E-07	7.8E-06	0.71	4.73E-06
	Formaldehyde	0.02	1.3E-05	0.0949	2.0E-08	1.3E-05	0.71	1.80E-07
	Total Combined				6.5E-07			4.9E-06

<sup>1</sup> Based on EPA (1993, 1997).  
<sup>2</sup> In µg/m<sup>3</sup>.  
<sup>3</sup> In 1 ÷ µg/m<sup>3</sup>.  
<sup>4</sup> No Action Alternative was not modeled.

**Table J-9.** Project and Non-Project Emissions (tons/yr) Included in Far-field Analysis, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Source Category	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Sources</b>				
3,100 wells – full field production (all alternatives with 3,100 producing wells)	377.6	0.7	736.1	134.1
No Action	14.5	0.0	47.0	8.6
3,100 wells, straight drilling (approximates Alternative A and Proposed Action)				
WDR 250 wells/yr	1,627.7	28.3	949.1	205.6
3,100 Wells, directional drilling (approximates Alternative B)				
WDR 75 wells/yr	826.4	10.8	803.4	159.4
3,100 wells, 50% straight drilling, 50% directional drilling (approximates Preferred Alternative)				
WDR 250 wells/yr – 80% Mitigation	641.2	32.6	273.4	124.7
<b>Non-Project Sources</b>				
RFD	3,166.5	56.1	84.0	81.9
RFFA	486.3	-1,407.0	-1,282.8	-586.6
State-permitted	4,098.9	-61.4	559.2	516.6

<sup>1</sup> Non-Project emissions sources (reasonably foreseeable development [RFD] and reasonably foreseeable future actions [RFFA]) are described in Section 4.1.2.11; WDR = well development rate.

**Table J-10.** Summary of Maximum Modeled NO<sub>2</sub> Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources for Comparison to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>	Direct Modeled Impact <sup>2</sup>	Total Concentration <sup>3</sup>
		Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
No Action <sup>4</sup>	--	--	3.40	--	3.40	--	3.40	--	3.40	--	3.40	--	3.40	--	3.40	--	3.40
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	0.026	3.43	0.001	3.40	0.009	3.41	0.006	3.41	0.000	3.40	0.000	3.40	0.000	3.40	0.000	3.40
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	0.132	3.53	0.006	3.41	0.044	3.44	0.026	3.43	0.002	3.40	0.001	3.40	0.001	3.40	0.001	3.40
Alternative B	75	0.062	3.46	0.003	3.40	0.023	3.42	0.013	3.41	0.001	3.40	0.000	3.40	0.000	3.40	0.001	3.40
Preferred Alternative	250	0.061	3.46	0.002	3.40	0.019	3.42	0.012	3.41	0.001	3.40	0.000	3.40	0.000	3.40	0.000	3.40

<sup>1</sup> Ambient Air Quality Standards: Annual NAAQS/WAAQS = 100 µg/m<sup>3</sup>.

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background NO<sub>2</sub> concentration = 3.4 µg/m<sup>3</sup>.

<sup>4</sup> No Action Alternative was not modeled; total concentration represents background concentration only.

**Table J-11.** Summary of Maximum Modeled SO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources for Comparison to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I					Fitzpatrick Wilderness Class I					Popo Agie Wilderness Class II					Wind River Roadless Area Class II				
		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>	
		3-hr	24-hr	Annual	3-hr	24-hr	3-hr	24-hr	Annual	3-hr	24-hr	3-hr	24-hr	Annual	3-hr	24-hr	3-hr	24-hr	Annual	3-hr	Annual
No Action <sup>4</sup>	--	--	--	--	132.0	43.0	--	--	--	132.0	43.0	--	--	--	132.0	43.0	--	--	--	132.0	43.0
<b>MAXIMUM PRODUCTION EMISSIONS</b>																					
All alternatives with 3,100 wells	0	0.005	0.001	0.000	132.0	43.0	0.001	0.000	0.000	132.0	43.0	0.002	0.000	0.000	132.0	43.0	0.001	0.000	0.000	132.0	43.0
<b>MAXIMUM FIELD EMISSIONS</b>																					
Alternative A and Proposed Action	250	0.229	0.073	0.004	132.2	43.1	0.019	0.005	0.000	132.0	43.0	0.081	0.013	0.001	132.1	43.0	0.037	0.010	0.001	132.0	43.0
Alternative B	75	0.089	0.027	0.001	132.1	43.0	0.008	0.002	0.000	132.0	43.0	0.032	0.006	0.000	132.0	43.0	0.014	0.004	0.000	132.0	43.0
Preferred Alternative	250	0.246	0.076	0.004	132.3	43.1	0.020	0.006	0.000	132.0	43.0	0.087	0.014	0.001	132.1	43.0	0.039	0.011	0.001	132.0	43.0
Alternative or Development Phase	WDR	Grand Teton National Park Class I					Teton Wilderness Class I					Yellowstone National Park Class I					Washakie Wilderness Area Class I				
		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>			Total Concentration <sup>3</sup>	
		3-hr	24-hr	Annual	3-hr	24-hr	3-hr	24-hr	Annual	3-hr	24-hr	3-hr	24-hr	Annual	3-hr	24-hr	3-hr	24-hr	Annual	3-hr	Annual
No Action <sup>4</sup>	--	--	--	--	132.0	43.0	--	--	--	132.0	43.0	--	--	--	132.0	43.0	--	--	--	132.0	43.0
<b>MAXIMUM PRODUCTION EMISSIONS</b>																					
All alternatives with 3,100 wells	0	0.000	0.000	0.000	132.0	43.0	0.001	0.000	0.000	132.0	43.0	0.000	0.000	0.000	132.0	43.0	0.001	0.000	0.000	132.0	43.0
<b>MAXIMUM FIELD EMISSIONS</b>																					
Alternative A and Proposed Action	250	0.008	0.002	0.000	132.0	43.0	0.007	0.001	0.000	132.0	43.0	0.003	0.001	0.000	132.0	43.0	0.006	0.002	0.000	132.0	43.0
Alternative B	75	0.003	0.001	0.000	132.0	43.0	0.003	0.000	0.000	132.0	43.0	0.001	0.000	0.000	132.0	43.0	0.003	0.001	0.000	132.0	43.0
Preferred Alternative	250	0.008	0.002	0.000	132.0	43.0	0.008	0.001	0.000	132.0	43.0	0.003	0.001	0.000	132.0	43.0	0.006	0.002	0.000	132.0	43.0

<sup>1</sup> Ambient Air Quality Standards: 3-hr NAAQS/WAAQS = 1,300 µg/m<sup>3</sup>; 24-hr NAAQS/WAAQS = 365 µg/m<sup>3</sup> (NAAQS) and 260 µg/m<sup>3</sup> (WAAQS); Annual NAAQS/WAAQS = 100 µg/m<sup>3</sup> 80 (NAAQS) and 60 µg/m<sup>3</sup> (WAAQS).

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background SO<sub>2</sub> concentration = 9 µg/m<sup>3</sup>; 8-hr background SO<sub>2</sub> concentration = 43 µg/m<sup>3</sup>; 3-hr background SO<sub>2</sub> concentration = 132 µg/m<sup>3</sup>.

<sup>4</sup> No Action Alternative was not modeled; total concentration represents background concentration only.

**Table J-12.** Summary of Maximum Modeled PM<sub>10</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources for Comparison to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action <sup>4</sup>	--	--	--	33.0	16.00	--	--	33.0	16.00	--	--	33.0	16.00	--	--	33.0	16.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	0.75	0.030	33.7	16.03	0.07	0.003	33.1	16.00	0.15	0.008	33.1	16.01	0.12	0.006	33.1	16.01
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	1.66	0.063	34.7	16.06	0.18	0.006	33.2	16.01	0.26	0.018	33.3	16.02	0.19	0.013	33.2	16.01
Alternative B	75	0.99	0.041	34.0	16.04	0.11	0.004	33.1	16.00	0.17	0.011	33.2	16.01	0.14	0.008	33.1	16.01
Preferred Alternative	250	0.63	0.023	33.6	16.02	0.08	0.002	33.1	16.00	0.08	0.007	33.1	16.01	0.06	0.005	33.1	16.00
Alternative or Development Phase	WDR	Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action <sup>4</sup>	--	--	--	33.0	16.00	--	--	33.0	16.00	--	--	33.0	16.00	--	--	33.0	16.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	0.03	0.001	33.0	16.00	0.02	0.001	33.0	16.00	0.01	0.000	33.0	16.00	0.03	0.001	33.0	16.00
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	0.09	0.003	33.1	16.00	0.04	0.002	33.0	16.00	0.04	0.001	33.0	16.00	0.08	0.002	33.1	16.00
Alternative B	75	0.05	0.002	33.1	16.00	0.03	0.001	33.0	16.00	0.02	0.001	33.0	16.00	0.04	0.001	33.0	16.00
Preferred Alternative	250	0.04	0.001	33.0	16.00	0.02	0.001	33.0	16.00	0.02	0.000	33.0	16.00	0.03	0.001	33.0	16.00

<sup>1</sup> Ambient Air Quality Standards: 24-hr NAAQS/WAAQS = 150 µg/m<sup>3</sup>; Annual NAAQS/WAAQS = 50 µg/m<sup>3</sup>.  
<sup>2</sup> In µg/m<sup>3</sup>.  
<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background PM<sub>10</sub> concentration = 16 µg/m<sup>3</sup>; 24-hr background PM<sub>10</sub> concentration = 33 µg/m<sup>3</sup>.  
<sup>4</sup> No Action Alternative was not modeled; total concentration represents background concentration only.

