2000

Final Environmental Impact Statement South Baggs Area Natural Gas Development Project Carbon County, Wyoming

United States Department of the Interior, Bureau of the Land Management

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Bureau of Land Management
Wyoming State Office
Rawlins Field Office

April 2000

FINAL
Environmental Impact Statement
South Baggs Area
Natural Gas Development Project
Carbon County, Wyoming

MISSION STATEMENT

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/WY/PL-00/012+1310
Dear Reader:

This Final Environmental Impact Statement (FEIS) on the proposed South Baggs Area Natural Gas Development Project located in Carbon County, Wyoming, is submitted for your review and comment. The FEIS has been prepared pursuant to Title 40, Code of Federal Regulations, Parts 1500-1508, to analyze the potential impacts from natural gas exploration and development. This document informs the public of the anticipated impacts of the proposed development and alternatives to that proposal. The Bureau of Land Management’s (BLM) preferred alternative for this project is the Proposed Action with additional mitigation measures which would reduce environmental impacts.

The FEIS contains corrected and new material which supplements the Draft Environmental Impact Statement (DEIS) issued May 14, 1999. The FEIS and the DEIS comprise the complete document. Please refer to the DEIS for more detailed analyses and descriptions of the proposed action and alternatives.

A copy of this FEIS has been sent to affected Government agencies and to those persons who either responded to scoping the DEIS, or otherwise indicated to BLM, they wished to receive the document. Copies of the FEIS are available upon request at the following location:

Bureau of Land Management
Rawlins Field Office
1300 North Third Street
Rawlins, WY 82301
Telephone (307) 324-4200
e-mail: rawlins_wymail@blm.gov

This FEIS is not the decision document. A Record of Decision will be prepared and made available to the public, but not until at least 30 days after the Environmental Protection Agency (EPA) has published their Notice of Availability of this FEIS in the Federal Register. We anticipate EPA will publish that notice April 14, 2000.

Comments on the content of this FEIS should be sent to the Rawlins Field Office at the address indicated above. If you wish to comment on the FEIS, we request you make your comments as specific as possible. Comments will be more helpful if they include suggested changes, sources, or methodologies. Opinions or preference will not receive a formal response; however, BLM will consider them in its decision.

Comments, including names and street addresses of respondents, will be available for public review at the address listed above during regular business hours (7:45 a.m. - 4:30 p.m.) Monday through Friday, except holidays. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

The BLM appreciates the individuals, organizations, Federal, State, and local governments who participated in the environmental analysis process. Your involvement has enhanced the integrity of the EIS and the public land manager’s ability to make an informed decision.

Sincerely,

[Signature]
Alan R. Penson
State Director

Attachment
DEPARTMENT OF THE INTERIOR

FINAL ENVIRONMENTAL IMPACT STATEMENT

on the

SOUTH BAGGS AREA
NATURAL GAS DEVELOPMENT PROJECT

Carbon County, Wyoming

Prepared by

This Environmental Impact Statement was prepared by Gary Holsan Environmental Planning, an environmental consulting firm, with the guidance, participation, and independent evaluation of the Bureau of Land Management (BLM). The BLM, in accordance with Federal regulation 40 CFR 1506.5(a) and (b), is in agreement with the findings of the analysis and approves and takes responsibility for the scope and content of this document.

April 2000
drilling and production technology, and economic considerations.

This EIS analyzes the impacts of the Proposed Action, alternatives to the Proposed Action, and the No Action Alternative. The EIS describes the physical, biological, cultural, historic, and socioeconomic resources in and surrounding the project area. The focus for impact analysis was based upon resource issues and concerns identified during public scoping.

Potential impacts of concern from development are to recreation and visual impacts; raptor breeding and nesting habitat and populations; special status plant and wildlife species; soil erosion and sediment increases within the project area; impacts to air quality; socioeconomic impacts to Carbon County; and cumulative effects.

Other Environmental Review or Consultation Requirements:

A Biological Assessment (BA) has been prepared separate from this EIS, and in compliance with Section 7(c) of the Endangered Species Act (as amended), for the purpose of identifying any endangered or threatened species which are likely to be affected by the proposed action.

