# APPENDIX M

Air Quality Impact Tables
Project Alternative Modeling

Table M-1 Summary of Maximum Modeled Near-field $NO_2$ Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards and PSD Class II Increments[1]

| Alternative | Averaging Time | Direct Modeled Impact[2,3] | PSD Class II Increment[2] | Background Concentration[2] | Total Concentration[2] | NAAQS/ WAAQS[2] | Percent of NAAQS/ WAAQS |
|---|---|---|---|---|---|---|---|
| No Action | Annual | 39.9 | 25 | 8 | 47.9 | 100 | 49 |
| Proposed Action | Annual | 39.9 | 25 | 8 | 47.9 | 100 | 49 |

1 All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis.
2 In µg/m$^3$.
3 Background concentrations are not added to modeled concentrations for comparison to the PSD increment.

Table M-2 Summary of Maximum Modeled Near-field CO Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards

| Alternative | Averaging Time | Direct Modeled Impact[1] | Background Concentration[1] | Total Concentration[1] | NAAQS/ WAAQS[1] | Percent of NAAQS/ WAAQS |
|---|---|---|---|---|---|---|
| No Action | 1-hour | 329 | 1,979 | 2,308 | 40,000 | 6 |
| | 8-hour | 232 | 931 | 1,163 | 10,000 | 12 |
| Proposed Action | 1-hour | 329 | 1,979 | 2,308 | 40,000 | 6 |
| | 8-hour | 232 | 931 | 1,163 | 10,000 | 12 |

1 In µg/m$^3$.

Table M-3 Summary of Maximum Modeled Near-field $SO_2$ Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards

| Alternative | Averaging Time | Direct Modeled Impact[1] | Background Concentration[1] | Total Concentration[1] | NAAQS/ WAAQS[1] | Percent of NAAQS/ WAAQS |
|---|---|---|---|---|---|---|
| No Action | 3-hour | 13.5 | 132 | 145.5 | 1,300 | 11 |
| | 24-hour | 3.2 | 43 | 46.2 | 365/260 | 13/18 |
| | Annual | 0.7 | 9 | 9.7 | 80/60 | 12/16 |
| Proposed Action | 3-hour | 13.5 | 132 | 145.5 | 1,300 | 11 |
| | 24-hour | 3.2 | 43 | 46.2 | 365/260 | 13/18 |
| | Annual | 0.7 | 9 | 9.7 | 80/60 | 12/16 |

1 In µg/m$^3$.

Table M-4 Summary of Maximum Modeled Near-field $PM_{10}$ Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards

| Alternative | Averaging Time | Direct Modeled Impact[1] | Background Concentration[1] | Total Concentration[1] | NAAQS/ WAAQS[1] | Percent of NAAQS/ WAAQS |
|---|---|---|---|---|---|---|
| No Action | 24-hour | 74.2 | 32 | 106.2 | 150 | 71 |
| | Annual | 1.7 | 9 | 10.7 | 50 | 21 |
| Proposed Action | 24-hour | 74.2 | 32 | 106.2 | 150 | 71 |
| | Annual | 1.7 | 9 | 10.7 | 50 | 21 |

[1] In $\mu g/m^3$.

Table M-5 Summary of Maximum Modeled Near-field $PM_{2.5}$ Concentrations from Direct Project Sources Compared to Ambient Air Quality Standards

| Alternative | Averaging Time | Direct Modeled Impact[1] | Background Concentration[1] | Total Concentration[1] | NAAQS/ WAAQS[1] | Percent of NAAQS/ WAAQS |
|---|---|---|---|---|---|---|
| No Action | 24-hour | 14.3 | 15 | 29.3 | 65 (35)[2] | 45 (84) |
| | Annual | 1.7 | 5 | 6.7 | 15 | 45 |
| Proposed Action | 24-hour | 14.3 | 15 | 29.3 | 65 (35)[2] | 45 (84) |
| | Annual | 1.7 | 5 | 6.7 | 15 | 45 |

[1] In $\mu g/m^3$.
[2] Revised NAAQS effective December 18, 2006.

Table M-6 Summary of Maximum Modeled HAP Concentrations from Direct Project Sources

| | | Benzene | | | Toluene | | | Ethylbenzene | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Averaging Period | Health-based Level[1,2] | Modeled Concen-tration[2] | Percent of Health-based Standard | Health-based Level[1,2] | Modeled Concen-tration[2] | Percent of Health-based Standard | Health-based Level[1,2] | Modeled Concen-tration[2] | Percent of Health-based Standard |
| No Action | 1-Hour | 1,300 | 128 | 9.8 | 37,000 | 249 | 0.7 | 350,000 | 15 | 0.004 |
| | | 30 | 0.2 | 0.8 | 400 | 0.6 | 0.1 | 1,000 | 0.03 | 0.003 |
| Proposed Action | 1-Hour | 1,300 | 128 | 9.8 | 37,000 | 249 | 0.7 | 350,000 | 15 | 0.004 |
| | Annual | 30 | 0.5 | 1.5 | 400 | 1.2 | 0.3 | 1,000 | 0.1 | 0.01 |

| Annual | | Xylene | | | n-Hexane | | | Formaldehyde | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Averaging Period | Health-based Level[1,2] | Modeled Concen-tration[2] | Percent of Health-based Standard | Health-based Level[1,2] | Modeled Concen-tration[2] | Percent of Health-based Standard | Health-based Level[1,2] | Modeled Concen-tration[2] | Percent of Health-based Standard |
| No Action | 1-Hour | 22,000 | 190 | 0.9 | 390,000 | 82 | 0.02 | 94 | 79.3 | 84.4 |
| | | 100 | 0.4 | 0.4 | 200 | 0.1 | 0.07 | 9.8 | 0.2 | 1.8 |
| Proposed Action | 1-Hour | 22,000 | 190 | 0.9 | 390,000 | 82 | 0.02 | 94 | 79.3 | 84.4 |
| | Annual | 100 | 1.0 | 1.0 | 200 | 0.1 | 0.07 | 9.8 | 0.2 | 1.8 |

[1] Based on (EPA, 2006).
[2] Annual in $\mu g/m^3$.

Table M-7 Summary of Long-Term MLE and MEI Cancer Risk Analyses from Direct Project Sources[1]

| | | | MLE | | | MEI | | |
|---|---|---|---|---|---|---|---|---|
| Alternative | HAP Constituent | Modeled Concentration[2] | Unit Risk Factor[3] | Exposure Adjustment Factor | Cancer Risk | Unit Risk Factor[3] | Exposure Adjustment Factor | Cancer Risk |
| No Action | Benzene | 0.24 | 7.8E-06 | 0.0949 | 1.8E-07 | 7.8E-06 | 0.86 | 1.6E-06 |
| | Formaldehyde | | 1.3E-05 | 0.0949 | 2.2E-07 | 1.3E-05 | 0.86 | 2.0E-06 |
| | Total Combined | | | | | | | |
| Proposed Action | Benzene | 0.45 | 7.8E-06 | 0.0949 | 3.3E-07 | 7.8E-06 | 0.86 | 3.0E-06 |
| | Formaldehyde | 0.18 | 1.3E-05 | 0.0949 | 2.2E-07 | 1.3E-05 | 0.86 | 2.0E-06 |
| | Total Combined | | | 4.0E-07 | | | 3.6E-06 | |

1 Based on EPA (1993, 2006a). 0.18
2 In µg/m$^3$.
2 In 1/µg/m$^3$.

5.5E-07 5.0E-06

Table M.8 - Summary of Maximum Modeled $NO_2$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absoroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[2] |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.35 | 8.35 | 0.02 | 8.02 | 0.01 | 8.01 | 0.03 | 8.03 | 0.001 | 8.00 |
| Proposed Action | 0.34 | 8.34 | 0.02 | 8.02 | 0.01 | 8.01 | 0.03 | 8.03 | 0.001 | 8.00 |
| Alternative C | 0.22 | 8.22 | 0.02 | 8.02 | 0.01 | 8.01 | 0.02 | 8.02 | 0.001 | 8.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.08 | 8.08 | 0.01 | 8.01 | 0.002 | 8.00 | 0.01 | 8.01 | 0.0002 | 8.00 |
| Proposed Action - Maximum Field Production | 0.12 | 8.12 | 0.01 | 8.01 | 0.003 | 8.00 | 0.01 | 8.01 | 0.0003 | 8.00 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[2] |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.08 | 8.08 | 0.004 | 8.00 | 0.004 | 8.00 | 0.05 | 8.05 | 0.003 | 8.00 |
| Proposed Action | 0.07 | 8.07 | 0.004 | 8.00 | 0.004 | 8.00 | 0.05 | 8.05 | 0.002 | 8.00 |
| Alternative C | 0.04 | 8.04 | 0.003 | 8.00 | 0.002 | 8.00 | 0.03 | 8.03 | 0.001 | 8.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.02 | 8.02 | 0.001 | 8.00 | 0.001 | 8.00 | 0.01 | 8.01 | 0.001 | 8.00 |
| Proposed Action - Maximum Field Production | 0.03 | 8.03 | 0.002 | 8.00 | 0.002 | 8.00 | 0.02 | 8.02 | 0.001 | 8.00 |

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 100 $\mu g/m^3$ on an annual basis.

[2] Annual background $NO_2$ concentration value of 8 $\mu g/m^3$ from Boulder monitor.