**Table J-13.** Summary of Maximum Modeled PM<sub>2.5</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources for Comparison to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action <sup>4</sup>	--	--	--	13.0	5.00	--	--	13.0	5.00	--	--	13.0	5.00	--	--	13.0	5.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	0.75	0.030	13.7	5.03	0.07	0.003	13.1	5.00	0.15	0.008	13.1	5.01	0.12	0.006	13.1	5.01
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	1.66	0.063	14.7	5.06	0.18	0.006	13.2	5.01	0.26	0.018	13.3	5.02	0.19	0.013	13.2	5.01
Alternative B	75	0.99	0.041	14.0	5.04	0.11	0.004	13.1	5.00	0.17	0.011	13.2	5.01	0.14	0.008	13.1	5.01
Preferred Alternative	250	0.63	0.023	13.6	5.02	0.08	0.002	13.1	5.00	0.08	0.007	13.1	5.01	0.06	0.005	13.1	5.00
Alternative or Development Phase	WDR	Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>		Direct Modeled Impact <sup>2</sup>		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action <sup>4</sup>	--	--	--	13.0	5.00	--	--	13.0	5.00	--	--	13.0	5.00	--	--	13.0	5.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	0.03	0.001	13.0	5.00	0.02	0.001	13.0	5.00	0.01	0.000	13.0	5.00	0.03	0.001	13.0	5.00
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	0.09	0.003	13.1	5.00	0.04	0.002	13.0	5.00	0.04	0.001	13.0	5.00	0.08	0.002	13.1	5.00
Alternative B	75	0.05	0.002	13.1	5.00	0.03	0.001	13.0	5.00	0.02	0.001	13.0	5.00	0.04	0.001	13.0	5.00
Preferred Alternative	250	0.04	0.001	13.0	5.00	0.02	0.001	13.0	5.00	0.02	0.000	13.0	5.00	0.03	0.001	13.0	5.00

<sup>1</sup> Ambient Air Quality Standards: 24-hr NAAQS/WAAQS = 65 µg/m<sup>3</sup>; Annual NAAQS/WAAQS = 15 µg/m<sup>3</sup>; the WAAQS are not yet enforced in Wyoming per WAQSR Chapter 2, Section 2(b)(v).

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background PM<sub>2.5</sub> concentration = 5 µg/m<sup>3</sup>; 24-hr background PM<sub>2.5</sub> concentration = 13 µg/m<sup>3</sup>.

<sup>4</sup> No Action Alternative was not modeled; total concentration represents background concentration only.



**Table J-14.** Summary of Maximum Modeled Direct NO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas Compared to PSD Significance Impact Levels (SILs) and PSD Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
		Direct Modeled Impact			Direct Modeled Impact			Direct Modeled Impact			Direct Modeled Impact		
		Annual	PSD SIL <sup>2</sup>	PSD Increment	Annual	PSD SIL <sup>2</sup>	PSD Increment	Annual	PSD SIL <sup>2</sup>	PSD Increment	Annual	PSD SIL <sup>2</sup>	PSD Increment
No Action <sup>3</sup>	--	--	0.1	2.5	--	0.1	2.5	--	1.0	25	--	1.0	25
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.026	0.1	2.5	0.001	0.1	2.5	0.009	1.0	25	0.006	1.0	25
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.132	0.1	2.5	0.006	0.1	2.5	0.044	1.0	25	0.026	1.0	25
Alternative B	75	0.062	0.1	2.5	0.003	0.1	2.5	0.023	1.0	25	0.013	1.0	25
Preferred Alternative	250	0.061	0.1	2.5	0.002	0.1	2.5	0.019	1.0	25	0.012	1.0	25
Alternative or Development Phase	WDR	Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
		Direct Modeled Impact			Direct Modeled Impact			Direct Modeled Impact			Direct Modeled Impact		
		Annual	PSD SIL <sup>2</sup>	PSD Increment	Annual	PSD SIL <sup>2</sup>	PSD Increment	Annual	PSD SIL <sup>2</sup>	PSD Increment	Annual	PSD SIL <sup>2</sup>	PSD Increment
No Action <sup>3</sup>	--	--	0.1	2.5	--	0.1	2.5	--	0.1	2.5	--	0.1	2.5
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.000	0.1	2.5	0.000	0.1	2.5	0.000	0.1	2.5	0.000	0.1	2.5
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.002	0.1	2.5	0.001	0.1	2.5	0.001	0.1	2.5	0.001	0.1	2.5
Alternative B	75	0.001	0.1	2.5	0.000	0.1	2.5	0.000	0.1	2.5	0.001	0.1	2.5
Preferred Alternative	250	0.001	0.1	2.5	0.000	0.1	2.5	0.000	0.1	2.5	0.000	0.1	2.5

<sup>1</sup> In µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.

<sup>2</sup> Proposed Class I significance impact level (SIL) in µg/m<sup>3</sup>, *Federal Register* Vol. 61, No. 142, Pg. 38,292, July 23, 1996. Class II SILs (mg/m<sup>3</sup>) are from *Draft New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting*, October 1990, EPA OAQPS.

<sup>3</sup> No Action Alternative was not modeled; annual background NO<sub>2</sub> concentration = 3.4 µg/m<sup>3</sup>.

**Table J-15.** Summary of Maximum Modeled Direct SO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas Compared to PSD Significance Impact Levels (SILs) and PSD Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I									Fitzpatrick Wilderness Class I									Popo Agie Wilderness Class II								
		Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action <sup>3</sup>	--	--	--	--	1.0	0.2	0.1	25	5	2	--	--	--	1.0	0.2	0.1	25	5	2	--	--	--	25.0	5.0	1.0	512	91	20
<b>MAXIMUM PRODUCTION EMISSIONS</b>																												
All alternatives with 3,100 wells	0	0.005	0.001	0.000	1.0	0.2	0.1	25	5	2	0.001	0.000	0.000	1.0	0.2	0.1	25	5	2	0.002	0.000	0.000	25.0	5.0	1.0	512	91	20
<b>MAXIMUM FIELD EMISSIONS</b>																												
Alternative A and Proposed Action	250	0.229	0.073	0.004	1.0	0.2	0.1	25	5	2	0.019	0.005	0.000	1.0	0.2	0.1	25	5	2	0.081	0.013	0.001	25.0	5.0	1.0	512	91	20
Alternative B	75	0.089	0.027	0.001	1.0	0.2	0.1	25	5	2	0.008	0.002	0.000	1.0	0.2	0.1	25	5	2	0.032	0.006	0.000	25.0	5.0	1.0	512	91	20
Preferred Alternative	250	0.246	0.076	0.004	1.0	0.2	0.1	25	5	2	0.020	0.006	0.000	1.0	0.2	0.1	25	5	2	0.087	0.014	0.001	25.0	5.0	1.0	512	91	20
Alternative or Development Phase	WDR	Wind River Roadless Area Class II									Grand Teton National Park Class I									Teton Wilderness Class I								
		Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action <sup>3</sup>	--	--	--	--	25.0	5.0	1.0	512	91	20	--	--	--	1.0	0.2	0.1	25	5	2	--	--	--	1.0	0.2	0.1	25	5	2
<b>MAXIMUM PRODUCTION EMISSIONS</b>																												
All alternatives with 3,100 wells	0	0.001	0.000	0.000	25.0	5.0	1.0	512	91	20	0.000	0.000	0.000	1.0	0.2	0.1	25	5	2	0.001	0.000	0.000	1.0	0.2	0.1	25	5	2
<b>MAXIMUM FIELD EMISSIONS</b>																												
Alternative A and Proposed Action	250	0.037	0.010	0.001	25.0	5.0	1.0	512	91	20	0.008	0.002	0.000	1.0	0.2	0.1	25	5	2	0.007	0.001	0.000	1.0	0.2	0.1	25	5	2
Alternative B	75	0.014	0.004	0.000	25.0	5.0	1.0	512	91	20	0.003	0.001	0.000	1.0	0.2	0.1	25	5	2	0.003	0.000	0.000	1.0	0.2	0.1	25	5	2
Preferred Alternative	250	0.039	0.011	0.001	25.0	5.0	1.0	512	91	20	0.008	0.002	0.000	1.0	0.2	0.1	25	5	2	0.008	0.001	0.000	1.0	0.2	0.1	25	5	2
Alternative or Development Phase	WDR	Yellowstone National Park Class I									Washakie Wilderness Area Class I																	
		Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment											
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual									
No Action <sup>3</sup>	--	--	--	--	1.0	0.2	0.1	25	5	2	--	--	--	1.0	0.2	0.1	25	5	2									
<b>MAXIMUM PRODUCTION EMISSIONS</b>																												
All alternatives with 3,100 wells	0	0.000	0.000	0.000	1.0	0.2	0.1	25	5	2	0.001	0.000	0.000	1.0	0.2	0.1	25	5	2									
<b>MAXIMUM FIELD EMISSIONS</b>																												
Alternative A and Proposed Action	250	0.003	0.001	0.000	1.0	0.2	0.1	25	5	2	0.006	0.002	0.000	1.0	0.2	0.1	25	5	2									
Alternative B	75	0.001	0.000	0.000	1.0	0.2	0.1	25	5	2	0.003	0.001	0.000	1.0	0.2	0.1	25	5	2									
Preferred Alternative	250	0.003	0.001	0.000	1.0	0.2	0.1	25	5	2	0.006	0.002	0.000	1.0	0.2	0.1	25	5	2									