Lead Agency Contact:

For further information, contact Larry Jackson at the Rawlins Field Office, (307) 328-4231.

Comments on this draft EIS should be submitted in writing to:

Larry Jackson, Project Coordinator
Rawlins Field Office
1300 North 3rd Street
P.O. Box 2407
Rawlins, Wyoming 82301

e-mail: rawlins_wy@mail@blm.gov

Final EIS Made Available to EPA and Public: April 14, 2000

Final EIS Comments Must Be Received By: May 15, 2000
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PREFACE

The purpose of this Final environmental impact statement (EIS) for the South Baggs Area Natural Gas Development Project is to supplement the Draft EIS which was published in May 1999. Reviewed together, the Draft and Final EISs incorporate the description of the proposed project, other alternatives including the "No Action" alternative, the affected environment, as well as the analyses of potential environmental consequences resulting from construction, operation, and abandonment of the proposed project. This Final EIS should not be considered as a complete EIS, nor as a decision document. This FEIS is organized into five sections:

- Section 1, Executive Summary - Information presented in this section describes the NEPA process utilized in the analysis, briefly describes the Proposed Action and alternatives, provides a summary of the resource elements analyzed and a summary of their cumulative effects, and describes the agency-preferred alternative.

- Section 2, Addendum and Errata - Provides an addendum of additional discussion and studies which have been completed to address comments received during the comment period on the draft EIS. It also includes an errata section showing changes in the text of the Draft EIS which resulted from public comment or internal BLM review.

- Section 3, Consultation and Coordination - Summarizes the consultation and coordination that occurred during the preparation of the South Baggs Area EIS and background information regarding the consultation and coordination process.

- Section 4, Comment Letters Received on the Draft EIS - Provides a copy of the comment letters received during the public comment period on the draft EIS.

- Section 5, Response to Comments - Provides BLM's responses to those comments shown in Section 4.

In response to comments received concerning air quality impacts with implementation of the South Baggs Area Natural Gas Development Project and other projects, TEC Environmental Consulting, Inc., and Earth Tech, Inc., prepared a Revised Air Quality Impact Assessment Technical Support Document (USDI-BLM 1999b), and the BLM revised the air quality sections of the draft EIS.

Although the final predicted air quality impacts did not change significantly, the DEIS air quality impact assessment was revised in order to address the following items: 1) the CDWII near-field particulate matter emission assumptions and impact analyses was revised using Rock Springs, Wyoming, meteorological data; 2) potential well blowdown emissions were included and the hazardous air pollutant (HAP) and ozone impact analyses were revised; 3) potential oxides of nitrogen (NOx) emissions from the CDWII wells were corrected; 4) potential NOx and sulfur dioxide (SO2) emissions from the Lost Cabin Gas Plant were corrected for seasonal operation; 5) potential particulate matter emissions from the Seneca Coal facility (Colorado permit no. 82R0258F) were corrected; 6) potential particulate matter, NOx, and SO2 emissions from the SF Phosphates facility (Wyoming permit no. CT-SSA4) were added to the emissions inventory; 7) several other Colorado emission sources were correctly analyzed as potential NOx emissions, rather than as SO2 emissions reported in the DEIS; 8) hourly scaling factors were applied to several Wyoming portable emission sources, and 9) a calculation error regarding potential formaldehyde impacts reported in the DEIS was corrected in the FEIS. Based on these revisions, potential air quality impacts were re-analyzed.
and reported in both the FEIS and a Revised Air Quality Impact Assessment Technical Support Document (USDI-BLM 1999b) text.

The draft and final EISs have been prepared according to the requirements of the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's regulations for implementing NEPA, effective July 30, 1979.