Table M.9 - Summary of Maximum Modeled $SO_2$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

| | Bridger Wilderness Class I | | | | | | Fitzpatrick Wilderness Class I | | | | | | Grand Teton National Park Class I | | | | | | Gros Ventre Wilderness Class II | | | | | | North Absaroka Wilderness Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.24 | 0.06 | 0.01 | 132.2 | 43.1 | 9.01 | 0.05 | 0.01 | 0.0008 | 132.0 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 | 0.05 | 0.01 | 0.001 | 132.1 | 43.0 | 9.00 | 0.01 | 0.002 | 0.0001 | 132.0 | 43.0 | 9.00 |
| Proposed Action | 0.23 | 0.08 | 0.01 | 132.2 | 43.1 | 9.01 | 0.06 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 | 0.05 | 0.01 | 0.001 | 132.1 | 43.0 | 9.00 | 0.01 | 0.003 | 0.0001 | 132.0 | 43.0 | 9.00 |
| Alternative C | 0.67 | 0.23 | 0.02 | 132.7 | 43.2 | 9.02 | 0.20 | 0.06 | 0.003 | 132.2 | 43.1 | 9.00 | 0.07 | 0.02 | 0.0009 | 132.1 | 43.0 | 9.00 | 0.16 | 0.04 | 0.002 | 132.2 | 43.0 | 9.00 | 0.03 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.16 | 0.06 | 0.01 | 132.2 | 43.1 | 9.01 | 0.04 | 0.01 | 0.0007 | 132.0 | 43.0 | 9.00 | 0.02 | 0.004 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.04 | 0.01 | 0.001 | 132.0 | 43.0 | 9.00 | 0.01 | 0.002 | 0.0001 | 132.0 | 43.0 | 9.00 |
| Proposed Action - Maximum Field Production | 0.01 | 0.00 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.003 | 0.001 | 0.0000 | 132.0 | 43.0 | 9.00 | 0.001 | 0.0002 | 0.0000 | 132.0 | 43.0 | 9.00 | 0.002 | 0.001 | 0.0000 | 132.0 | 43.0 | 9.00 | 0.0005 | 0.0001 | 0.0000 | 132.0 | 43.0 | 9.00 |

| | Popo Agie Wilderness Class II | | | | | | Teton Wilderness Class I | | | | | | Washakie Wilderness Class I | | | | | | Wind River Roadless Area Class II | | | | | | Yellowstone National Park Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.05 | 0.02 | 0.002 | 132.1 | 43.0 | 9.00 | 0.01 | 0.004 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.01 | 0.004 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.07 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.01 | 0.003 | 0.0001 | 132.0 | 43.0 | 9.00 |
| Proposed Action | 0.06 | 0.01 | 0.002 | 132.1 | 43.0 | 9.00 | 0.02 | 0.003 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.02 | 0.004 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.06 | 0.02 | 0.002 | 132.1 | 43.0 | 9.00 | 0.02 | 0.003 | 0.0001 | 132.0 | 43.0 | 9.00 |
| Alternative C | 0.18 | 0.04 | 0.01 | 132.2 | 43.0 | 9.01 | 0.05 | 0.01 | 0.0006 | 132.0 | 43.0 | 9.00 | 0.05 | 0.01 | 0.0007 | 132.0 | 43.0 | 9.00 | 0.18 | 0.05 | 0.005 | 132.2 | 43.0 | 9.00 | 0.05 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.04 | 0.01 | 0.002 | 132.0 | 43.0 | 9.00 | 0.01 | 0.002 | 0.0001 | 132.0 | 43.0 | 9.00 | 0.01 | 0.003 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.04 | 0.01 | 0.001 | 132.0 | 43.0 | 9.00 | 0.01 | 0.002 | 0.0001 | 132.0 | 43.0 | 9.00 |
| Proposed Action - Maximum Field Production | 0.002 | 0.001 | 0.0001 | 132.0 | 43.0 | 9.00 | 0.00 | 0.0002 | 0.0000 | 132.0 | 43.0 | 9.00 | 0.001 | 0.0002 | 0.0000 | 132.0 | 43.0 | 9.00 | 0.003 | 0.001 | 0.0001 | 132.0 | 43.0 | 9.00 | 0.001 | 0.0001 | 0.0000 | 132.0 | 43.0 | 9.00 |

[1] Total concentration includes direct modeled impact and background concentration for comparison with NAAQS/WAAQS which are 1,300 $\mu g/m^3$ on a 3-hour basis, 365/260 $\mu g/m^3$ on a 24-hour basis and 80/60 $\mu g/m^3$ on an annual basis. Background $SO_2$ concentration values of 132 $\mu g/m^3$, 43 $\mu g/m^3$, and 9 $\mu g/m^3$, from Craven Creek used for 3-hour, 24-hour, and annual averaging periods, respectively.

Table M.10 - Summary of Maximum Modeled $PM_{10}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

| | Bridger Wilderness Class I | | | | Fitzpatrick Wilderness Class I | | | | Grand Teton National Park Class I | | | | Gros Ventre Wilderness Class II | | | | North Absaroka Wilderness Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 2.54 | 0.13 | 34.5 | 9.13 | 0.75 | 0.03 | 32.8 | 9.03 | 0.31 | 0.01 | 32.3 | 9.01 | 0.60 | 0.02 | 32.6 | 9.02 | 0.16 | 0.005 | 32.2 | 9.00 |
| Proposed Action | 2.69 | 0.13 | 34.7 | 9.13 | 0.88 | 0.03 | 32.9 | 9.03 | 0.26 | 0.01 | 32.3 | 9.01 | 0.49 | 0.03 | 32.5 | 9.03 | 0.20 | 0.005 | 32.2 | 9.00 |
| Alternative C | 1.93 | 0.10 | 33.9 | 9.10 | 0.60 | 0.02 | 32.6 | 9.02 | 0.18 | 0.01 | 32.2 | 9.01 | 0.34 | 0.02 | 32.3 | 9.02 | 0.14 | 0.003 | 32.1 | 9.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.85 | 0.04 | 32.8 | 9.04 | 0.25 | 0.01 | 32.2 | 9.01 | 0.08 | 0.004 | 32.1 | 9.00 | 0.18 | 0.01 | 32.2 | 9.01 | 0.06 | 0.002 | 32.1 | 9.00 |
| Proposed Action - Maximum Field Production | 0.55 | 0.04 | 32.5 | 9.04 | 0.37 | 0.01 | 32.4 | 9.01 | 0.10 | 0.004 | 32.1 | 9.00 | 0.15 | 0.01 | 32.1 | 9.01 | 0.07 | 0.002 | 32.1 | 9.00 |

| | Popo Agie Wilderness Class II | | | | Teton Wilderness Class I | | | | Washakie Wilderness Class I | | | | Wind River Roadless Area Class II | | | | Yellowstone National Park Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.61 | 0.05 | 32.6 | 9.05 | 0.18 | 0.01 | 32.2 | 9.01 | 0.22 | 0.01 | 32.2 | 9.01 | 0.70 | 0.04 | 32.7 | 9.04 | 0.17 | 0.01 | 32.2 | 9.01 |
| Proposed Action | 0.70 | 0.05 | 32.7 | 9.05 | 0.20 | 0.01 | 32.2 | 9.01 | 0.26 | 0.01 | 32.3 | 9.01 | 0.81 | 0.04 | 32.8 | 9.04 | 0.17 | 0.01 | 32.2 | 9.01 |
| Alternative C | 0.48 | 0.04 | 32.5 | 9.04 | 0.14 | 0.01 | 32.1 | 9.01 | 0.18 | 0.01 | 32.2 | 9.01 | 0.56 | 0.03 | 32.6 | 9.03 | 0.12 | 0.004 | 32.1 | 9.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.18 | 0.02 | 32.2 | 9.02 | 0.06 | 0.002 | 32.1 | 9.00 | 0.07 | 0.002 | 32.1 | 9.00 | 0.22 | 0.01 | 32.2 | 9.01 | 0.05 | 0.002 | 32.1 | 9.00 |
| Proposed Action - Maximum Field Production | 0.25 | 0.02 | 32.2 | 9.02 | 0.08 | 0.003 | 32.1 | 9.00 | 0.10 | 0.003 | 32.1 | 9.00 | 0.30 | 0.01 | 32.3 | 9.01 | 0.06 | 0.002 | 32.1 | 9.00 |

[1] Total Concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS whaich are 150$\mu g/m^3$ on a 24-hour basis and 50 $\mu g/m^3$ on an annual basis.

Background $PM_{10}$ concentration values of 32 $\mu g/m^3$ and 9 $\mu g/m^3$, from Boulder used for 24-hour and annual averaging periods, respectively.

Table M.11 - Summary of Maximum Modeled $PM_{2.5}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

| | Bridger Wilderness Class I | | | | Fitzpatrick Wilderness Class I | | | | Grand Teton National Park Class I | | | | Gros Ventre Wilderness Class II | | | | North Absaroka Wilderness Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.96 | 0.13 | 16.0 | 6.13 | 0.24 | 0.03 | 15.2 | 6.03 | 0.18 | 0.01 | 15.2 | 6.01 | 0.25 | 0.02 | 15.3 | 6.02 | 0.07 | 0.005 | 15.1 | 6.00 |
| Proposed Action | 1.08 | 0.13 | 16.1 | 6.13 | 0.27 | 0.03 | 15.3 | 6.03 | 0.16 | 0.01 | 15.2 | 6.01 | 0.22 | 0.03 | 15.2 | 6.03 | 0.08 | 0.005 | 15.1 | 6.00 |
| Alternative C | 0.77 | 0.10 | 15.8 | 6.10 | 0.19 | 0.02 | 15.2 | 6.02 | 0.11 | 0.01 | 15.1 | 6.01 | 0.16 | 0.02 | 15.2 | 6.02 | 0.05 | 0.003 | 15.1 | 6.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.32 | 0.04 | 15.3 | 6.04 | 0.07 | 0.01 | 15.1 | 6.01 | 0.05 | 0.004 | 15.1 | 6.00 | 0.07 | 0.01 | 15.1 | 6.01 | 0.02 | 0.002 | 15.0 | 6.00 |
| Proposed Action - Maximum Field Production | 0.32 | 0.04 | 15.3 | 6.04 | 0.10 | 0.01 | 15.1 | 6.01 | 0.05 | 0.004 | 15.0 | 6.00 | 0.08 | 0.01 | 15.1 | 6.01 | 0.02 | 0.002 | 15.0 | 6.00 |

| | Popo Agie Wilderness Class II | | | | Teton Wilderness Class I | | | | Washakie Wilderness Class I | | | | Wind River Roadless Area Class II | | | | Yellowstone National Park Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.31 | 0.05 | 15.3 | 6.05 | 0.11 | 0.01 | 15.1 | 6.01 | 0.10 | 0.01 | 15.1 | 6.01 | 0.31 | 0.04 | 15.3 | 6.04 | 0.09 | 0.01 | 15.1 | 6.01 |
| Proposed Action | 0.32 | 0.05 | 15.3 | 6.05 | 0.09 | 0.01 | 15.1 | 6.01 | 0.10 | 0.01 | 15.1 | 6.01 | 0.32 | 0.04 | 15.3 | 6.04 | 0.08 | 0.01 | 15.1 | 6.01 |
| Alternative C | 0.22 | 0.04 | 15.2 | 6.04 | 0.06 | 0.01 | 15.1 | 6.01 | 0.07 | 0.01 | 15.1 | 6.01 | 0.22 | 0.03 | 15.2 | 6.03 | 0.06 | 0.004 | 15.1 | 6.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.09 | 0.02 | 15.1 | 6.02 | 0.03 | 0.002 | 15.0 | 6.00 | 0.03 | 0.002 | 15.0 | 6.00 | 0.09 | 0.01 | 15.1 | 6.01 | 0.03 | 0.002 | 15.0 | 6.00 |
| Proposed Action - Maximum Field Production | 0.10 | 0.02 | 15.1 | 6.02 | 0.04 | 0.003 | 15.0 | 6.00 | 0.04 | 0.003 | 15.0 | 6.00 | 0.11 | 0.01 | 15.1 | 6.01 | 0.03 | 0.002 | 15.0 | 6.00 |

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 65 $\mu g/m^3$ (revised NAAQS of 35 $\mu g/m3$ effective on Dec 18, 2006) on a 24-hour basis and 15 $\mu g/m^3$ on an annual basis.