<sup>1</sup> In µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.

<sup>2</sup> Proposed Class I significance impact level (SIL) in µg/m<sup>3</sup>, *Federal Register* Vol. 61, No. 142, Pg. 38,292, July 23, 1996. Class II SILs (mg/m<sup>3</sup>) are from *Draft New Source Review Workshop Manual, Prevention of Significant Deterioration and Non Attainment Area Permitting*, October 1990, EPA OAQPS.

<sup>3</sup> No Action Alternative was not modeled; annual background SO<sub>2</sub> concentration = 9 µg/m<sup>3</sup>; 8-hr background SO<sub>2</sub> concentration = 43 µg/m<sup>3</sup>; 3-hr background SO<sub>2</sub> concentration = 132 µg/m<sup>3</sup>.

**Table J-16.** Summary of Maximum Modeled Direct PM<sub>10</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas Compared to PSD Significance Impact Levels (SILs) and PSD Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I						Fitzpatrick Wilderness Class I						Popo Agie Wilderness Class II						Wind River Roadless Area Class II								
		Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action <sup>3</sup>	--	--	--	0.3	0.2	8	4	--	--	0.3	0.2	8	4	--	--	5.0	1.0	30	17	--	--	5.0	1.0	30	17			
<b>MAXIMUM PRODUCTION EMISSIONS</b>																												
All alternatives with 3,100 wells	0	0.75	0.030	0.3	0.2	8	4	0.07	0.003	0.3	0.2	8	4	0.15	0.008	5.0	1.0	30	17	0.12	0.006	5.0	1.0	30	17			
<b>MAXIMUM FIELD EMISSIONS</b>																												
Alternative A and Proposed Action	250	1.66	0.063	0.3	0.2	8	4	0.18	0.006	0.3	0.2	8	4	0.26	0.018	5.0	1.0	30	17	0.19	0.013	5.0	1.0	30	17			
Alternative B	75	0.99	0.041	0.3	0.2	8	4	0.11	0.004	0.3	0.2	8	4	0.17	0.011	5.0	1.0	30	17	0.14	0.008	5.0	1.0	30	17			
Preferred Alternative	250	0.63	0.023	0.3	0.2	8	4	0.08	0.002	0.3	0.2	8	4	0.08	0.007	5.0	1.0	30	17	0.06	0.005	5.0	1.0	30	17			
Alternative or Development Phase	WDR	Grand Teton National Park Class I						Teton Wilderness Class I						Yellowstone National Park Class I						Washakie Wilderness Area Class I								
		Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment			Direct Modeled Impact			PSD SIL <sup>2</sup>			PSD Increment		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual			
No Action <sup>3</sup>	--	--	--	0.3	0.2	8	4	--	--	0.3	0.2	8	4	--	--	0.3	0.2	8	4	--	--	0.3	0.2	8	4			
<b>MAXIMUM PRODUCTION EMISSIONS</b>																												
All alternatives with 3,100 wells	0	0.03	0.001	0.3	0.2	8	4	0.02	0.001	0.3	0.2	8	4	0.01	0.000	0.3	0.2	8	4	0.03	0.001	0.3	0.2	8	4			
<b>MAXIMUM FIELD EMISSIONS</b>																												
Alternative A and Proposed Action	250	0.09	0.003	0.3	0.2	8	4	0.04	0.002	0.3	0.2	8	4	0.04	0.001	0.3	0.2	8	4	0.08	0.002	0.3	0.2	8	4			
Alternative B	75	0.05	0.002	0.3	0.2	8	4	0.03	0.001	0.3	0.2	8	4	0.02	0.001	0.3	0.2	8	4	0.04	0.001	0.3	0.2	8	4			
Preferred Alternative	250	0.04	0.001	0.3	0.2	8	4	0.02	0.001	0.3	0.2	8	4	0.02	0.000	0.3	0.2	8	4	0.03	0.001	0.3	0.2	8	4			

<sup>1</sup> In µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.

<sup>2</sup> Proposed Class I significance impact level (SIL) in µg/m<sup>3</sup>, *Federal Register* Vol. 61, No. 142, Pg. 38,292, July 23, 1996. Class II SILs (mg/m<sup>3</sup>) are from *Draft New Source Review Workshop Manual, Prevention of Significant Deterioration and Non Attainment Area Permitting*, October 1990, EPA OAQPS.

<sup>3</sup> No Action Alternative was not modeled; annual background PM<sub>10</sub> concentration = 16 µg/m<sup>3</sup>; 24-hr background PM<sub>10</sub> concentration = 33 µg/m<sup>3</sup>.

**Table J-17.** Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources Using FLAG Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	1.02	1	0.13	0	0.21	0	0.18	0	0.08	0	0.03	0	0.04	0	0.06	0
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	3.16	9	0.56	0	0.54	0	0.45	0	0.32	0	0.14	0	0.16	0	0.24	0
Alternative B	75	1.71	2	0.28	0	0.29	0	0.24	0	0.17	0	0.07	0	0.08	0	0.12	0
Preferred Alternative	250	1.50	2	0.28	0	0.25	0	0.22	0	0.13	0	0.06	0	0.06	0	0.10	0

<sup>1</sup> In deciviews (dv).  
<sup>2</sup> No Action Alternative was not modeled.

**Table J-18.** Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources Using IMPROVE Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>																	
All alternatives with 3,100 wells	0	1.14	1	0.15	0	0.24	0	0.20	0	0.08	0	0.03	0	0.04	0	0.06	0
<b>MAXIMUM FIELD EMISSIONS</b>																	
Alternative A and Proposed Action	250	3.48	10	0.64	0	0.62	0	0.52	0	0.33	0	0.14	0	0.16	0	0.24	0
Alternative B	75	1.90	4	0.32	0	0.34	0	0.28	0	0.17	0	0.07	0	0.08	0	0.12	0
Preferred Alternative	250	1.66	3	0.33	0	0.29	0	0.26	0	0.14	0	0.06	0	0.06	0	0.10	0

<sup>1</sup> In deciviews (dv).  
<sup>2</sup> No Action Alternative was not modeled.