The analyses were based on a proposed schedule and maximum assumed level of development contained in the draft EIS. As the project is implemented, the impacts will be evaluated to determine if they fall within the parameters discussed in the draft and final EISs. Any major change in project design would require additional environmental analysis.
ABBREVIATIONS/ACRONYMS

AACl Acceptable Ambient Concentration Levels
ac-ft acre feet
ac-ft/m²yr acre feet per square mile per year
ac-ryr acre feet per year
ACHP Advisory Council on Historic Preservation
Act Endangered Species Act of 1973
ADT average daily traffic
AML Abandoned Mine Lands
analysis area South Baggs Natural Gas Production Area
ANC Acid Neutralizing Capacity
ANS artificial nesting structure
AO authorized officer
APD Application for Permit to Drill
AQVR Air Quality Related Values
AS-WWC Archaeological Services of Western Wyoming College
AUM Animal Unit Month
BA Biological Assessment
BACT Best Available Control Technology
bbl barrel
BLM Bureau of Land Management
BWPD barrel of water per day
CBG Creston/Blue Gap Natural Gas Project
CDPHE-APCD Colorado Department of Public Health and Environment, Air Pollution Control Division
CEQ Council for Environmental Quality
CFR Code of Federal Regulations
CFs cubic feet per second
CIA cumulative impacts analysis
CMP corrugated metal pipe
CO carbon monoxide
COE Corps of Engineers
CWA Clean Water Act
dB decibel
deq Department of Environmental Quality
dia diameter
ea environmental assessment
EIS Environmental Impact Statement
EO Executive Order
EPA Environmental Protection Agency
ESA Endangered Species Act of 1973
F Fairchild
FAA USDOT Federal Aviation Administration
FEMA Federal Emergency Management Act
FLPMA Federal Land Policy and Management Act
FS Forest Service
ft foot (or feet)
FWS U.S. Fish and Wildlife Service