[2] $PM_{2.5}$ concentration values of 15 $\mu g/m^3$ and 6 $\mu g/m^3$, from Pinedale used for 24-hour and annual averaging periods, respectively.

Background PM

Table M.12 - Summary of Maximum Modeled $NO_2$ Concentration Impacts ($\mu g/m^3$) from Direct Project Sources Compared to PSD Increments[1]

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absoroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.35 | 2.5 | 0.02 | 2.5 | 0.01 | 2.5 | 0.03 | 25.0 | 0.001 | 2.5 |
| Proposed Action | 0.34 | 2.5 | 0.02 | 2.5 | 0.01 | 2.5 | 0.03 | 25.0 | 0.001 | 2.5 |
| Alternative C | 0.22 | 2.5 | 0.02 | 2.5 | 0.01 | 2.5 | 0.02 | 25.0 | 0.001 | 2.5 |
| Alternative C - 80 % Drill Rig Mitigation | 0.08 | 2.5 | 0.01 | 2.5 | 0.002 | 2.5 | 0.01 | 25.0 | 0.0002 | 2.5 |
| Proposed Action - Maximum Field Production | 0.12 | 2.5 | 0.01 | 2.5 | 0.003 | 2.5 | 0.01 | 25.0 | 0.0003 | 2.5 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.08 | 25.0 | 0.004 | 2.5 | 0.004 | 2.5 | 0.05 | 25.0 | 0.003 | 2.5 |
| Proposed Action | 0.07 | 25.0 | 0.004 | 2.5 | 0.004 | 2.5 | 0.05 | 25.0 | 0.002 | 2.5 |
| Alternative C | 0.04 | 25.0 | 0.003 | 2.5 | 0.002 | 2.5 | 0.03 | 25.0 | 0.001 | 2.5 |
| Alternative C - 80 % Drill Rig Mitigation | 0.02 | 25.0 | 0.001 | 2.5 | 0.001 | 2.5 | 0.01 | 25.0 | 0.001 | 2.5 |
| Proposed Action - Maximum Field Production | 0.03 | 25.0 | 0.002 | 2.5 | 0.002 | 2.5 | 0.02 | 25.0 | 0.001 | 2.5 |

[1] All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis

Table M.13 - Summary of Maximum Modeled $SO_2$ Concentration Impacts ($\mu g/m^3$) from Direct Project Sources Compared to PSD Increments[1]

| | Bridger Wilderness Class I | | | | | | Fitzpatrick Wilderness Class I | | | | | | Grand Teton National Park Class I | | | | | | Gros Ventre Wilderness Class II | | | | | | North Absaroka Wilderness Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.24 | 0.06 | 0.01 | 25.0 | 5.0 | 2.0 | 0.05 | 0.01 | 0.001 | 25.0 | 5.0 | 2.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 | 0.05 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.002 | 0.0001 | 25.0 | 5.0 | 2.0 |
| Proposed Action | 0.23 | 0.08 | 0.01 | 25.0 | 5.0 | 2.0 | 0.06 | 0.02 | 0.001 | 25.0 | 5.0 | 2.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 | 0.05 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.003 | 0.0001 | 25.0 | 5.0 | 2.0 |
| Alternative C | 0.67 | 0.23 | 0.02 | 25.0 | 5.0 | 2.0 | 0.20 | 0.06 | 0.003 | 25.0 | 5.0 | 2.0 | 0.07 | 0.02 | 0.0009 | 25.0 | 5.0 | 2.0 | 0.16 | 0.04 | 0.002 | 512.0 | 91.0 | 20.0 | 0.03 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.16 | 0.06 | 0.01 | 25.0 | 5.0 | 2.0 | 0.04 | 0.01 | 0.001 | 25.0 | 5.0 | 2.0 | 0.02 | 0.004 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.04 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.002 | 0.0001 | 25.0 | 5.0 | 2.0 |
| Proposed Action - Maximum Field Production | 0.01 | 0.002 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.003 | 0.001 | 0.0000 | 25.0 | 5.0 | 2.0 | 0.001 | 0.0002 | 0.0000 | 25.0 | 5.0 | 2.0 | 0.002 | 0.001 | 0.0000 | 512.0 | 91.0 | 20.0 | 0.0005 | 0.0001 | 0.0000 | 25.0 | 5.0 | 2.0 |

| | Popo Agie Wilderness Class II | | | | | | Teton Wilderness Class I | | | | | | Washakie Wilderness Class I | | | | | | Wind River Roadless Area Class II | | | | | | Yellowstone National Park Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.05 | 0.02 | 0.002 | 512.0 | 91.0 | 20.0 | 0.01 | 0.004 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.01 | 0.004 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.07 | 0.02 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.003 | 0.0001 | 25.0 | 5.0 | 2.0 |
| Proposed Action | 0.06 | 0.01 | 0.002 | 512.0 | 91.0 | 20.0 | 0.02 | 0.003 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.02 | 0.004 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.06 | 0.02 | 0.002 | 512.0 | 91.0 | 20.0 | 0.02 | 0.003 | 0.0001 | 25.0 | 5.0 | 2.0 |
| Alternative C | 0.18 | 0.04 | 0.01 | 512.0 | 91.0 | 20.0 | 0.05 | 0.01 | 0.0006 | 25.0 | 5.0 | 2.0 | 0.05 | 0.01 | 0.0007 | 25.0 | 5.0 | 2.0 | 0.18 | 0.05 | 0.005 | 512.0 | 91.0 | 20.0 | 0.05 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.04 | 0.01 | 0.002 | 512.0 | 91.0 | 20.0 | 0.01 | 0.002 | 0.0001 | 25.0 | 5.0 | 2.0 | 0.01 | 0.003 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.04 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.002 | 0.0001 | 25.0 | 5.0 | 2.0 |
| Proposed Action - Maximum Field Production | 0.002 | 0.001 | 0.0001 | 512.0 | 91.0 | 20.0 | 0.00 | 0.0002 | 0.0000 | 25.0 | 5.0 | 2.0 | 0.001 | 0.0002 | 0.0000 | 25.0 | 5.0 | 2.0 | 0.003 | 0.001 | 0.0001 | 512.0 | 91.0 | 20.0 | 0.001 | 0.0001 | 0.0000 | 25.0 | 5.0 | 2.0 |

[1] All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis .

Table M.14 - Summary of Maximum Modeled $PM_{10}$ Concentration Impacts ($\mu g/m^3$) from Direct Project Sources Compared to PSD Increments[1]

| | Bridger Wilderness Class I | | | | Fitzpatrick Wilderness Class I | | | | Grand Teton National Park Class I | | | | Gros Ventre Wilderness Class II | | | | North Absaroka Wilderness Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 2.54 | 0.13 | 8.0 | 4.0 | 0.75 | 0.03 | 8.0 | 4.0 | 0.31 | 0.01 | 8.0 | 4.0 | 0.60 | 0.02 | 30.0 | 17.0 | 0.16 | 0.005 | 8.0 | 4.0 |
| Proposed Action | 2.69 | 0.13 | 8.0 | 4.0 | 0.88 | 0.03 | 8.0 | 4.0 | 0.26 | 0.01 | 8.0 | 4.0 | 0.49 | 0.03 | 30.0 | 17.0 | 0.20 | 0.005 | 8.0 | 4.0 |
| Alternative C | 1.93 | 0.10 | 8.0 | 4.0 | 0.60 | 0.02 | 8.0 | 4.0 | 0.18 | 0.01 | 8.0 | 4.0 | 0.34 | 0.02 | 30.0 | 17.0 | 0.14 | 0.003 | 8.0 | 4.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.85 | 0.04 | 8.0 | 4.0 | 0.25 | 0.01 | 8.0 | 4.0 | 0.08 | 0.004 | 8.0 | 4.0 | 0.18 | 0.01 | 30.0 | 17.0 | 0.06 | 0.002 | 8.0 | 4.0 |
| Proposed Action - Maximum Field Production | 0.55 | 0.04 | 8.0 | 4.0 | 0.37 | 0.01 | 8.0 | 4.0 | 0.10 | 0.004 | 8.0 | 4.0 | 0.15 | 0.01 | 30.0 | 17.0 | 0.07 | 0.002 | 8.0 | 4.0 |

| | Popo Agie Wilderness Class II | | | | Teton Wilderness Class I | | | | Washakie Wilderness Class I | | | | Wind River Roadless Area Class II | | | | Yellowstone National Park Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.61 | 0.05 | 30.0 | 17.0 | 0.18 | 0.01 | 8.0 | 4.0 | 0.22 | 0.01 | 8.0 | 4.0 | 0.70 | 0.04 | 30.0 | 17.0 | 0.17 | 0.01 | 8.0 | 4.0 |
| Proposed Action | 0.70 | 0.05 | 30.0 | 17.0 | 0.20 | 0.01 | 8.0 | 4.0 | 0.26 | 0.01 | 8.0 | 4.0 | 0.81 | 0.04 | 30.0 | 17.0 | 0.17 | 0.01 | 8.0 | 4.0 |
| Alternative C | 0.48 | 0.04 | 30.0 | 17.0 | 0.14 | 0.01 | 8.0 | 4.0 | 0.18 | 0.01 | 8.0 | 4.0 | 0.56 | 0.03 | 30.0 | 17.0 | 0.12 | 0.004 | 8.0 | 4.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.18 | 0.02 | 30.0 | 17.0 | 0.06 | 0.002 | 8.0 | 4.0 | 0.07 | 0.002 | 8.0 | 4.0 | 0.22 | 0.01 | 30.0 | 17.0 | 0.05 | 0.002 | 8.0 | 4.0 |
| Proposed Action - Maximum Field Production | 0.25 | 0.02 | 30.0 | 17.0 | 0.08 | 0.003 | 8.0 | 4.0 | 0.10 | 0.003 | 8.0 | 4.0 | 0.30 | 0.01 | 30.0 | 17.0 | 0.06 | 0.002 | 8.0 | 4.0 |

[1] All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis .

Table M.15 - Summary of Maximum Modeled In-field Pollutant Concentrations ($\mu g/m^3$) from Direct Project Sources

| | $NO_2$ | | | | $SO_2$ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact[1] | PSD Class II Increment[2] | Total Concentration[3] | NAAQS/ WAAQS | Direct Modeled Impact[1] | | | PSD Class II Increment[2] | | | Total Concentration[3] | | | NAAQS/WAAQS | | |
| Alternative | Annual | Annual | Annual | Annual | 3-hr | 24-hr | Annual | 3-hr | 24-hr | Annual | 3-hr | 24-hr | Annual | 3-hr | 24-hr | Annual |
| No Action | 52.8 | 25.0 | 60.8 | 100 | 32.8 | 5.3 | 0.7 | 512.0 | 91.0 | 20.0 | 164.8 | 48.3 | 9.7 | 1,300 | 365/260 | 80/60 |
| Proposed Action | 60.5 | 25.0 | 68.5 | 100 | 32.6 | 5.4 | 0.7 | 512.0 | 91.0 | 20.0 | 164.6 | 48.4 | 9.7 | 1,300 | 365/260 | 80/60 |
| Alternative C | 37.0 | 25.0 | 45.0 | 100 | 112.6 | 18.2 | 2.3 | 512.0 | 91.0 | 20.0 | 244.6 | 61.2 | 11.3 | 1,300 | 365/260 | 80/60 |
| Alternative C - 80 % Drill Rig Mitigation | 10.3 | 25.0 | 18.3 | 100 | 22.6 | 3.8 | 0.5 | 512.0 | 91.0 | 20.0 | 154.6 | 46.8 | 9.5 | 1,300 | 365/260 | 80/60 |
| Proposed Action - Maximum Field Production | 8.3 | 25.0 | 16.3 | 100 | 0.5 | 0.1 | 0.0 | 512.0 | 91.0 | 20.0 | 132.5 | 43.1 | 9.0 | 1,300 | 365/260 | 80/60 |

| | $PM_{10}$ | | | | | | | | $PM_{2.5}$ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact[1] | | PSD Class II Increment[2] | | Total Concentration[3] | | NAAQS/ WAAQS | | Direct Modeled Impact | | Total Concentration[3] | | NAAQS/ WAAQS | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual |
| No Action | 51.4 | 18.3 | 30.0 | 17.0 | 83.4 | 27.3 | 150 | 50 | 14.1 | 5.2 | 29.1 | 11.2 | 65 (35)[4] | 15 |
| Proposed Action | 24.6 | 8.5 | 30.0 | 17.0 | 56.6 | 17.5 | 150 | 50 | 12.1 | 3.4 | 27.1 | 9.4 | 65 (35)[4] | 15 |
| Alternative C | 29.9 | 10.8 | 30.0 | 17.0 | 61.9 | 19.8 | 150 | 50 | 9.9 | 3.5 | 24.9 | 9.5 | 65 (35)[4] | 15 |
| Alternative C - 80 % Drill Rig Mitigation | 29.6 | 9.7 | 30.0 | 17.0 | 61.6 | 18.7 | 150 | 50 | 5.7 | 2.3 | 20.7 | 8.3 | 65 (35)[4] | 15 |
| Proposed Action - Maximum Field Production | 17.5 | 4.9 | 30.0 | 17.0 | 49.5 | 13.9 | 150 | 50 | 4.0 | 1.2 | 19.0 | 7.2 | 65 (35)[4] | 15 |

[1] Total concentration includes direct modeled impact and background concentration

[2] Background concentrations are not added to modeled concentrations for comparison to the PSD increment. All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis

[3] Annual background $NO_2$ concentration value of 8 $\mu g/m^3$ from Boulder monitor.
Background $SO_2$ concentration values of 132 $\mu g/m^3$, 43 $\mu g/m^3$, and 9 $\mu g/m^3$, from Craven Creek used for 3-hour, 24-hour, and annual averaging periods, respectively.
Back ground $PM_{10}$ concentration values of 32 $\mu g/m^3$ and 9 $\mu g/m^3$, from Boulder used for 24-hour and annual averaging periods, respectively.
Back ground $PM_{2.5}$ concentration values of 15 $\mu g/m^3$ and 6 $\mu g/m^3$, from Pinedale used for 24-hour and annual averaging periods, respectively.

[4] Revised NAAQS effective December 18, 2006.

Table M.16 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources Using FLAG Background Data - (MVISBK=6)

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absaroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) |
| No Action | 7.4 | 62.0 | 4.8 | 8.0 | 1.6 | 2.0 | 3.6 | 6.0 | 0.9 | 0.0 |
| Proposed Action | 8.5 | 67.0 | 5.6 | 10.0 | 1.7 | 3.0 | 4.1 | 8.0 | 0.7 | 0.0 |
| Alternative C | 6.3 | 40.0 | 4.0 | 5.0 | 1.2 | 1.0 | 2.9 | 2.0 | 0.5 | 0.0 |
| Alternative C - 80 % Drill Rig Mitigation | 2.6 | 10.0 | 1.5 | 1.0 | 0.4 | 0.0 | 1.2 | 1.0 | 0.2 | 0.0 |
| Proposed Action - Maximum Field Production | 3.3 | 16.0 | 2.1 | 3.0 | 0.8 | 0.0 | 1.8 | 1.0 | 0.3 | 0.0 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) |
| No Action | 2.8 | 12.0 | 1.1 | 1.0 | 1.1 | 2.0 | 3.7 | 9.0 | 0.8 | 0.0 |
| Proposed Action | 3.2 | 14.0 | 1.2 | 1.0 | 1.3 | 2.0 | 4.2 | 10.0 | 0.8 | 0.0 |
| Alternative C | 2.2 | 6.0 | 0.8 | 0.0 | 0.9 | 0.0 | 3.0 | 5.0 | 0.5 | 0.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.9 | 0.0 | 0.3 | 0.0 | 0.3 | 0.0 | 1.3 | 1.0 | 0.2 | 0.0 |
| Proposed Action - Maximum Field Production | 1.5 | 1.0 | 0.5 | 0.0 | 0.5 | 0.0 | 1.8 | 2.0 | 0.3 | 0.0 |

Note: Δdv = change in deciview.

Table M.17 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Direct Project Sources Using Boulder Background Data

| | Boulder | | Cora | | Pinedale | |
|---|---|---|---|---|---|---|
| Alternative | Maximum Visibility Impact ($\Delta$dv)[1] | Number of Days > 1.0 $\Delta$dv[1] (days) | Maximum Visibility Impact ($\Delta$dv)[1] | Number of Days > 1.0 $\Delta$dv[1] (days) | Maximum Visibility Impact ($\Delta$dv)[1] | Number of Days > 1.0 $\Delta$dv[1] (days) |
| No Action | 13.1 | 126 | 11.2 | 58 | 12.5 | 89 |
| Proposed Action | 15.3 | 138 | 12.5 | 62 | 12.3 | 91 |
| Alternative C | 12.2 | 107 | 9.5 | 47 | 9.4 | 70 |
| Alternative C - 80 % Drill Rig Mitigation | 6.6 | 45 | 4.0 | 12 | 4.4 | 25 |
| Proposed Action - Maximum Field Production | 6.8 | 54 | 3.3 | 12 | 5.2 | 23 |

[1] $\Delta$dv = change in deciview.

Table M.18 - Summary of Maximum Modeled Total Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources[1]

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absaroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.097 | 1.517 | 0.012 | 1.432 | 0.007 | 1.297 | 0.014 | 1.434 | 0.004 | 1.294 |
| Proposed Action | 0.089 | 1.509 | 0.012 | 1.432 | 0.006 | 1.296 | 0.013 | 1.433 | 0.004 | 1.294 |
| Alternative C | 0.056 | 1.476 | 0.007 | 1.427 | 0.004 | 1.294 | 0.008 | 1.428 | 0.003 | 1.293 |
| Alternative C - 80 % Drill Rig Mitigation | 0.021 | 1.441 | 0.003 | 1.423 | 0.001 | 1.291 | 0.003 | 1.423 | 0.001 | 1.291 |
| Proposed Action - Maximum Field Production | 0.031 | 1.451 | 0.004 | 1.424 | 0.002 | 1.292 | 0.004 | 1.424 | 0.002 | 1.292 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.036 | 1.456 | 0.005 | 1.295 | 0.005 | 1.295 | 0.022 | 1.442 | 0.004 | 1.294 |
| Proposed Action | 0.032 | 1.452 | 0.005 | 1.295 | 0.005 | 1.295 | 0.020 | 1.440 | 0.004 | 1.294 |
| Alternative C | 0.020 | 1.440 | 0.003 | 1.293 | 0.003 | 1.293 | 0.013 | 1.433 | 0.002 | 1.292 |
| Alternative C - 80 % Drill Rig Mitigation | 0.008 | 1.428 | 0.001 | 1.291 | 0.001 | 1.291 | 0.005 | 1.425 | 0.001 | 1.291 |
| Proposed Action - Maximum Field Production | 0.011 | 1.431 | 0.002 | 1.292 | 0.002 | 1.292 | 0.007 | 1.427 | 0.001 | 1.291 |

[1] gen deposition analysis level of concern for total impacts - 3.00 kg/ha-yr.

[2] Nitro position value of 1.42 kg/ha-yr measured at the CASTNET/NADP site near Pinedale for the year 2004.

[3] Includes N de position value of 1.29 kg/ha-yr measured at the CASTNET/NADP site at Yellowstone National Park for the year 2005.

Includes N de

Table M.19 - Summary of Maximum Modeled Total Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources[1]

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absaroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.0030 | 0.743 | 0.0004 | 0.740 | 0.0002 | 0.680 | 0.0004 | 0.740 | 0.0001 | 0.680 |
| Proposed Action | 0.0032 | 0.743 | 0.0005 | 0.740 | 0.0002 | 0.680 | 0.0004 | 0.740 | 0.0001 | 0.680 |
| Alternative C | 0.0093 | 0.749 | 0.0015 | 0.741 | 0.0006 | 0.681 | 0.0013 | 0.741 | 0.0004 | 0.680 |
| Alternative C - 80 % Drill Rig Mitigation | 0.0022 | 0.742 | 0.0003 | 0.740 | 0.0001 | 0.680 | 0.0003 | 0.740 | 0.0001 | 0.680 |
| Proposed Action - Maximum Field Production | 0.0001 | 0.740 | 0.0000 | 0.740 | 0.0000 | 0.680 | 0.0000 | 0.740 | 0.0000 | 0.680 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.0014 | 0.741 | 0.0002 | 0.680 | 0.0002 | 0.680 | 0.0008 | 0.741 | 0.0001 | 0.680 |
| Proposed Action | 0.0014 | 0.741 | 0.0002 | 0.680 | 0.0002 | 0.680 | 0.0009 | 0.741 | 0.0001 | 0.680 |
| Alternative C | 0.0043 | 0.744 | 0.0005 | 0.680 | 0.0006 | 0.681 | 0.0026 | 0.743 | 0.0004 | 0.680 |
| Alternative C - 80 % Drill Rig Mitigation | 0.0010 | 0.741 | 0.0001 | 0.680 | 0.0001 | 0.680 | 0.0006 | 0.741 | 0.0001 | 0.680 |
| Proposed Action - Maximum Field Production | 0.0000 | 0.740 | 0.0000 | 0.680 | 0.0000 | 0.680 | 0.0000 | 0.740 | 0.0000 | 0.680 |

[1] position analysis level of concern for total impacts = 5.0 kg/ha-yr.
[2] Sulfur de position value of 0.74 kg/ha-yr measured at the CASTNET/NADP site near Pinedale for the year 2004.
[3] Includes S de position value of 0.68 kg/ha-yr measured at the CASTNET/NADP site at Yellowstone National Park for the year 2005.
Includes S de