**Table J-19.** Summary of Maximum Modeled Change in ANC at Acid-Sensitive Lakes from Direct Project Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Black Joe Lake - Bridger Wilderness Class I		Deep Lake - Bridger Wilderness Class I		Hobbs Lake - Bridger Wilderness Class I		Lazy Boy Lake - Bridger Wilderness Class I		Upper Frozen Lake - Bridger Wilderness Class I		Lower Saddlebag - Popo Agie Wilderness Class II		Ross Lake - Fitzpatrick Wilderness Class I	
		ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change
Background ANC	--	67.0	--	59.9	--	69.9	--	18.8	--	5.0	--	55.5	--	53.5	--
Level of Acceptable Change	--	6.70	10	5.99	10	6.99	10	1.00	--	1.00	--	5.55	10	5.35	10
No Action <sup>2</sup>	--	67.0	--	59.9	--	69.9	--	18.8	--	5.0	--	55.5	--	53.5	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>															
All alternatives with 3,100 wells	0	0.02	0.033	0.02	0.041	0.00	0.006	0.00	0.008	0.03	0.567	0.03	0.046	0.00	0.003
<b>MAXIMUM FIELD EMISSIONS</b>															
Alternative A and Proposed Action	250	0.10	0.155	0.11	0.190	0.02	0.030	0.01	0.038	0.14	2.808	0.13	0.231	0.01	0.013
Alternative B	75	0.05	0.079	0.06	0.095	0.01	0.014	0.00	0.019	0.07	1.386	0.06	0.117	0.00	0.007
Preferred Alternative	250	0.05	0.070	0.05	0.085	0.01	0.014	0.00	0.016	0.07	1.280	0.06	0.103	0.00	0.006

<sup>4</sup> In µeq/L.  
<sup>2</sup> No Action Alternative was not modeled; ANC represents background only.

**Table J-20.** Summary of Maximum Modeled Sulfur (S) Deposition Impacts at PSD Class I and Sensitive Class II Areas from Direct Project Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I <sup>1</sup>	Fitzpatrick Wilderness Class I <sup>1</sup>	Popo Agie Wilderness Class II <sup>1</sup>	Wind River Roadless Area Class II <sup>1</sup>	Grand Teton National Park Class I <sup>1</sup>	Teton Wilderness Class I <sup>1</sup>	Yellowstone National Park Class I <sup>1</sup>	Washakie Wilderness Area Class I <sup>1</sup>
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.00003	0.00000	0.00002	0.00001	0.00000	0.00000	0.00000	0.00000
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.00144	0.00015	0.00073	0.00043	0.00007	0.00004	0.00002	0.00004
Alternative B	75	0.00062	0.00005	0.00030	0.00016	0.00002	0.00001	0.00001	0.00002
Preferred Alternative	250	0.00154	0.00016	0.00078	0.00045	0.00007	0.00004	0.00003	0.00005

<sup>1</sup> In kg/ha-yr.  
<sup>2</sup> No Action Alternative was not modeled; sulfur deposition analysis threshold (DAT) for direct Project impacts = 0.005 kg/ha-yr.

**Table J-21.** Summary of Maximum Modeled Nitrogen (N) Deposition Impacts at PSD Class I and Sensitive Class II Areas from Direct Project Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I <sup>1</sup>	Fitzpatrick Wilderness Class I <sup>1</sup>	Popo Agie Wilderness Class II <sup>1</sup>	Wind River Roadless Area Class II <sup>1</sup>	Grand Teton National Park Class I <sup>1</sup>	Teton Wilderness Class I <sup>1</sup>	Yellowstone National Park Class I <sup>1</sup>	Washakie Wilderness Area Class I <sup>1</sup>
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.0067	0.0006	0.0034	0.0021	0.0002	0.0001	0.0001	0.0001
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.0349	0.0027	0.0165	0.0099	0.0012	0.0006	0.0004	0.0007
Alternative B	75	0.0184	0.0013	0.0084	0.0049	0.0006	0.0003	0.0002	0.0004
Preferred Alternative	250	0.0154	0.0011	0.0071	0.0043	0.0005	0.0002	0.0002	0.0003

<sup>1</sup> In kg/ha-yr.

<sup>2</sup> No Action Alternative was not modeled; nitrogen deposition analysis threshold (DAT) for direct Project impacts = 0.005 kg/ha-yr.

**Table J-22.** Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Communities from Direct Project Sources Using FLAG Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Big Piney		Big Sandy		Boulder		Bronx		Cora	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	0.57	0	0.76	0	0.49	0	0.31	0	0.60	0
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	1.75	2	2.77	19	2.09	9	1.48	1	2.81	1
Alternative B	75	0.90	0	1.61	3	1.08	2	0.73	0	1.44	1
Preferred Alternative	250	0.79	0	1.30	1	0.95	0	0.77	0	1.52	1
Alternative or Development Phase	WDR	Daniel		Farson		LaBarge		Merna		Pinedale	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	0.49	0	0.47	0	0.26	0	0.19	0	0.93	0
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.24	1	2.04	5	1.15	2	0.68	0	3.78	2
Alternative B	75	1.15	1	1.05	1	0.57	0	0.36	0	2.09	1
Preferred Alternative	250	1.19	1	1.03	1	0.50	0	0.30	0	2.07	1

<sup>1</sup> In deciviews (dv).

<sup>2</sup> No Action Alternative was not modeled.

**Table J-23.** Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Communities from Direct Project Sources Using IMPROVE Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Big Piney		Big Sandy		Boulder		Bronx		Cora	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	0.66	0	0.85	0	0.56	0	0.36	0	0.69	0
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.01	6	3.05	23	2.39	12	1.70	1	3.20	1
Alternative B	75	1.04	1	1.79	6	1.24	3	0.85	0	1.66	1
Preferred Alternative	250	0.92	0	1.45	4	1.10	2	0.89	0	1.75	1

  

Alternative or Development Phase	WDR	Daniel		Farson		LaBarge		Merna		Pinedale	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	0.57	0	0.55	0	0.30	0	0.22	0	1.07	1
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.56	1	2.33	6	1.32	2	0.79	0	4.27	3
Alternative B	75	1.32	1	1.21	3	0.66	0	0.42	0	2.39	1
Preferred Alternative	250	1.37	1	1.19	1	0.57	0	0.35	0	2.37	1

<sup>1</sup> In deciviews (dv).  
<sup>2</sup> No Action Alternative was not modeled.

**Table J-24.** Summary of Maximum Modeled In-field Pollutant Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	NO <sub>2</sub>			SO <sub>2</sub>								
		Direct Modeled Impact	Total Concentration <sup>2</sup>	NAAQS/WAAQS	Direct Modeled Impact			Total Concentration <sup>2</sup>			NAAQS/WAAQS		
		Annual	Annual	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action <sup>4</sup>	--	--	3.4	100	--	--	--	132	43	9	1,300	365/260	80/60
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	2.5	5.9	100	0.2	0.1	0.0	132.2	43.1	9.0	1,300	365/260	80/60
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	13.7	17.1	100	18.3	3.7	0.4	150.3	46.7	9.4	1,300	365/260	80/60
Alternative B	75	11.8	15.2	100	17.1	4.2	0.3	149.1	47.2	9.3	1,300	365/260	80/60
Preferred Alternative	250	6.8	10.2	100	20.0	4.1	0.4	152.0	47.1	9.4	1,300	365/260	80/60

  

Alternative or Development Phase	WDR	PM <sub>10</sub>						PM <sub>2.5</sub>					
		Direct Modeled Impact		Total Concentration <sup>2</sup>		NAAQS/WAAQS		Direct Modeled Impact		Total Concentration <sup>2</sup>		NAAQS/WAAQS <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action <sup>4</sup>	--	--	--	33	16	150	50	--	--	13	5	65	15
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	90.4	12.6	123.4	28.6	150	50	16.3	2.0	29.3	7.0	65	15
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	113.2	16.0	146.2	32.0	150	50	21.6	3.1	34.6	8.1	65	15
Alternative B	75	97.1	13.8	130.1	29.8	150	50	17.7	2.7	30.7	7.7	65	15
Preferred Alternative	250	23.2	3.5	56.2	19.5	150	50	5.0	0.9	18.0	5.9	65	15

<sup>1</sup> In µg/m<sup>3</sup>.

<sup>2</sup> Total concentration includes direct modeled impact and background concentration; annual background NO<sub>2</sub> concentration = 3.4 µg/m<sup>3</sup>; annual background SO<sub>2</sub> concentration = 9 µg/m<sup>3</sup>; 8-hr background SO<sub>2</sub> concentration = 43 µg/m<sup>3</sup>; 3-hr background SO<sub>2</sub> concentration = 132 µg/m<sup>3</sup>; annual background PM<sub>10</sub> concentration = 16 µg/m<sup>3</sup>; 24-hr background PM<sub>10</sub> concentration = 33 µg/m<sup>3</sup>; annual background PM<sub>2.5</sub> concentration = 5 µg/m<sup>3</sup>; 24-hr background PM<sub>2.5</sub> concentration = 13 µg/m<sup>3</sup>.