g/hp-hr grams per horsepower-hour
gpm gallons per minute
GPS Global Positioning System
GWA II Greater Wamsutter Area II
HAP Hazardous Air Pollutants
hp horsepower
H₂S hydrogen sulfide
HWA Hayden-Wing Associates
I-80 Interstate 80
ID interdisciplinary
IDT interdisciplinary team
IMPROVE Interagency Monitoring of Protected Visual Environments
IWAGM Interagency Workgroup on Air Quality Modeling
km kilometer
LOP Life of Project
m meter
MAC Metscalf Archaeological Consultants
MEI Maximally Exposed Individual
Merit Merit Energy Company
mg/l milligrams per liter
MLE Most Likely Exposure
MMCFD million cubic feet per day
mph miles per hour
MSDS Material Safety Data Sheet
MSHA Mine Safety Hazard Administration
N₂ Nitrogen
NA not applicable
n.d. no date
NEPA National Environmental Policy Act
NHPA National Historic Preservation Act
NOAA National Oceanic and Atmospheric Administration
NOₓ oxides of nitrogen
NO₂ nitrogen dioxide
NPDES National Pollutant Discharge Elimination System
NRHP National Register of Historic Places
NSI no significant impacts
NTU Nephelometric Turbidity Unit
NWI National Wetlands Inventory
OSHA Occupational Safety and Health Administration
P&A'd plugged and abandoned
P & A'd particulate matter less than 2.5 microns in effective diameter
PM-2.5 particulate matter less than 10 microns in effective diameter
P&D particulate matter less than 10 microns in effective diameter
POD Plan of Development
<table>
<thead>
<tr>
<th>Abbreviation/Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
</tr>
<tr>
<td>PPP</td>
<td>pollution prevention plan</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>RFFAs</td>
<td>reasonably foreseeable future actions</td>
</tr>
<tr>
<td>RFO</td>
<td>Rawlins Field Office</td>
</tr>
<tr>
<td>RMP</td>
<td>Resource Management Plan</td>
</tr>
<tr>
<td>RMOGA</td>
<td>Rocky Mountain Oil &amp; Gas Association</td>
</tr>
<tr>
<td>ROD</td>
<td>Record of Decision</td>
</tr>
<tr>
<td>ROW</td>
<td>Right-of-Way</td>
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<tr>
<td>SAR</td>
<td>Sodium Absorption Ratio</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>SBNU</td>
<td>South Baggs Unit</td>
</tr>
<tr>
<td>SCS</td>
<td>Soil Conservation Service</td>
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<tr>
<td>SEQ</td>
<td>Wyoming State Engineer’s Office</td>
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<tr>
<td>SHPO</td>
<td>State Historic Preservation Office</td>
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<tr>
<td>SI</td>
<td>shut-in</td>
</tr>
<tr>
<td>SOx</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>SPCC</td>
<td>Spill Prevention Control and Countermeasures</td>
</tr>
<tr>
<td>sq</td>
<td>square</td>
</tr>
<tr>
<td>t/acyr</td>
<td>tons per acre per year</td>
</tr>
<tr>
<td>t/yr</td>
<td>tons per year</td>
</tr>
<tr>
<td>TDS</td>
<td>total dissolved solids</td>
</tr>
<tr>
<td>TPQ</td>
<td>threshold planning quantity</td>
</tr>
<tr>
<td>TSP</td>
<td>Total Suspended Particulate Matter</td>
</tr>
<tr>
<td>UAD</td>
<td>unquantified additional development</td>
</tr>
<tr>
<td>ug/m³</td>
<td>micrograms per cubic meter</td>
</tr>
<tr>
<td>UNKI</td>
<td>unknown impact until site-specific location is proposed and surveys are completed</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>USDC</td>
<td>United States Department of Commerce</td>
</tr>
<tr>
<td>USDI</td>
<td>United States Department of the Interior</td>
</tr>
<tr>
<td>USGS</td>
<td>United States Geological Survey</td>
</tr>
<tr>
<td>USLE</td>
<td>Unified soil loss equation</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compounds</td>
</tr>
<tr>
<td>VRM</td>
<td>Visual Resource Management</td>
</tr>
<tr>
<td>w/</td>
<td>with</td>
</tr>
<tr>
<td>w/o</td>
<td>without</td>
</tr>
<tr>
<td>WDEQ-AQD</td>
<td>Wyoming Department of Environmental Quality, Air Quality Division</td>
</tr>
<tr>
<td>WESTAR</td>
<td>Western States' Air Resource Council</td>
</tr>
<tr>
<td>WET</td>
<td>Wetland Evaluation Technique</td>
</tr>
<tr>
<td>WGFDC</td>
<td>Wyoming Game and Fish Department</td>
</tr>
<tr>
<td>WOGCC</td>
<td>Wyoming Oil and Gas Conservation Commission</td>
</tr>
<tr>
<td>WOS</td>
<td>Wildlife Observation System</td>
</tr>
<tr>
<td>WSGS</td>
<td>Wyoming State Geological Survey</td>
</tr>
<tr>
<td>WTA</td>
<td>Wyoming Taxpayers Association</td>
</tr>
<tr>
<td>WWCC</td>
<td>Western Wyoming College</td>
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</table>
SECTION 1:
EXECUTIVE SUMMARY
Figure 1-1. Area Map - Location of the South Baggs Analysis Area in Southcentral Wyoming.
SECTION 1: EXECUTIVE SUMMARY

1.0 INTRODUCTION

This Final Environmental Impact Statement (FEIS) analyzes the impacts of drilling and production operations in the South Baggs natural gas producing area of southwestern Wyoming (Figure 1-1). The South Baggs project area is located in Carbon County, Wyoming within Townships 12 and 13 North (T12-13N), Ranges 92 and 93 West (R92-93W), 6th Principal Meridian. The project area encompasses approximately 12,352 acres of mixed federal, State, and private lands. Of this total, approximately 10,067 acres are managed by the U.S. Department of the Interior (USDI) Bureau of Land Management (BLM) and 2,285 acres are private lands.