Table M.20 - Summary of Maximum Modeled Change in ANC (μeq/L) at Acid Sensitive Lakes from Direct Project Sources

| | Black Joe Lake | | Deep Lake | | Hobbs Lake | | Lazy Boy Lake | | Lower Saddlebag | | Ross Lake | | Upper Frozen | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bridger Wilderness Class I | | Bridger Wilderness Class I | | Bridger Wilderness Class I | | Bridger Wilderness Class I | | Popo Agie Wilderness Class II | | Fitzpatrick Wilderness Class I | | Bridger Wilderness Class I | |
| Alternative | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) |
| Level of Acceptable Change(μeq/L) | 6.71 | 10% | 5.97 | 10% | 6.99 | 10% | 1.00 | -- | 5.52 | 10% | 5.37 | 10% | 1.00 | -- |
| Background | 67.1 | -- | 59.7 | -- | 69.9 | -- | 10.8 | -- | 55.2 | -- | 53.7 | -- | 6.0 | -- |
| No Action | 0.28 | 0.42% | 0.31 | 0.52% | 0.15 | 0.21% | 0.09 | -- | 0.30 | 0.55% | 0.08 | 0.14% | 0.34 | -- |
| Proposed Action | 0.25 | 0.37% | 0.28 | 0.46% | 0.15 | 0.21% | 0.08 | -- | 0.26 | 0.48% | 0.07 | 0.13% | 0.30 | -- |
| Alternative C | 0.18 | 0.27% | 0.20 | 0.33% | 0.10 | 0.15% | 0.06 | -- | 0.19 | 0.35% | 0.05 | 0.10% | 0.22 | -- |
| Alternative C - 80 % Drill Rig Mitigation | 0.07 | 0.10% | 0.07 | 0.12% | 0.04 | 0.05% | 0.02 | -- | 0.07 | 0.13% | 0.02 | 0.03% | 0.08 | -- |
| Proposed Action - Maximum Field Production | 0.08 | 0.12% | 0.09 | 0.15% | 0.05 | 0.07% | 0.03 | -- | 0.09 | 0.17% | 0.03 | 0.05% | 0.10 | -- |

[1] USFS Level of Acceptable Change; 10% change in ANC for lakes with ANC background values greater than 25 μeq/L, 1 μeq/l for lakes with ANC values less than or equal to 25 μeq/L.

Table M-21 RFD Projects Included in Cumulative Analysis

| | |
|---|---|
| Atlantic Rim | Lower Greys River - MA 32 |
| Bitter Creek | Monell Oil Recovery |
| BTA Bravo | Moxa Arch |
| Burley | Moxa Arch Infill |
| Burlington Little Monument | Mulligan Draw |
| Cave Gulch | Pacific Rim |
| Cliff Creek - USFS Management Area (MA) 22 | Piney Creeks - MA 26 |
| Compressor Station, Pipeline- Williams | Pioneer Gas Plant |
| Cooper Reservoir (1998) | Powder River Basin |
| Cottonwood Creek - MA 25 | Riley Ridge |
| Desolation Flats | Road Hollow Gas Plant |
| Fontenelle Natural Gas Infill Drilling | Scotty Lake |
| Ham's Fork Pipeline | Seminoe Road |
| Hay Reservoir Pilot | Sierra Madre |
| Hickey Mountain-Table Mountain | Soda Unit |
| Horse Creek - MA 24 | South Baggs |
| Horse Trap | South Piney |
| Jack Morrow Hills | |
| | Stage Coach |
| Jonah Enterprise | Upper Hoback – MA 23 |
| Jonah Infill | Vermillion Basin |
| LaBarge Creek - MA 12 | Willow Creek - MA 49 |
| Little Greys River - MA 31 | Wind Dancer |
| Lower Bush Creek CBM (Kennedy Oil | Wind River (Bureau of Indian Affairs [BIA] lead agency) |

Table M.22 - Summary of Maximum Modeled Cumulative $NO_2$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absoroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[2] |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.40 | 8.40 | 0.03 | 8.03 | 0.12 | 8.12 | 0.04 | 8.04 | 0.002 | 8.00 |
| Proposed Action | 0.39 | 8.39 | 0.03 | 8.03 | 0.11 | 8.11 | 0.04 | 8.04 | 0.002 | 8.00 |
| Alternative C | 0.26 | 8.26 | 0.02 | 8.02 | 0.11 | 8.11 | 0.03 | 8.03 | 0.002 | 8.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.13 | 8.13 | 0.01 | 8.01 | 0.11 | 8.11 | 0.02 | 8.02 | 0.001 | 8.00 |
| Proposed Action - Maximum Field Production | 0.16 | 8.16 | 0.02 | 8.02 | 0.11 | 8.11 | 0.02 | 8.02 | 0.001 | 8.00 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[1] | Direct Modeled Impact | Total Concentration[2] |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.09 | 8.09 | 0.01 | 8.01 | 0.005 | 8.00 | 0.06 | 8.06 | 0.003 | 8.00 |
| Proposed Action | 0.09 | 8.09 | 0.01 | 8.01 | 0.005 | 8.00 | 0.06 | 8.06 | 0.003 | 8.00 |
| Alternative C | 0.06 | 8.06 | 0.004 | 8.00 | 0.003 | 8.00 | 0.04 | 8.04 | 0.002 | 8.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.03 | 8.03 | 0.002 | 8.00 | 0.002 | 8.00 | 0.02 | 8.02 | 0.001 | 8.00 |
| Proposed Action - Maximum Field Production | 0.04 | 8.04 | 0.003 | 8.00 | 0.003 | 8.00 | 0.03 | 8.03 | 0.001 | 8.00 |

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 100 $\mu g/m^3$ on an annual basis.

[2] Annual background $NO_2$ concentration value of 8 $\mu g/m^3$ from Boulder monitor.

Table M.23 - Summary of Maximum Modeled Cumulative $SO_2$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

| | Bridger Wilderness Class I | | | | | | Fitzpatrick Wilderness Class I | | | | | | Grand Teton National Park Class I | | | | | | Gros Ventre Wilderness Class II | | | | | | North Absaroka Wilderness Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.25 | 0.08 | 0.01 | 132.3 | 43.1 | 9.01 | 0.07 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.03 | 0.01 | 0.001 | 132.0 | 43.0 | 9.00 | 0.07 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 |
| Proposed Action | 0.30 | 0.09 | 0.01 | 132.3 | 43.1 | 9.01 | 0.09 | 0.03 | 0.001 | 132.1 | 43.0 | 9.00 | 0.03 | 0.01 | 0.001 | 132.0 | 43.0 | 9.00 | 0.07 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 |
| Alternative C | 0.76 | 0.24 | 0.02 | 132.8 | 43.2 | 9.02 | 0.22 | 0.07 | 0.003 | 132.2 | 43.1 | 9.00 | 0.08 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.18 | 0.04 | 0.003 | 132.2 | 43.0 | 9.00 | 0.03 | 0.01 | 0.0005 | 132.0 | 43.0 | 9.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.24 | 0.07 | 0.01 | 132.2 | 43.1 | 9.01 | 0.07 | 0.02 | 0.001 | 132.1 | 43.0 | 9.00 | 0.03 | 0.01 | 0.0005 | 132.0 | 43.0 | 9.00 | 0.06 | 0.01 | 0.001 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 |
| Proposed Action - Maximum Field Production | 0.10 | 0.03 | 0.002 | 132.1 | 43.0 | 9.00 | 0.03 | 0.01 | 0.001 | 132.0 | 43.0 | 9.00 | 0.01 | 0.004 | 0.0003 | 132.0 | 43.0 | 9.00 | 0.03 | 0.01 | 0.0004 | 132.0 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0002 | 132.0 | 43.0 | 9.00 |

| | Popo Agie Wilderness Class II | | | | | | Teton Wilderness Class I | | | | | | Washakie Wilderness Class I | | | | | | Wind River Roadless Area Class II | | | | | | Yellowstone National Park Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | | Direct Modeled Impact | | | Total Concentration[1] | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.08 | 0.02 | 0.003 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0004 | 132.0 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0005 | 132.0 | 43.0 | 9.00 | 0.09 | 0.02 | 0.002 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0002 | 132.0 | 43.0 | 9.00 |
| Proposed Action | 0.09 | 0.02 | 0.003 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0004 | 132.0 | 43.0 | 9.00 | 0.03 | 0.01 | 0.0005 | 132.0 | 43.0 | 9.00 | 0.10 | 0.02 | 0.002 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 |
| Alternative C | 0.19 | 0.05 | 0.008 | 132.2 | 43.1 | 9.01 | 0.06 | 0.01 | 0.0008 | 132.1 | 43.0 | 9.00 | 0.06 | 0.01 | 0.0010 | 132.1 | 43.0 | 9.00 | 0.19 | 0.06 | 0.006 | 132.2 | 43.1 | 9.01 | 0.06 | 0.01 | 0.0005 | 132.1 | 43.0 | 9.00 |
| Alternative C - 80 % Drill Rig Mitigation | 0.08 | 0.02 | 0.003 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0005 | 132.0 | 43.0 | 9.00 | 0.09 | 0.02 | 0.002 | 132.1 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0002 | 132.0 | 43.0 | 9.00 |
| Proposed Action - Maximum Field Production | 0.06 | 0.01 | 0.001 | 132.1 | 43.0 | 9.00 | 0.01 | 0.01 | 0.0002 | 132.0 | 43.0 | 9.00 | 0.02 | 0.01 | 0.0003 | 132.0 | 43.0 | 9.00 | 0.06 | 0.01 | 0.001 | 132.1 | 43.0 | 9.00 | 0.01 | 0.003 | 0.0002 | 132.0 | 43.0 | 9.00 |

[1] Total concentration includes direct modeled impact and background concentration for comparison with NAAQS/WAAQS which are 1,300 $\mu g/m^3$ on a 3-hour basis, 365/260 $\mu g/m^3$ on a 24-hour basis and 80/60 $\mu g/m^3$ on an annual basis. Background $SO_2$ concentration values of 132 $\mu g/m^3$, 43 $\mu g/m^3$, and 9 $\mu g/m^3$, from Craven Creek used for 3-hour, 24-hour, and annual averaging periods, respectively.