<sup>3</sup> WAAQS for PM<sub>2.5</sub> are not yet enforced in Wyoming per WAQSR Chapter 2, Section 2(b)(v).

<sup>4</sup> No Action Alternative was not modeled; total concentration represents background concentration only.



**Table J-25.** RFD Projects Included in Cumulative Analysis, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Big Piney-LaBarge	Eighth Granger Gas Plant Expansion	Piney Creeks - MA 26
BTA Bravo	Fontenelle Natural Gas Infill Drilling	Pioneer Gas Plant
Burley	Ham's Fork Pipeline	Powder River Basin
Burlington Little Monument	Hickey Mountain-Table Mountain	Riley Ridge
Cave Gulch	Horse Creek - MA 24	Road Hollow
Cliff Creek - USFS Management Area (MA) 22	Horse Trap	Sierra Madre
Compressor Station, Pipeline- Williams	Jack Morrow Hills	Soda Unit
Continental Divide/Wamsutter II EIS	LaBarge Creek - MA 12	South Baggs
Cooper Reservoir (1998)	Little Greys River - MA 31	South Piney
Copper Ridge Shallow Gas Project	Lower Bush Creek CBM (Kennedy Oil)	Stage Coach
Cottonwood Creek - MA 25	Lower Greys River - MA 32	Upper Hoback - MA 23
Creston-Blue Gap	Moxa Arch	Vermillion Basin
Cutthroat Gas Processing Plant	Mulligan Draw	Willow Creek - MA 49
Desolation Flats	Pinedale Anticline Project	Wind River (Bureau of Indian Affairs [BIA] lead agency)

**Table J-26.** Summary of Maximum Modeled Cumulative NO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources for Comparison to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>2</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Direct Modeled Impact	Total Concentration <sup>3</sup>	Direct Modeled Impact	Total Concentration <sup>3</sup>	Direct Modeled Impact	Total Concentration <sup>3</sup>	Direct Modeled Impact	Total Concentration <sup>3</sup>
		Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
No Action	--	0.119	3.52	0.011	3.41	0.027	3.43	0.024	3.42
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.143	3.54	0.012	3.41	0.036	3.44	0.030	3.43
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.245	3.64	0.017	3.42	0.070	3.47	0.051	3.45
Alternative B	75	0.175	3.57	0.014	3.41	0.049	3.45	0.037	3.44
Preferred Alternative	250	0.174	3.57	0.013	3.41	0.044	3.44	0.036	3.44
Alternative or Development Phase	WDR	Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Direct Modeled Impact	Total Concentration <sup>3</sup>	Direct Modeled Impact	Total Concentration <sup>3</sup>	Direct Modeled Impact	Total Concentration <sup>3</sup>	Direct Modeled Impact	Total Concentration <sup>3</sup>
		Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
No Action	--	0.029	3.43	0.007	3.41	0.003	3.40	0.009	3.41
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.029	3.43	0.007	3.41	0.003	3.40	0.010	3.41
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.030	3.43	0.007	3.41	0.003	3.40	0.010	3.41
Alternative B	75	0.030	3.43	0.007	3.41	0.003	3.40	0.010	3.41
Preferred Alternative	250	0.029	3.43	0.007	3.41	0.003	3.40	0.010	3.41

<sup>1</sup> Ambient Air Quality Standards: annual NAAQS/WAAQS = 100 µg/m<sup>3</sup>.

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background NO<sub>2</sub> concentration = 3.4 µg/m<sup>3</sup>.

**Table J-27.** Summary of Maximum Modeled Cumulative SO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources for Comparison to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>2</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I						Fitzpatrick Wilderness Class I						Popo Agie Wilderness Class II					
		Direct Modeled Impact			Total Concentration <sup>3</sup>			Direct Modeled Impact			Total Concentration <sup>1,2</sup>			Direct Modeled Impact			Total Concentration <sup>3</sup>		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action	--	0.16	0.04	0.00	132.16	43.04	9.00	0.02	0.01	0.00	132.02	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>																			
All alternatives with 3,100 wells	0	0.16	0.04	0.00	132.16	43.04	9.00	0.02	0.01	0.00	132.02	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00
<b>MAXIMUM FIELD EMISSIONS</b>																			
Alternative A and Proposed Action	250	0.24	0.08	0.00	132.24	43.08	9.00	0.02	0.01	0.00	132.02	43.01	9.00	0.08	0.01	0.00	132.08	43.01	9.00
Alternative B	75	0.17	0.04	0.00	132.17	43.04	9.00	0.02	0.01	0.00	132.02	43.01	9.00	0.03	0.01	0.00	132.03	43.01	9.00
Preferred Alternative	250	0.26	0.08	0.00	132.26	43.08	9.00	0.02	0.01	0.00	132.02	43.01	9.00	0.09	0.02	0.00	132.09	43.02	9.00
Alternative or Development Phase	WDR	Wind River Roadless Area Class II						Grand Teton National Park Class I						Teton Wilderness Class I					
		Direct Modeled Impact			Total Concentration <sup>3</sup>			Direct Modeled Impact			Total Concentration <sup>3</sup>			Direct Modeled Impact			Total Concentration <sup>3</sup>		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action	--	0.11	0.01	0.00	132.11	43.01	9.00	0.20	0.04	0.01	132.20	43.04	9.01	0.04	0.01	0.00	132.04	43.01	9.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>																			
All alternatives with 3,100 wells	0	0.11	0.01	0.00	132.11	43.01	9.00	0.20	0.04	0.01	132.20	43.04	9.01	0.04	0.01	0.00	132.04	43.01	9.00
<b>MAXIMUM FIELD EMISSIONS</b>																			
Alternative A and Proposed Action	250	0.12	0.01	0.00	132.12	43.01	9.00	0.20	0.04	0.01	132.20	43.04	9.01	0.04	0.01	0.00	132.04	43.01	9.00
Alternative B	75	0.11	0.01	0.00	132.11	43.01	9.00	0.20	0.04	0.01	132.20	43.04	9.01	0.04	0.01	0.00	132.04	43.01	9.00
Preferred Alternative	250	0.12	0.02	0.00	132.12	43.01	9.00	0.20	0.04	0.01	132.20	43.04	9.01	0.04	0.01	0.00	132.04	43.01	9.00
Alternative or Development Phase	WDR	Yellowstone National Park Class I						Washakie Wilderness Area Class I											
		Direct Modeled Impact			Total Concentration <sup>3</sup>			Direct Modeled Impact			Total Concentration <sup>3</sup>								
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual						
No Action	--	0.07	0.01	0.00	132.07	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00						
<b>MAXIMUM PRODUCTION EMISSIONS</b>																			
All alternatives with 3,100 wells	0	0.07	0.01	0.00	132.07	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00						
<b>MAXIMUM FIELD EMISSIONS</b>																			
Alternative A and Proposed Action	250	0.07	0.01	0.00	132.07	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00						
Alternative B	75	0.07	0.01	0.00	132.07	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00						
Preferred Alternative	250	0.08	0.01	0.00	132.07	43.01	9.00	0.02	0.01	0.00	132.02	43.01	9.00						

<sup>1</sup> Ambient Air Quality Standards: 3-hr NAAQS/WAAQS = 1,300 µg/m<sup>3</sup>; 24-hr NAAQS/WAAQS = 365 µg/m<sup>3</sup> (NAAQS) and 260 µg/m<sup>3</sup> (WAAQS); Annual NAAQS/WAAQS = 100 µg/m<sup>3</sup> 80 (NAAQS) and 60 µg/m<sup>3</sup> (WAAQS).

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background SO<sub>2</sub> concentration = 9 µg/m<sup>3</sup>; 8-hr background SO<sub>2</sub> concentration = 43 µg/m<sup>3</sup>; 3-hr background SO<sub>2</sub> concentration = 132 µg/m<sup>3</sup>.