This FEIS has been prepared pursuant to the National Environmental Policy Act (NEPA) and addresses three field development scenarios (Proposed Action, Alternative A, and Alternative B), and a "No Action" alternative- Alternative C. Details on the Proposed Action and alternatives are described in the DEIS according to the following chapters. Chapter 1 defines the Purpose and Need for the proposed project. Chapter 2 details the parameters of the Proposed Action and other alternatives as well as providing a summary of proposed mitigation and monitoring measures to avoid or reduce impacts proposed by the project operators. Chapter 3 of the DEIS discusses the areas and resources that would be affected under each alternative. Chapter 4 examines the environmental consequences to each resource under each alternative and also provides a summary of additional mitigation measures by resource discipline which were identified during the analysis process. The measures and requirements in the DEIS describe how implementation of the Proposed Action or alternatives should be managed to assure minimal impacts in the South Baggs project area and adjacent lands. Chapter 5 describes the mitigation and monitoring measures that should be implemented to assure compliance with resource management goals and objectives provided in the Great Divide Resource Area Resource Management Plan (RMP) (Record of Decision and Approved Resource Management Plan, USDI-BLM 1996a); and applicable lease stipulations within the South Baggs project area. Chapter 6 of the DEIS summarizes the consultation and coordination accomplished with various federal, State, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action and alternatives.

Management of federal lands within the South Baggs project area, including natural gas drilling and development activities, is provided by the Great Divide Resource Area RMP. The proposed natural gas development project and alternatives are in conformance with management objectives provided in the RMP, subject to implementation of prescribed mitigation measures.

Drilling attempts within the project area have been successful. As of November 1, 1999, 46 natural gas wells have been drilled in the project area.

The DEIS addresses a Proposed Action and three alternatives as described in greater detail in the following section and briefly summarized here.

- The Proposed Action would increase natural gas production in the South Baggs project area by allowing the operators to drill and develop approximately 50 natural gas wells in addition to existing operations within the project area. The Proposed Action was determined by summarizing drilling plans projected by the South Baggs operator, Merit Energy Company.
EXECUTIVE SUMMARY

1.1.1 Proposed Action

The Proposed Action would allow Merit to drill and develop 50 natural gas wells in the South Baggs Natural Gas Production Area over a period of approximately 10 years in addition to existing operations within the project area. Approximately 5 wells would be drilled within one year following project approval utilizing one drilling rig. Completion operations for these wells would commence as soon as the drilling rig moves off the drill pad. One completion rig would be utilized continuously for completion operations. The remaining wells would be drilled and completed with one drill rig throughout the remainder of the planned 10 year drilling period.

Construction of the Proposed Action would involve 50.0 acres of site disturbance resulting from pipeline construction (0.8 acre per well separate from the road, 0.2 acre combined with access roads), 80.0 acres from access road construction (1.6 acres per well), and 162.5 acres from well sites (50 well sites with 3.25 acres of disturbance per site). A 1.4-acre compressor station would be constructed under all alternatives.

Impacts within the South Baggs project area would be reduced upon reclamation of pipeline ROWs and unused portions of the drill pads and roadway disturbances during the production phase for each alternative. Under the Proposed Action, reclamation would reduce impacts to 101.4 acres. This includes 70.0 acres for well pads (1.4 acre per pad) and 30.0 acres for roads (approximately 16.0 feet wide, or 0.6 acres per well), and 0.0 acres for pipelines. The compressor station would not be reclaimed since the full size of the site would be needed during production. The cumulative impact for the Proposed Action would be 211.4 acres (101.4 acres of disturbance remaining following reclamation plus 110.0 acres of existing unclaimed disturbance) or 1.7 percent of the South Baggs project area.

1.1.2 Alternative A

Alternative A represents a minimum level of additional site disturbance and would allow Merit to drill and develop approximately 40 new well sites with related facilities over the 10-year planning period. Development under Alternative A is in addition to the 43 wells that have been drilled and developed in the project area. The technical requirements for Alternative A, including the project-wide mitigation measures, are the same as described for the Proposed Action, however, less overall site disturbance would be necessary for the well sites, access roads, pipelines, and other ancillary facilities.