Table M.24 - Summary of Maximum Modeled Cumulative $PM_{10}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

| | Bridger Wilderness Class I | | | | Fitzpatrick Wilderness Class I | | | | Grand Teton National Park Class I | | | | Gros Ventre Wilderness Class II | | | | North Absaroka Wilderness Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 3.28 | 0.17 | 35.3 | 9.17 | 1.05 | 0.04 | 33.0 | 9.04 | 1.00 | 0.07 | 33.0 | 9.07 | 0.70 | 0.04 | 32.7 | 9.04 | 0.27 | 0.01 | 32.3 | 9.01 |
| Proposed Action | 2.98 | 0.18 | 35.0 | 9.18 | 1.11 | 0.04 | 33.1 | 9.04 | 1.00 | 0.07 | 33.0 | 9.07 | 0.57 | 0.04 | 32.6 | 9.04 | 0.31 | 0.01 | 32.3 | 9.01 |
| Alternative C | 2.22 | 0.14 | 34.2 | 9.14 | 0.89 | 0.04 | 32.9 | 9.04 | 0.97 | 0.06 | 33.0 | 9.06 | 0.48 | 0.03 | 32.5 | 9.03 | 0.25 | 0.01 | 32.2 | 9.01 |
| Alternative C - 80 % Drill Rig Mitigation | 1.13 | 0.09 | 33.1 | 9.09 | 0.69 | 0.02 | 32.7 | 9.02 | 0.87 | 0.06 | 32.9 | 9.06 | 0.45 | 0.02 | 32.5 | 9.02 | 0.17 | 0.01 | 32.2 | 9.01 |
| Proposed Action - Maximum Field Production | 0.97 | 0.08 | 33.0 | 9.08 | 0.73 | 0.02 | 32.7 | 9.02 | 0.89 | 0.06 | 32.9 | 9.06 | 0.46 | 0.02 | 32.5 | 9.02 | 0.19 | 0.01 | 32.2 | 9.01 |

| | Popo Agie Wilderness Class II | | | | Teton Wilderness Class I | | | | Washakie Wilderness Class I | | | | Wind River Roadless Area Class II | | | | Yellowstone National Park Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.89 | 0.08 | 32.9 | 9.08 | 0.56 | 0.04 | 32.6 | 9.04 | 0.38 | 0.02 | 32.4 | 9.02 | 1.14 | 0.08 | 33.1 | 9.08 | 0.27 | 0.01 | 32.3 | 9.01 |
| Proposed Action | 0.99 | 0.08 | 33.0 | 9.08 | 0.56 | 0.04 | 32.6 | 9.04 | 0.42 | 0.02 | 32.4 | 9.02 | 1.26 | 0.08 | 33.3 | 9.08 | 0.24 | 0.01 | 32.2 | 9.01 |
| Alternative C | 0.77 | 0.07 | 32.8 | 9.07 | 0.56 | 0.04 | 32.6 | 9.04 | 0.34 | 0.02 | 32.3 | 9.02 | 1.01 | 0.08 | 33.0 | 9.08 | 0.19 | 0.01 | 32.2 | 9.01 |
| Alternative C - 80 % Drill Rig Mitigation | 0.64 | 0.05 | 32.6 | 9.05 | 0.56 | 0.03 | 32.6 | 9.03 | 0.23 | 0.01 | 32.2 | 9.01 | 0.70 | 0.07 | 32.7 | 9.07 | 0.13 | 0.01 | 32.1 | 9.01 |
| Proposed Action - Maximum Field Production | 0.67 | 0.05 | 32.7 | 9.05 | 0.56 | 0.03 | 32.6 | 9.03 | 0.26 | 0.01 | 32.3 | 9.01 | 0.75 | 0.07 | 32.8 | 9.07 | 0.15 | 0.01 | 32.1 | 9.01 |

[1] Total Concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS whaich are 150$\mu g/m^3$ on a 24-hour basis and 50 $\mu g/m^3$ on an annual basis.

Background $PM_{10}$ concentration values of 32 $\mu g/m^3$ and 9 $\mu g/m^3$, from Boulder used for 24-hour and annual averaging periods, respectively.

Table M.25 - Summary of Maximum Modeled Cumulative $PM_{2.5}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

| | Bridger Wilderness Class I | | | | Fitzpatrick Wilderness Class I | | | | Grand Teton National Park Class I | | | | Gros Ventre Wilderness Class II | | | | North Absaroka Wilderness Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 1.08 | 0.17 | 19.1 | 6.17 | 0.33 | 0.04 | 18.3 | 6.04 | 0.41 | 0.07 | 18.4 | 6.07 | 0.32 | 0.04 | 18.3 | 6.04 | 0.10 | 0.01 | 18.1 | 6.01 |
| Proposed Action | 1.25 | 0.17 | 19.3 | 6.17 | 0.36 | 0.04 | 18.4 | 6.04 | 0.41 | 0.06 | 18.4 | 6.06 | 0.33 | 0.04 | 18.3 | 6.04 | 0.11 | 0.01 | 18.1 | 6.01 |
| Alternative C | 0.95 | 0.13 | 19.0 | 6.13 | 0.27 | 0.03 | 18.3 | 6.03 | 0.40 | 0.06 | 18.4 | 6.06 | 0.27 | 0.03 | 18.3 | 6.03 | 0.09 | 0.01 | 18.1 | 6.01 |
| Alternative C - 80 % Drill Rig Mitigation | 0.51 | 0.08 | 18.5 | 6.08 | 0.19 | 0.02 | 18.2 | 6.02 | 0.36 | 0.06 | 18.4 | 6.06 | 0.17 | 0.02 | 18.2 | 6.02 | 0.06 | 0.01 | 18.1 | 6.01 |
| Proposed Action - Maximum Field Production | 0.51 | 0.08 | 18.5 | 6.08 | 0.19 | 0.02 | 18.2 | 6.02 | 0.36 | 0.06 | 18.4 | 6.06 | 0.18 | 0.02 | 18.2 | 6.02 | 0.07 | 0.01 | 18.1 | 6.01 |

| | Popo Agie Wilderness Class II | | | | Teton Wilderness Class I | | | | Washakie Wilderness Class I | | | | Wind River Roadless Area Class II | | | | Yellowstone National Park Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[1] | | Direct Modeled Impact | | Total Concentration[2] | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.49 | 0.08 | 18.5 | 6.08 | 0.30 | 0.04 | 18.3 | 6.04 | 0.15 | 0.02 | 18.1 | 6.02 | 0.55 | 0.08 | 18.6 | 6.08 | 0.13 | 0.01 | 18.1 | 6.01 |
| Proposed Action | 0.52 | 0.08 | 18.5 | 6.08 | 0.30 | 0.04 | 18.3 | 6.04 | 0.16 | 0.02 | 18.2 | 6.02 | 0.58 | 0.08 | 18.6 | 6.08 | 0.13 | 0.01 | 18.1 | 6.01 |
| Alternative C | 0.45 | 0.07 | 18.4 | 6.07 | 0.30 | 0.04 | 18.3 | 6.04 | 0.13 | 0.02 | 18.1 | 6.02 | 0.50 | 0.08 | 18.5 | 6.08 | 0.10 | 0.01 | 18.1 | 6.01 |
| Alternative C - 80 % Drill Rig Mitigation | 0.34 | 0.05 | 18.3 | 6.05 | 0.28 | 0.03 | 18.3 | 6.03 | 0.09 | 0.01 | 18.1 | 6.01 | 0.44 | 0.07 | 18.4 | 6.07 | 0.07 | 0.01 | 18.1 | 6.01 |
| Proposed Action - Maximum Field Production | 0.37 | 0.05 | 18.4 | 6.05 | 0.29 | 0.03 | 18.3 | 6.03 | 0.10 | 0.01 | 18.1 | 6.01 | 0.45 | 0.07 | 18.4 | 6.07 | 0.07 | 0.01 | 18.1 | 6.01 |

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 65 $\mu g/m^3$ (revised NAAQS of 35 $\mu g/m3$ effective on Dec 18, 2006) on a 24-hour basis and 15 $\mu g/m^3$ on an annual basis.

[2] Background $PM_{2.5}$ concentration values of 18 $\mu g/m^3$ and 6 $\mu g/m^3$, from Pinedale used for 24-hour and annual averaging periods, respectively.

Table M.26 - Summary of Maximum Modeled Cumulative $NO_2$ Concentration Impacts ($\mu g/m^3$) from Direct Project and Regional Sources Compared to PSD Increments[1]

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absoroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.40 | 2.5 | 0.03 | 2.5 | 0.12 | 2.5 | 0.04 | 25.0 | 0.002 | 2.5 |
| Proposed Action | 0.39 | 2.5 | 0.03 | 2.5 | 0.11 | 2.5 | 0.04 | 25.0 | 0.002 | 2.5 |
| Alternative C | 0.26 | 2.5 | 0.02 | 2.5 | 0.11 | 2.5 | 0.03 | 25.0 | 0.002 | 2.5 |
| Alternative C - 80 % Drill Rig Mitigation | 0.13 | 2.5 | 0.01 | 2.5 | 0.11 | 2.5 | 0.02 | 25.0 | 0.001 | 2.5 |
| Proposed Action - Maximum Field Production | 0.16 | 2.5 | 0.02 | 2.5 | 0.11 | 2.5 | 0.02 | 25.0 | 0.001 | 2.5 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment | Direct Modeled Impact | PSD Increment |
| Alternative | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual | Annual |
| No Action | 0.09 | 25.0 | 0.005 | 2.5 | 0.005 | 2.5 | 0.06 | 25.0 | 0.003 | 2.5 |
| Proposed Action | 0.09 | 25.0 | 0.006 | 2.5 | 0.005 | 2.5 | 0.06 | 25.0 | 0.003 | 2.5 |
| Alternative C | 0.06 | 25.0 | 0.004 | 2.5 | 0.003 | 2.5 | 0.04 | 25.0 | 0.002 | 2.5 |
| Alternative C - 80 % Drill Rig Mitigation | 0.03 | 25.0 | 0.002 | 2.5 | 0.002 | 2.5 | 0.02 | 25.0 | 0.001 | 2.5 |
| Proposed Action - Maximum Field Production | 0.04 | 25.0 | 0.003 | 2.5 | 0.003 | 2.5 | 0.03 | 25.0 | 0.001 | 2.5 |