**Table J-28.** Summary of Maximum Modeled Cumulative PM<sub>10</sub> Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Compared to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>2</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II			
		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>1,2</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action	--	0.46	0.018	33.46	16.02	0.13	0.005	33.13	16.00	0.14	0.008	33.14	16.01
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.91	0.047	33.91	16.05	0.15	0.008	33.15	16.01	0.20	0.015	33.20	16.01
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	1.82	0.081	34.82	16.08	0.20	0.011	33.20	16.01	0.31	0.024	33.31	16.02
Alternative B	75	1.16	0.058	34.16	16.06	0.16	0.009	33.16	16.01	0.23	0.018	33.23	16.02
Preferred Alternative	250	0.79	0.041	33.79	16.04	0.15	0.007	33.15	16.01	0.18	0.013	33.18	16.01
Alternative or Development Phase	WDR	Wind River Roadless Area Class II				Grand Teton National Park Class I				Teton Wilderness Class I			
		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action	--	0.21	0.009	33.21	16.01	0.12	0.012	33.12	16.01	0.04	0.005	33.04	16.00
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.23	0.014	33.23	16.01	0.13	0.013	33.13	16.01	0.05	0.006	33.05	16.01
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.29	0.021	33.29	16.02	0.14	0.015	33.14	16.02	0.08	0.007	33.08	16.01
Alternative B	75	0.25	0.016	33.25	16.02	0.13	0.014	33.13	16.01	0.06	0.006	33.06	16.01
Preferred Alternative	250	0.23	0.012	33.23	16.01	0.13	0.013	33.13	16.01	0.06	0.006	33.06	16.01
Alternative or Development Phase	WDR	Yellowstone National Park Class I				Washakie Wilderness Area Class I							
		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>					
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual				
No Action	--	0.05	0.004	33.05	16.00	0.04	0.003	33.04	16.00				
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.05	0.004	33.05	16.00	0.05	0.004	33.05	16.00				
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.06	0.005	33.06	16.00	0.09	0.005	33.09	16.00				
Alternative B	75	0.05	0.004	33.05	16.00	0.06	0.004	33.06	16.00				
Preferred Alternative	250	0.05	0.004	33.05	16.00	0.05	0.004	33.05	16.00				

<sup>1</sup> Ambient Air Quality Standards: 24-hr NAAQS/WAAQS = 150 µg/m<sup>3</sup>; Annual NAAQS/WAAQS = 50 µg/m<sup>3</sup>.

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background PM<sub>10</sub> concentration = 16 µg/m<sup>3</sup>; 24-hr background PM<sub>10</sub> concentration = 33 µg/m<sup>3</sup>.

**Table J-29.** Summary of Maximum Modeled Cumulative PM<sub>2.5</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Compared to Ambient Air Quality Standards<sup>1</sup>, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>2</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II			
		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action	--	0.43	0.019	13.43	5.02	0.12	0.006	13.12	5.01	0.13	0.009	13.13	5.01
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.91	0.048	13.91	5.05	0.14	0.008	13.14	5.01	0.20	0.016	13.20	5.02
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	1.82	0.081	14.82	5.08	0.20	0.012	13.20	5.01	0.31	0.026	13.31	5.03
Alternative B	75	1.15	0.059	14.15	5.06	0.16	0.010	13.16	5.01	0.23	0.020	13.23	5.02
Preferred Alternative	250	0.79	0.042	13.79	5.04	0.15	0.008	13.14	5.01	0.17	0.015	13.17	5.02
Alternative or Development Phase	WDR	Wind River Roadless Area Class II				Grand Teton National Park Class I				Teton Wilderness Class I			
		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action	--	0.19	0.010	13.19	5.01	0.11	0.013	13.11	5.01	0.04	0.005	13.04	5.01
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.22	0.015	13.22	5.02	0.13	0.013	33.13	16.01	0.05	0.006	33.05	16.01
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.28	0.022	13.28	5.02	0.14	0.015	13.14	5.02	0.08	0.007	13.08	5.01
Alternative B	75	0.24	0.017	13.24	5.02	0.12	0.014	13.12	5.01	0.06	0.006	13.06	5.01
Preferred Alternative	250	0.22	0.014	13.22	5.01	0.12	0.014	13.12	5.01	0.06	0.006	13.05	5.01
Alternative or Development Phase	WDR	Yellowstone National Park Class I				Washakie Wilderness Area Class I							
		Direct Modeled Impact		Total Concentration <sup>3</sup>		Direct Modeled Impact		Total Concentration <sup>3</sup>					
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual				
No Action	--	0.04	0.004	13.04	5.00	0.04	0.004	13.04	5.00				
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.05	0.004	33.05	16.00	0.05	0.004	33.05	16.00				
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.06	0.005	13.06	5.01	0.09	0.005	13.09	5.01				
Alternative B	75	0.05	0.005	13.05	5.00	0.06	0.005	13.06	5.00				
Preferred Alternative	250	0.05	0.004	13.05	5.00	0.06	0.004	13.05	5.00				

<sup>1</sup> Ambient Air Quality Standards: 24-hr NAAQS/WAAQS = 65 µg/m<sup>3</sup>; Annual NAAQS/WAAQS = 15 µg/m<sup>3</sup>; the WAAQS are not yet enforced in Wyoming per WAQSR Chapter 2, Section 2(b)(v).

<sup>2</sup> In µg/m<sup>3</sup>.

<sup>3</sup> Total concentration includes direct modeled impact and background concentration; annual background PM<sub>2.5</sub> concentration = 5 µg/m<sup>3</sup>; 24-hr background PM<sub>2.5</sub> concentration = 13 µg/m<sup>3</sup>.

**Table J-30.** Summary of Maximum Modeled Cumulative NO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas Compared to PSD Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Direct Modeled Impact	PSD Increment	Direct Modeled Impact	PSD Increment	Direct Modeled Impact	PSD Increment	Direct Modeled Impact	PSD Increment
		Annual		Annual		Annual		Annual	
No Action <sup>2</sup>	--	0.119	2.5	0.011	2.5	0.027	25	0.024	25
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.143	2.5	0.012	2.5	0.036	25	0.030	25
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.245	2.5	0.017	2.5	0.070	25	0.051	25
Alternative B	75	0.175	2.5	0.014	2.5	0.049	25	0.037	25
Preferred Alternative	250	0.174	2.5	0.013	2.5	0.044	25	0.036	25
Alternative or Development Phase	WDR	Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Direct Modeled Impact	PSD Increment	Direct Modeled Impact	PSD Increment	Direct Modeled Impact	PSD Increment	Direct Modeled Impact	PSD Increment
		Annual		Annual		Annual		Annual	
No Action <sup>2</sup>	--	0.029	2.5	0.007	2.5	0.003	2.5	0.009	2.5
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.029	2.5	0.007	2.5	0.003	2.5	0.010	2.5
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.030	2.5	0.007	2.5	0.003	2.5	0.010	2.5
Alternative B	75	0.030	2.5	0.007	2.5	0.003	2.5	0.010	2.5
Preferred Alternative	250	0.029	2.5	0.007	2.5	0.003	2.5	0.010	2.5

<sup>1</sup> In µg/m<sup>3</sup>. Annual background NO<sub>x</sub> concentration = 3.4 µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.

**Table J-31.** Summary of Maximum Modeled Cumulative SO<sub>2</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas Compared to PSD Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I						Fitzpatrick Wilderness Class I						Popo Agie Wilderness Class II					
		Direct Modeled Impact			PSD Increment			Direct Modeled Impact			PSD Increment			Direct Modeled Impact			PSD Increment		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action	--	0.16	0.04	0.00	25	5	2	0.02	0.01	0.00	25	5	2	0.02	0.01	0.00	512	91	20
<b>MAXIMUM PRODUCTION EMISSIONS</b>																			
All alternatives with 3,100 wells	0	0.16	0.04	0.00	25	5	2	0.02	0.01	0.00	25	5	2	0.02	0.01	0.00	512	91	20
<b>MAXIMUM FIELD EMISSIONS</b>																			
Alternative A and Proposed Action	250	0.24	0.08	0.00	25	5	2	0.02	0.01	0.00	25	5	2	0.08	0.01	0.00	512	91	20
Alternative B	75	0.17	0.04	0.00	25	5	2	0.02	0.01	0.00	25	5	2	0.03	0.01	0.00	512	91	20
Preferred Alternative	250	0.26	0.08	0.00	25	5	2	0.02	0.01	0.00	25	5	2	0.09	0.02	0.00	512	91	20
Alternative or Development Phase	WDR	Wind River Roadless Area Class II						Grand Teton National Park Class I						Teton Wilderness Class I					
		Direct Modeled Impact			PSD Increment			Direct Modeled Impact			PSD Increment			Direct Modeled Impact			PSD Increment		
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action	--	0.11	0.01	0.00	512	91	20	0.20	0.04	0.01	25	5	2	0.04	0.01	0.00	25	5	2
<b>MAXIMUM PRODUCTION EMISSIONS</b>																			
All alternatives with 3,100 wells	0	0.11	0.01	0.00	512	91	20	0.20	0.04	0.01	25	5	2	0.04	0.01	0.00	25	5	2
<b>MAXIMUM FIELD EMISSIONS</b>																			
Alternative A and Proposed Action	250	0.12	0.01	0.00	512	91	20	0.20	0.04	0.01	25	5	2	0.04	0.01	0.00	25	5	2
Alternative B	75	0.11	0.01	0.00	512	91	20	0.20	0.04	0.01	25	5	2	0.04	0.01	0.00	25	5	2
Preferred Alternative	250	0.12	0.02	0.00	512	91	20	0.20	0.04	0.01	25	5	2	0.04	0.01	0.00	25	5	2
Alternative or Development Phase	WDR	Yellowstone National Park Class I						Washakie Wilderness Area Class I											
		Direct Modeled Impact			PSD Increment			Direct Modeled Impact			PSD Increment								
		3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual						
No Action	--	0.07	0.01	0.00	25	5	2	0.02	0.01	0.00	25	5	2						
<b>MAXIMUM PRODUCTION EMISSIONS</b>																			
All alternatives with 3,100 wells	0	0.07	0.01	0.00	25	5	2	0.02	0.01	0.00	25	5	2						
<b>MAXIMUM FIELD EMISSIONS</b>																			
Alternative A and Proposed Action	250	0.07	0.01	0.00	25	5	2	0.02	0.01	0.00	25	5	2						
Alternative B	75	0.07	0.01	0.00	25	5	2	0.02	0.01	0.00	25	5	2						
Preferred Alternative	250	0.08	0.01	0.00	25	5	2	0.02	0.01	0.00	25	5	2						