The construction of this alternative would involve 130.0 acres of drill site disturbance, 64.0 acres (1.6 acres per well) of road disturbance, 40.0 acres of pipeline disturbance, and 1.4 acres of compressor station disturbance, for a total of approximately 235.4 acres. A large portion of this area would be reclaimed as described under the Proposed Action. Alternative A impacts would decrease to 81.4 acres, with cumulative impacts affecting 191.4 acres or 1.5 percent of the South Baggs project area. The cumulative impact for Alternative A would be 191.4 acres (81.4 acres of disturbance remaining following reclamation plus 110.0 acres of existing unclaimed disturbance) or 1.5 percent of the South Baggs project area.
EXECUTIVE SUMMARY

excavation associated with the development of well pads, access roads, pipelines and other production facilities which could directly result in the exposure and damage or destruction of scientifically significant fossil resources. The potential magnitude of impact to fossil resources associated with the action alternatives (the Proposed Action and Alternatives A and B) varies proportionally with the total number of wells which would be developed under each alternative. The magnitude of impact for Alternative C - No Action, which may allow additional APDs and ROW action on a case-by-case basis, is unknown at present and would depend on the specific action taken and the specific area involved. Potential for impacts to project facilities as a result of seismic activity is low, as is the potential for landslides and road subsidence that would temporarily close access roads. No significant impacts to important surface resources or other geologic reservoirs would occur under the Proposed Action. Mitigation measures discussed in Chapters 2 and 4 should reduce potential impacts to geologic/paleontologic resources.

Beneficial impacts under the action alternatives include the unanticipated discovery of previously unknown fossil resources within the project area. The potential beneficial impact to fossil resources is not precisely known because field survey of the project area has not been conducted.

2.2 Air Quality

Although the final predicted air quality impacts did not change significantly, the DEIS air quality impact assessment was revised in order to address the following items: 1) the CDWW near-field particulate matter emission assumptions and impact analyses was revised using Rock Springs, Wyoming, meteorological data; 2) potential well blowdown emissions were included and the hazardous air pollutant (HAP) and ozone impact analyses were revised; 3) potential oxides of nitrogen (NOx) emissions for the CDWW wells were corrected; 4) potential NOx and sulfur dioxide (SO2) emissions from the Lost Cabin Gas Plant were corrected for seasonal operation; 5) potential particulate matter emissions from the Seneca Coal facility (Colorado permit no. 82R02568) were corrected; 6) potential particulate matter, NOx, and SO2 emissions from the SP Phosphates facility (Wyoming permit no. CT-5504A) were added to the emissions inventory; 7) several other Colorado emission sources were correctly analyzed as potential NOx emissions, rather than as SO2 emissions reported (in the CDWW emission inventory) as part of S2; (8) scaling factors were applied to several Wyoming portable emission sources; and 9) a calculation error regarding potential formaldehyde impacts reported in the DEIS was corrected in the FEIS. Based on these revisions, potential air quality impacts were re-analyzed and reported in both the FEIS and a Revised Air Quality Impact Assessment Technical Support Document (USDI-BLM 1999b) text.

Gaseous air pollutant emissions discharged from the wellhead (e.g., venting and flaring) and from natural gas compressor activities, as well as dust and exhaust from construction and maintenance activities, have been identified as issues of concern.

Concerns were also identified concerning potential air quality impacts at distant PSD Class I and II wilderness and other sensitive areas administered by the USDA-Forest Service, the USDA-National Park Service, and the Wind River Environmental Commission. The primary concerns involved potential visibility and atmospheric deposition (acid rain) impacts within downwind sensitive areas, particularly from natural gas compressor operations.

Since BLM approved activities must comply with all applicable local, state, tribal and Federal air quality laws, statutes, regulations, standards and implementation plans, significant adverse impacts to air quality are not anticipated to occur from implementation of any of the alternative actions.

Localized short-term increases in carbon monoxide, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide concentrations would occur, but maximum concentrations would be below applicable ambient air quality standards.

Similarly, hazardous air pollutant concentrations (to drill rig operators) and the related incremental cancer risks at residences (assumed to be located either 500 meters from a well or 100 meters from the compressor station) would be below significance levels, even at the maximum assumed emission rates.

Although not a regulatory PSD increment consumption analysis, potential direct project impacts would also be below applicable PSD Class I and II increment levels.

No significant atmospheric deposition (acid rain) impacts are predicted to occur in sensitive area lakes, including extremely sensitive lakes in the mandatory Federal PSD Class I Mount Zirkel Wilderness Area.