[1] All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis

Table M.27 - Summary of Maximum Modeled Cumulative $SO_2$ Concentrations ($\mu g/m^3$) from Direct Project and Regional Sources Compared to PSD Increments[1]

| | Bridger Wilderness Class I | | | | | | Fitzpatrick Wilderness Class I | | | | | | Grand Teton National Park Class I | | | | | | Gros Ventre Wilderness Class II | | | | | | North Absaroka Wilderness Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.25 | 0.08 | 0.01 | 25.0 | 5.0 | 2.0 | 0.07 | 0.02 | 0.001 | 25.0 | 5.0 | 2.0 | 0.03 | 0.01 | 0.001 | 25.0 | 5.0 | 2.0 | 0.07 | 0.02 | 0.001 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 |
| Proposed Action | 0.30 | 0.09 | 0.01 | 25.0 | 5.0 | 2.0 | 0.09 | 0.03 | 0.001 | 25.0 | 5.0 | 2.0 | 0.03 | 0.01 | 0.001 | 25.0 | 5.0 | 2.0 | 0.07 | 0.02 | 0.001 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 |
| Alternative C | 0.76 | 0.24 | 0.02 | 25.0 | 5.0 | 2.0 | 0.22 | 0.07 | 0.003 | 25.0 | 5.0 | 2.0 | 0.08 | 0.02 | 0.001 | 25.0 | 5.0 | 2.0 | 0.18 | 0.04 | 0.003 | 512.0 | 91.0 | 20.0 | 0.03 | 0.01 | 0.0005 | 25.0 | 5.0 | 2.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.24 | 0.07 | 0.01 | 25.0 | 5.0 | 2.0 | 0.07 | 0.02 | 0.001 | 25.0 | 5.0 | 2.0 | 0.03 | 0.01 | 0.0005 | 25.0 | 5.0 | 2.0 | 0.06 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 |
| Proposed Action - Maximum Field Production | 0.10 | 0.03 | 0.002 | 25.0 | 5.0 | 2.0 | 0.03 | 0.01 | 0.001 | 25.0 | 5.0 | 2.0 | 0.01 | 0.004 | 0.0003 | 25.0 | 5.0 | 2.0 | 0.03 | 0.01 | 0.0004 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0002 | 25.0 | 5.0 | 2.0 |

| | Popo Agie Wilderness Class II | | | | | | Teton Wilderness Class I | | | | | | Washakie Wilderness Class I | | | | | | Wind River Roadless Area Class II | | | | | | Yellowstone National Park Class I | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | | Direct Modeled Impact | | | PSD Increment | | |
| Alternative | 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 | 3-hr | 24-hr | Annual |
| No Action | 0.08 | 0.02 | 0.003 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0004 | 25.0 | 5.0 | 2.0 | 0.02 | 0.01 | 0.0005 | 25.0 | 5.0 | 2.0 | 0.09 | 0.02 | 0.002 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0002 | 25.0 | 5.0 | 2.0 |
| Proposed Action | 0.09 | 0.02 | 0.003 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0004 | 25.0 | 5.0 | 2.0 | 0.03 | 0.01 | 0.0005 | 25.0 | 5.0 | 2.0 | 0.10 | 0.02 | 0.002 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 |
| Alternative C | 0.19 | 0.05 | 0.008 | 512.0 | 91.0 | 20.0 | 0.06 | 0.01 | 0.0008 | 25.0 | 5.0 | 2.0 | 0.06 | 0.01 | 0.0010 | 25.0 | 5.0 | 2.0 | 0.19 | 0.06 | 0.006 | 512.0 | 91.0 | 20.0 | 0.06 | 0.01 | 0.0005 | 25.0 | 5.0 | 2.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.08 | 0.02 | 0.003 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 | 0.02 | 0.01 | 0.0005 | 25.0 | 5.0 | 2.0 | 0.09 | 0.02 | 0.002 | 512.0 | 91.0 | 20.0 | 0.02 | 0.01 | 0.0002 | 25.0 | 5.0 | 2.0 |
| Proposed Action - Maximum Field Production | 0.06 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.01 | 0.0002 | 25.0 | 5.0 | 2.0 | 0.02 | 0.01 | 0.0003 | 25.0 | 5.0 | 2.0 | 0.06 | 0.01 | 0.001 | 512.0 | 91.0 | 20.0 | 0.01 | 0.00 | 0.0002 | 25.0 | 5.0 | 2.0 |

[1] All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis .

Table M.28 - Summary of Maximum Modeled Cumulative $PM_{10}$ Concentration Impacts ($\mu g/m^3$) from Direct Project and Regional Sources Compared to PSD Increments[1]

| | Bridger Wilderness Class I | | | | Fitzpatrick Wilderness Class I | | | | Grand Teton National Park Class I | | | | Gros Ventre Wilderness Class II | | | | North Absaroka Wilderness Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 3.28 | 0.17 | 8.0 | 4.0 | 1.05 | 0.04 | 8.0 | 4.0 | 1.00 | 0.07 | 8.0 | 4.0 | 0.70 | 0.04 | 30.0 | 17.0 | 0.27 | 0.01 | 8.0 | 4.0 |
| Proposed Action | 2.98 | 0.18 | 8.0 | 4.0 | 1.11 | 0.04 | 8.0 | 4.0 | 1.00 | 0.07 | 8.0 | 4.0 | 0.57 | 0.04 | 30.0 | 17.0 | 0.31 | 0.01 | 8.0 | 4.0 |
| Alternative C | 2.22 | 0.14 | 8.0 | 4.0 | 0.89 | 0.04 | 8.0 | 4.0 | 0.97 | 0.06 | 8.0 | 4.0 | 0.48 | 0.03 | 30.0 | 17.0 | 0.25 | 0.01 | 8.0 | 4.0 |
| Alternative C - 80 % Drill Rig Mitigation | 1.13 | 0.09 | 8.0 | 4.0 | 0.69 | 0.02 | 8.0 | 4.0 | 0.87 | 0.06 | 8.0 | 4.0 | 0.45 | 0.02 | 30.0 | 17.0 | 0.17 | 0.01 | 8.0 | 4.0 |
| Proposed Action - Maximum Field Production | 0.97 | 0.08 | 8.0 | 4.0 | 0.73 | 0.02 | 8.0 | 4.0 | 0.89 | 0.06 | 8.0 | 4.0 | 0.46 | 0.02 | 30.0 | 17.0 | 0.19 | 0.01 | 8.0 | 4.0 |

| | Popo Agie Wilderness Class II | | | | Teton Wilderness Class I | | | | Washakie Wilderness Class I | | | | Wind River Roadless Area Class II | | | | Yellowstone National Park Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | | Direct Modeled Impact | | PSD Increment | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 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 | 0.89 | 0.08 | 30.0 | 17.0 | 0.56 | 0.04 | 8.0 | 4.0 | 0.38 | 0.02 | 8.0 | 4.0 | 1.14 | 0.08 | 30.0 | 17.0 | 0.27 | 0.01 | 8.0 | 4.0 |
| Proposed Action | 0.99 | 0.08 | 30.0 | 17.0 | 0.56 | 0.04 | 8.0 | 4.0 | 0.42 | 0.02 | 8.0 | 4.0 | 1.26 | 0.08 | 30.0 | 17.0 | 0.24 | 0.01 | 8.0 | 4.0 |
| Alternative C | 0.77 | 0.07 | 30.0 | 17.0 | 0.56 | 0.04 | 8.0 | 4.0 | 0.34 | 0.02 | 8.0 | 4.0 | 1.01 | 0.08 | 30.0 | 17.0 | 0.19 | 0.01 | 8.0 | 4.0 |
| Alternative C - 80 % Drill Rig Mitigation | 0.64 | 0.05 | 30.0 | 17.0 | 0.56 | 0.03 | 8.0 | 4.0 | 0.23 | 0.01 | 8.0 | 4.0 | 0.70 | 0.07 | 30.0 | 17.0 | 0.13 | 0.01 | 8.0 | 4.0 |
| Proposed Action - Maximum Field Production | 0.67 | 0.05 | 30.0 | 17.0 | 0.56 | 0.03 | 8.0 | 4.0 | 0.26 | 0.01 | 8.0 | 4.0 | 0.75 | 0.07 | 30.0 | 17.0 | 0.15 | 0.01 | 8.0 | 4.0 |

[1] All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis .

Table M.29 - Summary of Maximum Modeled Cumulative In-field Pollutant Concentrations ($\mu g/m^3$) from Direct Project and Regional Sources

| | $NO_2$ | | | | $SO_2$ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact[1] | PSD Class II Increment[2] | Total Concentration[3] | NAAQS/ WAAQS | Direct Modeled Impact[1] | | | PSD Class II Increment[2] | | | Total Concentration[3] | | | NAAQS/WAAQS | | |
| Alternative | Annual | Annual | Annual | Annual | 3-hr | 24-hr | Annual | 3-hr | 24-hr | Annual | 3-hr | 24-hr | Annual | 3-hr | 24-hr | Annual |
| No Action | 53.1 | 25.0 | 61.1 | 100 | 32.8 | 5.3 | 0.8 | 512.0 | 91.0 | 20.0 | 164.8 | 48.3 | 9.8 | 1,300 | 365/260 | 80/60 |
| Proposed Action | 60.8 | 25.0 | 68.8 | 100 | 32.6 | 5.4 | 0.8 | 512.0 | 91.0 | 20.0 | 164.6 | 48.4 | 9.8 | 1,300 | 365/260 | 80/60 |
| Alternative C | 37.3 | 25.0 | 45.3 | 100 | 112.6 | 18.2 | 2.3 | 512.0 | 91.0 | 20.0 | 244.6 | 61.2 | 11.3 | 1,300 | 365/260 | 80/60 |
| Alternative C - 80 % Drill Rig Mitigation | 10.6 | 25.0 | 18.6 | 100 | 22.6 | 3.8 | 0.5 | 512.0 | 91.0 | 20.0 | 154.6 | 46.8 | 9.5 | 1,300 | 365/260 | 80/60 |
| Proposed Action - Maximum Field Production | 9.2 | 25.0 | 17.2 | 100 | 9.5 | 2.2 | 0.2 | 512.0 | 91.0 | 20.0 | 141.5 | 45.2 | 9.2 | 1,300 | 365/260 | 80/60 |

| | $PM_{10}$ | | | | | | | | $PM_{2.5}$ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct Modeled Impact[1] | | PSD Class II Increment[2] | | Total Concentration[3] | | NAAQS/ WAAQS | | Direct Modeled Impact | | Total Concentration[3] | | NAAQS/ WAAQS | |
| Alternative | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual | 24-hr | Annual |
| No Action | 51.5 | 18.8 | 30.0 | 17.0 | 83.5 | 27.8 | 150 | 50 | 14.5 | 5.5 | 32.5 | 11.5 | 65 (35)[4] | 15 |
| Proposed Action | 25.1 | 9.1 | 30.0 | 17.0 | 57.1 | 18.1 | 150 | 50 | 12.2 | 3.6 | 30.2 | 9.6 | 65 (35)[4] | 15 |
| Alternative C | 30.1 | 11.4 | 30.0 | 17.0 | 62.1 | 20.4 | 150 | 50 | 10.0 | 3.7 | 28.0 | 9.7 | 65 (35)[4] | 15 |
| Alternative C - 80 % Drill Rig Mitigation | 29.6 | 10.2 | 30.0 | 17.0 | 61.6 | 19.2 | 150 | 50 | 6.2 | 2.6 | 24.2 | 8.6 | 65 (35)[4] | 15 |
| Proposed Action - Maximum Field Production | 17.9 | 4.9 | 30.0 | 17.0 | 49.9 | 13.9 | 150 | 50 | 4.4 | 1.3 | 22.4 | 7.3 | 65 (35)[4] | 15 |

1 t

2 Background concentrations are not added to modeled concentrations for comparison to the PSD incremen

3 All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PSD Increment Consumption Analysis

Total concentration includes direct modeled impact and background concentration

Annual background $NO_2$ concentration value of 8 $\mu g/m^3$ from Boulder monitor.