<sup>1</sup> In µg/m<sup>3</sup>. Annual background SO<sub>2</sub> concentration = 9 µg/m<sup>3</sup>; 8-hr background SO<sub>2</sub> concentration = 43 µg/m<sup>3</sup>; 3-hr background SO<sub>2</sub> concentration = 132 µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.

**Table J-32.** Summary of Maximum Modeled Cumulative PM<sub>10</sub> Concentrations at PSD Class I and Sensitive PSD Class II Areas Compared to PSD Increments, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II			
		Direct Modeled Impact		PSD Increment		Direct Modeled Impact		PSD Increment		Direct Modeled Impact		PSD Increment	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action	--	0.46	0.018	8	4	0.13	0.005	8	4	0.14	0.008	30	17
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.91	0.047	8	4	0.15	0.008	8	4	0.20	0.015	30	17
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	1.82	0.081	8	4	0.20	0.011	8	4	0.31	0.024	30	17
Alternative B	75	1.16	0.058	8	4	0.16	0.009	8	4	0.23	0.018	30	17
Preferred Alternative	250	0.79	0.041	8	4	0.15	0.007	8	4	0.18	0.013	30	17
Alternative or Development Phase	WDR	Wind River Roadless Area Class II				Grand Teton National Park Class I				Teton Wilderness Class I			
		Direct Modeled Impact		PSD Increment		Direct Modeled Impact		PSD Increment		Direct Modeled Impact		PSD Increment	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action	--	0.21	0.009	30	17	0.12	0.012	8	4	0.04	0.005	8	4
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.23	0.014	30	17	0.13	0.013	8	4	0.05	0.006	8	4
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.29	0.021	30	17	0.14	0.015	8	4	0.08	0.007	8	4
Alternative B	75	0.25	0.016	30	17	0.13	0.014	8	4	0.06	0.006	8	4
Preferred Alternative	250	0.23	0.012	30	17	0.13	0.013	8	4	0.06	0.006	8	4
Alternative or Development Phase	WDR	Yellowstone National Park Class I				Washakie Wilderness Area Class I							
		Direct Modeled Impact		PSD Increment		Direct Modeled Impact		PSD Increment					
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual				
No Action	--	0.05	0.004	8	4	0.04	0.003	8	4				
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	0.05	0.004	8	4	0.05	0.004	8	4				
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	0.06	0.005	8	4	0.09	0.005	8	4				
Alternative B	75	0.05	0.004	8	4	0.06	0.004	8	4				
Preferred Alternative	250	0.05	0.004	8	4	0.05	0.004	8	4				

<sup>1</sup> In µg/m<sup>3</sup>. Annual background PM<sub>10</sub> concentration = 16 µg/m<sup>3</sup>; 24-hr background PM<sub>10</sub> concentration = 33 µg/m<sup>3</sup>. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment Consumption Analysis.



**Table J-33.** Summary of Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Using FLAG Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action	--	1.69	3	0.42	0	0.50	0	0.73	0
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	1.98	4	0.48	0	0.57	0	0.82	0
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	3.65	11	0.76	0	0.85	0	1.08	1
Alternative B	75	2.38	5	0.53	0	0.68	0	0.90	0
Preferred Alternative	250	2.29	5	0.49	0	0.64	0	0.86	0
Alternative or Development Phase	WDR	Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action	--	0.33	0	0.14	0	0.15	0	0.17	0
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.34	0	0.16	0	0.17	0	0.20	0
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.50	0	0.23	0	0.25	0	0.34	0
Alternative B	75	0.36	0	0.18	0	0.18	0	0.25	0
Preferred Alternative	250	0.34	0	0.17	0	0.17	0	0.23	0

<sup>1</sup> In deciviews (dv).

**Table J-34.** Summary of Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Using IMPROVE Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action	--	1.94	3	0.49	0	0.58	0	0.81	0
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	2.26	4	0.56	0	0.66	0	0.92	0
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	4.01	17	0.87	0	0.99	0	1.21	2
Alternative B	75	2.71	7	0.61	0	0.78	0	1.01	1
Preferred Alternative	250	2.62	6	0.57	0	0.75	0	0.96	0
Alternative or Development Phase	WDR	Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days >1.0 dv
No Action	--	0.33	0	0.14	0	0.16	0	0.17	0
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.35	0	0.16	0	0.17	0	0.20	0
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.50	0	0.24	0	0.25	0	0.34	0
Alternative B	75	0.36	0	0.18	0	0.18	0	0.25	0
Preferred Alternative	250	0.35	0	0.17	0	0.18	0	0.23	0

<sup>1</sup> In deciviews (dv).

**Table J-35.** Summary of Maximum Modeled Cumulative Change in ANC at Acid Sensitive Lakes from Direct Project and Regional Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Black Joe Lake - Bridger Wilderness Class I		Deep Lake - Bridger Wilderness Class I		Hobbs Lake - Bridger Wilderness Class I		Lazy Boy Lake - Bridger Wilderness Class I	
		ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change
Background ANC	--	67.0	--	59.9	--	69.9	--	18.8	--
Level of Acceptable Change (µeq/L)	--	6.70	10	5.99	10	6.99	10	1.00	--
No Action	--	0.085	0.13	0.087	0.14	0.042	0.06	0.025	0.13
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.107	0.16	0.111	0.18	0.046	0.07	0.026	0.14
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.185	0.28	0.196	0.33	0.062	0.09	0.032	0.17
Alternative B	75	0.137	0.20	0.142	0.24	0.051	0.07	0.028	0.15
Preferred Alternative	250	0.127	0.19	0.133	0.22	0.050	0.07	0.028	0.15

  

Alternative or Development Phase	WDR	Upper Frozen Lake - Bridger Wilderness Class I		Lower Saddlebag - Popo Agie Wilderness Class II		Ross Lake - Fitzpatrick Wilderness Class I	
		ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change	ANC Change <sup>1</sup>	Percent ANC Change
Background ANC	--	5.0	--	55.5	--	53.5	--
Level of Acceptable Change (µeq/L)	--	1.00	--	5.55	10	5.35	10
No Action	--	0.091	1.83	0.096	0.17	0.026	0.05
<b>MAXIMUM PRODUCTION EMISSIONS</b>							
All alternatives with 3,100 wells	0	0.120	2.39	0.122	0.22	0.027	0.05
<b>MAXIMUM FIELD EMISSIONS</b>							
Alternative A and Proposed Action	250	0.227	4.53	0.220	0.40	0.032	0.06
Alternative B	75	0.159	3.17	0.160	0.29	0.029	0.05
Preferred Alternative	250	0.149	2.98	0.147	0.27	0.028	0.05

<sup>1</sup> In µeq/L.