Assuming project and other "reasonably foreseeable" natural gas compressors' NOx emission rates of 2 g/hp-hr (which is possible, but greater than levels recently permitted by WDEQ-AGQ), there is a potential for a "just noticeable change" cumulative visibility impact (greater than a 1.0 deciview) on a single day at the mandatory Federal PSD Class I Rawah Wilderness Area (at 1.69 deciview). Direct project operations (under the Proposed Action or any Alternative, including "No Action") would not exceed this threshold alone.

The visibility impact analysis assumed a 1.0 deciview "just noticeable change" would be a "reasonably foreseeable" significant visibility impact, although there are no state or Federal regulatory visibility standards. Finally, given the "reasonable, but conservative" nature of the cumulative air quality impact analysis (assuming all proposed wells would go into full production for the life of the project, all compressors operate correctly, NOx, NO2, CO, etc.), it is unlikely that a "just noticeable change" would actually occur at the mandatory Federal PSD Class I Rawah Wilderness Area even on a single day due to the cumulative sources combined.

2.3 Soils

The majority of the South Baggs analysis area is classified as sensitive soil and such areas cannot be totally avoided during construction operations. Impacts to soils resulting from drill pad, access road, facility site, and pipeline ROW construction would include removal of vegetation, exposure of the soil, mixing of soil horizons, soil compaction, loss of topsoil productivity, and increased susceptibility of the soil to wind and water erosion. These impacts could increase runoff, erosion, and off-site sedimentation. Analysis presented in Chapter 4 of the DEIS recommends that particular attention be given to avoiding steep slopes greater than 25 percent, badlands, sandy soils, and soils with high water tables and/or which are subject to inundation and thus, minimize the chance of a significant impact. These impacts would be kept to non-significant levels with application of the mitigation measures in Chapter 2 and the control measures recommended in Appendix B.
EXECUTIVE SUMMARY

Implementation of the Proposed Action and action alternatives (A and B) would initially affect 293.9 acres, 235.4 acres, and 527.9 acres of soils, respectively, during project construction. This would represent approximately 2.4 percent, 1.9 percent, and 4.3 percent of the total South Baggs area for the Proposed Action, Alternative A, and Alternative B, respectively. Reclamation efforts during well production would reduce long-term impacts to 101.4 acres, 81.4 acres, and 181.4 acres, respectively. Residual areas of impact would represent approximately 0.6, 0.7, and 1.5 percent of the project area, respectively. When combined with the existing unreclaimed disturbance of 110 acres, neither temporary or long-term disturbance areas would exceed the 10 percent threshold criteria.

2.4 Water Resources

Potential impacts that could occur due to the proposed project include increased surface water runoff and off-site sedimentation due to soil disturbance; increased salt loading and water quality impairment of surface waters; and channel morphology changes due to road and pipeline crossings. The magnitudes of impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration of time within which construction activities would occur, and the timely implementation and success/failure of mitigation measures. Impacts would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, reclamation, and revegetation efforts. Construction activities would occur over a relatively short period (probably within a 10-year period); therefore, the majority of the disturbance would be short-lived. Petroleum products and other chemicals could be accidentally spilled resulting in surface and groundwater contamination. Similarly, reserve and evaporative pits could leak and degrade surface and groundwater if liners were punctured or liners were not installed. Authorization of the proposed project would require full compliance with RMP management directives that relate to surface and groundwater protection, Executive Order 11988 (flood plains protection), and the Federal Clean Water Act (CWA) in regard to protection of water quality and compliance with Section 404. Most adverse impacts to water resources could be avoided or reduced through implementation of control measures identified in Chapter 2, mitigation listed in Chapter 4, Appendix A, and Appendix B.

Under the Proposed Action, no significant impacts on surface water or groundwater quality and quantity would occur. The magnitude of non-significant adverse impacts as compared to the Proposed Action would decrease under Alternative B but would be greater under Alternative A. The No Action alternative, Alternative C, would likely have a similar level of impact as described for Alternative A. Implementation of the Proposed Action alternative would require approximately 81.1 ac-ft of water during the construction, completion, collection, and production phases, while Alternative A would require 64.5 ac-ft, and Alternative B would require 185.5 ac-ft.