Background $SO_2$ concentration values of 132 $\mu g/m^3$, 43 $\mu g/m^3$, and 9 $\mu g/m^3$, from Craven Creek used for 3-hour, 24-hour, and annual averaging periods, respectively.

Back ground $PM_{10}$ concentration values of 32 $\mu g/m^3$ and 9 $\mu g/m^3$, from Boulder used for 24-hour and annual averaging periods, respectively.

Back ground $PM_{2.5}$ concentration values of 15 $\mu g/m^3$ and 6 $\mu g/m^3$, from Pinedale used for 24-hour and annual averaging periods, respectively.

4 Revised NAAQS effective December 18, 2006.

Table M.30 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Using FLAG Background Data - (MVISBK=6)

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absaroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) |
| No Action | 8.6 | 75 | 6.0 | 13 | 2.2 | 4 | 4.6 | 12 | 1.0 | 1 |
| Proposed Action | 9.7 | 77 | 6.7 | 15 | 2.5 | 5 | 5.1 | 12 | 1.0 | 1 |
| Alternative C | 7.6 | 56 | 5.2 | 7 | 1.9 | 2 | 4.0 | 8 | 0.8 | 0 |
| Alternative C - 80 % Drill Rig Mitigation | 4.5 | 25 | 3.1 | 4 | 1.3 | 1 | 2.6 | 2 | 0.5 | 0 |
| Proposed Action - Maximum Field Production | 5.1 | 31 | 3.6 | 4 | 1.6 | 1 | 3.0 | 3 | 0.6 | 0 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) | Maximum Visibility Impact (Δdv) | Number of Days > 1.0 Δdv (days) |
| No Action | 3.9 | 21 | 1.5 | 2 | 1.7 | 2 | 5.3 | 12 | 1.2 | 1 |
| Proposed Action | 4.1 | 25 | 1.6 | 2 | 1.8 | 3 | 5.7 | 19 | 1.2 | 1 |
| Alternative C | 3.4 | 14 | 1.2 | 1 | 1.4 | 2 | 4.7 | 10 | 1.0 | 1 |
| Alternative C - 80 % Drill Rig Mitigation | 2.5 | 6 | 0.7 | 0 | 0.9 | 0 | 3.3 | 6 | 0.7 | 0 |
| Proposed Action - Maximum Field Production | 2.8 | 9 | 0.9 | 0 | 1.1 | 1 | 3.7 | 8 | 0.8 | 0 |

Note: Δdv = change in deciview.

Table M.31 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Direct Project and Regional Sources Using Boulder Background Data

| | Boulder | | Cora | | Pinedale | |
|---|---|---|---|---|---|---|
| Alternative | Maximum Visibility Impact ($\Delta$dv)[1] | Number of Days > 1.0 $\Delta$dv[1] (days) | Maximum Visibility Impact ($\Delta$dv)[1] | Number of Days > 1.0 $\Delta$dv[1] (days) | Maximum Visibility Impact ($\Delta$dv)[1] | Number of Days > 1.0 $\Delta$dv[1] (days) |
| No Action | 13.7 | 141 | 11.5 | 65 | 12.8 | 94 |
| Proposed Action | 15.8 | 153 | 13.0 | 68 | 13.2 | 96 |
| Alternative C | 12.8 | 118 | 10.2 | 60 | 10.8 | 79 |
| Alternative C - 80 % Drill Rig Mitigation | 7.6 | 69 | 5.2 | 25 | 6.7 | 45 |
| Proposed Action - Maximum Field Production | 7.8 | 74 | 5.6 | 27 | 7.3 | 43 |

[1] $\Delta$dv = change in deciview.

Table M.32 - Summary of Maximum Modeled Total Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources[1]

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absaroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.108 | 1.528 | 0.015 | 1.435 | 0.031 | 1.321 | 0.020 | 1.440 | 0.006 | 1.296 |
| Proposed Action | 0.101 | 1.521 | 0.014 | 1.434 | 0.030 | 1.320 | 0.018 | 1.438 | 0.006 | 1.296 |
| Alternative C | 0.068 | 1.488 | 0.010 | 1.430 | 0.029 | 1.319 | 0.013 | 1.433 | 0.005 | 1.295 |
| Alternative C - 80 % Drill Rig Mitigation | 0.033 | 1.453 | 0.006 | 1.426 | 0.027 | 1.317 | 0.008 | 1.428 | 0.003 | 1.293 |
| Proposed Action - Maximum Field Production | 0.042 | 1.462 | 0.007 | 1.427 | 0.027 | 1.317 | 0.009 | 1.429 | 0.003 | 1.293 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.044 | 1.464 | 0.007 | 1.297 | 0.007 | 1.297 | 0.028 | 1.448 | 0.005 | 1.295 |
| Proposed Action | 0.039 | 1.459 | 0.006 | 1.296 | 0.007 | 1.297 | 0.026 | 1.446 | 0.005 | 1.295 |
| Alternative C | 0.028 | 1.448 | 0.005 | 1.295 | 0.005 | 1.295 | 0.019 | 1.439 | 0.004 | 1.294 |
| Alternative C - 80 % Drill Rig Mitigation | 0.016 | 1.436 | 0.003 | 1.293 | 0.003 | 1.293 | 0.011 | 1.431 | 0.003 | 1.293 |
| Proposed Action - Maximum Field Production | 0.019 | 1.439 | 0.004 | 1.294 | 0.004 | 1.294 | 0.013 | 1.433 | 0.003 | 1.293 |

[1] gen deposition analysis level of concern for total impacts - 3.00 kg/ha-yr.
[2] Nitro position value of 1.42 kg/ha-yr measured at the CASTNET/NADP site near Pinedale for the year 2004.
[3] Includes N de position value of 1.29 kg/ha-yr measured at the CASTNET/NADP site at Yellowstone National Park for the year 2005.
Includes N de

Table M.33 - Summary of Maximum Modeled Total Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources[1]

| | Bridger Wilderness Class I | | Fitzpatrick Wilderness Class I | | Grand Teton National Park Class I | | Gros Ventre Wilderness Class II | | North Absaroka Wilderness Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.0037 | 0.744 | 0.0007 | 0.741 | 0.0004 | 0.680 | 0.0008 | 0.741 | 0.0003 | 0.680 |
| Proposed Action | 0.0039 | 0.744 | 0.0008 | 0.741 | 0.0004 | 0.680 | 0.0008 | 0.741 | 0.0003 | 0.680 |
| Alternative C | 0.0101 | 0.750 | 0.0017 | 0.742 | 0.0008 | 0.681 | 0.0016 | 0.742 | 0.0006 | 0.681 |
| Alternative C - 80 % Drill Rig Mitigation | 0.0030 | 0.743 | 0.0006 | 0.741 | 0.0004 | 0.680 | 0.0007 | 0.741 | 0.0003 | 0.680 |
| Proposed Action - Maximum Field Production | 0.0010 | 0.741 | 0.0003 | 0.740 | 0.0002 | 0.680 | 0.0004 | 0.740 | 0.0002 | 0.680 |

| | Popo Agie Wilderness Class II | | Teton Wilderness Class I | | Washakie Wilderness Class I | | Wind River Roadless Area Class II | | Yellowstone National Park Class I | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alternative | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[3] | Modeled Impact | Total Impact[2] | Modeled Impact | Total Impact[3] |
| No Action | 0.0021 | 0.742 | 0.0004 | 0.680 | 0.0004 | 0.680 | 0.0013 | 0.741 | 0.0003 | 0.680 |
| Proposed Action | 0.0022 | 0.742 | 0.0004 | 0.680 | 0.0004 | 0.680 | 0.0013 | 0.741 | 0.0003 | 0.680 |
| Alternative C | 0.0050 | 0.745 | 0.0007 | 0.681 | 0.0008 | 0.681 | 0.0030 | 0.743 | 0.0005 | 0.681 |
| Alternative C - 80 % Drill Rig Mitigation | 0.0018 | 0.742 | 0.0003 | 0.680 | 0.0004 | 0.680 | 0.0011 | 0.741 | 0.0003 | 0.680 |
| Proposed Action - Maximum Field Production | 0.0008 | 0.741 | 0.0002 | 0.680 | 0.0003 | 0.680 | 0.0005 | 0.740 | 0.0002 | 0.680 |

[1] position analysis level of concern for total impacts = 5.0 kg/ha-yr.
[2] Sulfur de position value of 0.74 kg/ha-yr measured at the CASTNET/NADP site near Pinedale for the year 2004.
[3] Includes S de position value of 0.68 kg/ha-yr measured at the CASTNET/NADP site at Yellowstone National Park for the year 2005.
Includes S de

Table M.34 - Summary of Maximum Modeled Change in ANC (μeq/L) at Acid Sensitive Lakes from Direct Project and Regional Sources

| | Black Joe Lake | | Deep Lake | | Hobbs Lake | | Lazy Boy Lake | | Lower Saddlebag | | Ross Lake | | Upper Frozen | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bridger Wilderness Class I | | Bridger Wilderness Class I | | Bridger Wilderness Class I | | Bridger Wilderness Class I | | Popo Agie Wilderness Class II | | Fitzpatrick Wilderness Class I | | Bridger Wilderness Class I | |
| Alternative | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) | ANC Change (μeq/L) | ANC Change (%) |
| Level of Acceptable Change(μeq/L) | 6.71 | 10% | 5.97 | 10% | 6.99 | 10% | 1.00 | -- | 5.52 | 10% | 5.37 | 10% | 1.00 | -- |
| Background | 67.1 | -- | 59.7 | -- | 69.9 | -- | 10.8 | -- | 55.2 | -- | 53.7 | -- | 6.0 | -- |
| No Action | 0.33 | 0.50% | 0.37 | 0.62% | 0.18 | 0.25% | 0.11 | -- | 0.37 | 0.67% | 0.10 | 0.19% | 0.40 | -- |
| Proposed Action | 0.30 | 0.45% | 0.33 | 0.56% | 0.17 | 0.25% | 0.11 | -- | 0.33 | 0.60% | 0.10 | 0.18% | 0.37 | -- |
| Alternative C | 0.23 | 0.35% | 0.26 | 0.43% | 0.13 | 0.19% | 0.09 | -- | 0.26 | 0.47% | 0.08 | 0.14% | 0.28 | -- |
| Alternative C - 80 % Drill Rig Mitigation | 0.12 | 0.18% | 0.13 | 0.22% | 0.07 | 0.10% | 0.05 | -- | 0.14 | 0.25% | 0.04 | 0.08% | 0.14 | -- |
| Proposed Action - Maximum Field Production | 0.14 | 0.20% | 0.15 | 0.25% | 0.08 | 0.11% | 0.06 | -- | 0.16 | 0.29% | 0.05 | 0.09% | 0.17 | -- |

[1] USFS Level of Acceptable Change; 10% change in ANC for lakes with ANC background values greater than 25 μeq/L, 1 μeq/l for lakes with ANC values less than or equal to 25 μeq/L.