**Table J-36.** Summary of Modeled Cumulative Sulfur (S) Deposition Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>
No Action	--	-0.001	0.749	-0.001	0.749	-0.003	0.747	-0.001	0.749
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	-0.001	0.749	-0.001	0.749	-0.003	0.747	-0.001	0.749
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	-0.001	0.749	-0.001	0.749	-0.002	0.748	-0.001	0.749
Alternative B	75	-0.001	0.749	-0.001	0.749	-0.002	0.748	-0.001	0.749
Preferred Alternative	250	-0.001	0.749	-0.001	0.749	-0.002	0.748	-0.001	0.749
Alternative or Development Phase	WDR	Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>
No Action	--	0.003	0.753	0.001	0.751	0.001	0.751	0.000	0.750
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.003	0.753	0.001	0.751	0.001	0.751	0.000	0.750
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.003	0.753	0.001	0.751	0.001	0.751	0.000	0.750
Alternative B	75	0.003	0.753	0.001	0.751	0.001	0.751	0.000	0.750
Preferred Alternative	250	0.003	0.753	0.001	0.751	0.001	0.751	0.000	0.750

<sup>1</sup> In kg/ha-yr. Sulfur deposition analysis level of concern for cumulative impacts = 5.0 kg/ha-hr. Negative values reflect a reduction in SO<sub>2</sub> emissions noted in the regional source inventory.

<sup>2</sup> Includes S deposition value of 0.750 kg/ha-yr measured at the Pinedale CASTNET site for the year 2001.

**Table J-37.** Summary of Modeled Cumulative Far-field Nitrogen (N) Deposition Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>
No Action	--	0.030	1.530	0.005	1.505	0.012	1.512	0.011	1.511
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.035	1.535	0.006	1.506	0.016	1.516	0.013	1.513
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.057	1.557	0.008	1.508	0.029	1.529	0.021	1.521
Alternative B	75	0.042	1.542	0.007	1.507	0.021	1.521	0.016	1.516
Preferred Alternative	250	0.042	1.542	0.006	1.506	0.019	1.519	0.015	1.515
Alternative or Development Phase	WDR	Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>	Modeled Impact	Total Impact <sup>2</sup>
No Action	--	0.009	1.509	0.003	1.503	0.002	1.502	0.003	1.503
<b>MAXIMUM PRODUCTION EMISSIONS</b>									
All alternatives with 3,100 wells	0	0.009	1.509	0.003	1.503	0.002	1.502	0.004	1.504
<b>MAXIMUM FIELD EMISSIONS</b>									
Alternative A and Proposed Action	250	0.010	1.510	0.004	1.504	0.003	1.503	0.004	1.504
Alternative B	75	0.010	1.510	0.003	1.503	0.002	1.502	0.004	1.504
Preferred Alternative	250	0.010	1.510	0.003	1.503	0.002	1.502	0.004	1.504

<sup>1</sup> In kg/ha-yr. Nitrogen deposition analysis level of concern for cumulative impacts = 3.0 kg/ha-hr.

<sup>2</sup> Includes N deposition value of 1.500 kg/ha-yr measured at the Pinedale CASTNET site for the year 2001.

**Table J-38.** Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Communities from Direct Project and Regional Sources Using FLAG Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Big Piney		Big Sandy		Boulder		Bronx		Cora	
		Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv
No Action	--	1.91	5	1.27	1	2.56	4	0.66	0	0.74	0
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	1.98	7	1.64	4	2.67	5	0.69	0	0.81	0
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.29	16	3.29	31	3.26	19	1.56	1	2.92	6
Alternative B	75	2.05	10	2.20	13	2.79	9	0.82	0	1.57	1
Preferred Alternative	250	1.99	8	1.88	9	2.72	6	0.84	0	1.62	1
Alternative or Development Phase	WDR	Daniel		Farson		Labarge		Merna		Pinedale	
		Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv
No Action	--	0.68	0	1.33	3	1.62	6	0.88	0	1.55	2
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	0.79	0	1.47	6	1.79	6	0.91	0	1.69	4
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.34	6	2.49	11	2.54	9	0.99	0	3.91	8
Alternative B	75	1.26	1	1.78	10	2.07	6	0.94	0	2.23	5
Preferred Alternative	250	1.28	1	1.63	8	2.02	6	0.93	0	2.19	5

<sup>1</sup> In deciviews (dv).

**Table J-39.** Summary of Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Communities from Direct Project and Regional Sources Using IMPROVE Background Data, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005

Alternative or Development Phase	WDR	Big Piney		Big Sandy		Boulder		Bronx		Cora	
		Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv
No Action	--	2.18	7	1.45	2	2.92	4	0.74	0	0.85	0
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	2.26	11	1.88	9	3.04	5	0.77	0	0.93	0
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.62	20	3.62	34	3.70	21	1.79	1	3.32	8
Alternative B	75	2.34	14	2.43	16	3.17	9	0.94	0	1.80	3
Preferred Alternative	250	2.28	13	2.13	12	3.09	9	0.97	0	1.86	2
Alternative or Development Phase	WDR	Daniel		Farson		Labarge		Merna		Pinedale	
		Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv	Maximum Visibility Impact <sup>1</sup>	Number of Days > 1.0 dv
No Action	--	0.79	0	1.48	3	1.86	6	0.98	0	1.78	2
<b>MAXIMUM PRODUCTION EMISSIONS</b>											
All alternatives with 3,100 wells	0	0.89	0	1.69	8	2.05	6	1.01	1	1.94	5
<b>MAXIMUM FIELD EMISSIONS</b>											
Alternative A and Proposed Action	250	2.67	11	2.75	12	2.90	12	1.13	5	4.41	10
Alternative B	75	1.44	2	2.04	10	2.37	6	1.05	1	2.55	8
Preferred Alternative	250	1.47	2	1.87	10	2.30	6	1.03	1	2.50	6

<sup>1</sup> In deciviews (dv).

**Table J-40.** Summary of Maximum Modeled Cumulative In-field Pollutant Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005<sup>1</sup>

Alternative or Development Phase	WDR	NO <sub>x</sub>			SO <sub>2</sub>								
		Direct Modeled Impact	Total Concentration <sup>2</sup>	NAAQS/WAAQS	Direct Modeled Impact			Total Concentration <sup>2</sup>			NAAQS/WAAQS		
		Annual	Annual	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
No Action <sup>4</sup>	--	1.2	4.6	100	0.7	0.1	0.0	132.7	43.1	9.0	1,300	365/260	80/60
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	3.2	6.6	100	0.7	0.1	0.0	132.7	43.1	9.0	1,300	365/260	80/60
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	14.0	17.4	100	18.2	3.6	0.4	150.2	46.6	9.4	1,300	365/260	80/60
Alternative B	75	12.2	15.6	100	17.1	4.0	0.3	149.1	47.0	9.3	1,300	365/260	80/60
Preferred Alternative	250	7.1	10.5	100	19.9	3.9	0.4	151.9	46.9	9.4	1,300	365/260	80/60
Alternative or Development Phase	WDR	PM <sub>10</sub>						PM <sub>2.5</sub>					
		Direct Modeled Impact		Total Concentration <sup>2</sup>		NAAQS/WAAQS		Direct Modeled Impact		Total Concentration <sup>2</sup>		NAAQS/WAAQS <sup>3</sup>	
		24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
No Action <sup>4</sup>	--	0.3	0.0	33.3	16.0	150	50	0.3	0.0	13.3	5.0	65	15
<b>MAXIMUM PRODUCTION EMISSIONS</b>													
All alternatives with 3,100 wells	0	90.5	12.6	123.5	28.6	150	50	16.5	2.0	29.5	7.0	65	15
<b>MAXIMUM FIELD EMISSIONS</b>													
Alternative A and Proposed Action	250	113.4	16.0	146.4	32.0	150	50	21.8	3.1	34.8	8.1	65	15
Alternative B	75	97.2	13.8	130.2	29.8	150	50	17.9	2.7	30.9	7.7	65	15
Preferred Alternative	250	23.3	3.5	56.3	19.5	150	50	5.0	1.0	18.0	6.0	65	15

<sup>1</sup> In µg/m<sup>3</sup>.

<sup>2</sup> Total concentration includes direct modeled impact, including RFD and RFFA, and background concentration; annual background NO<sub>x</sub> concentration = 3.4 µg/m<sup>3</sup>; annual background SO<sub>2</sub> concentration = 9 µg/m<sup>3</sup>; 8-hr background SO<sub>2</sub> concentration = 43 µg/m<sup>3</sup>; 3-hr background SO<sub>2</sub> concentration = 132 µg/m<sup>3</sup>; annual background PM<sub>10</sub> concentration = 16 µg/m<sup>3</sup>; 24-hr background PM<sub>10</sub> concentration = 33 µg/m<sup>3</sup>; annual background PM<sub>2.5</sub> concentration = 5 µg/m<sup>3</sup>; 24-hr background PM<sub>2.5</sub> concentration = 13 µg/m<sup>3</sup>.

<sup>3</sup> WAAQS for PM<sub>2.5</sub> are not yet enforced in Wyoming per WAQSR Chapter 2, Section 2(b)(v).