2.5 Vegetation/Wetlands

Implementation of the Proposed Action and action alternatives (A and B) would initially affect 293.9 acres, 235.4 acres, and 527.9 acres of various vegetation cover types, respectively, during project construction. Reclamation efforts during well production would reduce impacts to 101.4 acres, 81.4 acres, and 181.4 acres, respectively.
EXECUTIVE SUMMARY

The area removed from forage production under Alternative A (development of 40 additional natural gas wells) is estimated to be 235.4 acres, with a resultant loss of 17 AUMs. This represents a loss in stocking levels of about 1.0 percent throughout the South Baggs project area. Once reclamation has been satisfactorily completed on all disturbed areas, the total area of impact would be reduced to approximately 81.4 acres. This would constitute a long-term loss of approximately 6 AUMs, or a reduction of about 0.3 percent of the current livestock forage use in the South Baggs project area. Overall, this level of reduction should not affect the livestock use in the South Baggs project area, unless the well sites are located on areas where forage production is greater than the average in the project area.

Implementation of Alternative B (develop an additional 90 natural gas wells) would remove about 527.9 acres from forage production during the construction phase of development operations, or about 38 AUMs. This represents a loss in stocking levels of about 2.1 percent throughout the South Baggs project area. Once reclamation has been satisfactorily completed on all disturbed areas, the total area of impact would be reduced to approximately 181.4 acres. This would constitute a long-term loss of approximately 13 AUMs, or a reduction of about 0.7 percent of the current livestock forage use in the South Baggs project area. Overall, this level of reduction should not affect the livestock use in the South Baggs project area, unless the well sites are located on areas where forage production is greater than the average in the project area.

Alternative C would result in on-going site disturbance with an associated loss in forage production. The amount of forage production lost is unquantifiable since the anticipated level of development is not known.

The increased activity associated with drilling and production has the potential for disrupting livestock operations, particularly during the construction phase of development. Opportunities for vehicle-livestock collisions would increase. Also, the opportunity for livestock theft would likely increase as roads provide additional access into the allotments. However, additional roads in the South Baggs project area would allow livestock operators improved access into the area, thus potentially providing them with greater ease of livestock management operations such as herding, etc. The potential for problems would decrease once the wells were producing and the traffic volume reduced. The additional roads would have some advantages in that it would make some areas more accessible by vehicle for the livestock operators. Also, drilling may potentially result in the development of additional water wells which could be converted to livestock use. This would improve the ability of livestock to make efficient use of rangeland within the area, especially during dry years.

2.7 Wildlife

The implementation of the Proposed Action, Alternative A, or Alternative B would result in direct losses of habitat from surface disturbance associated with the construction of well sites and related access roads and pipelines. In addition, some wildlife species would be indirectly impacted by displacement from habitats in the vicinity of the project area due to the presence of human activities associated with the construction and operation of wells. The potential for collisions between wildlife and motor vehicles would also increase due to the construction of new roads and increased traffic levels on existing roads. The severity of these impacts would be expected to decrease with the completion of the construction phase and with the onset of reclamation efforts on many of the disturbed areas.

The nature of impacts to wildlife is identical between the Proposed Action and Alternatives A and B. The magnitude of potential impacts would be greatest under Alternative B, however, because of the greater number of well sites and miles of associated access roads and pipelines. Implementation of the Proposed Action would disturb approximately 235.4 acres of wildlife habitat over the 10-year planning period. The reclamation of well, road, and pipeline construction activity would reduce the area disturbed by the Proposed Action to 101.4 acres. The implementation of Alternative A would disturb approximately 235.4 acres of wildlife habitat over the 10-year planning period. Reclamation of disturbed habitats would be the same as described for the Proposed Action resulting in post-reclamation disturbance of 81.4 acres under Alternative A. Implementation of Alternative B would disturb approximately 527.9 acres of wildlife habitat over the 10-year planning period. Reclamation of disturbed habitats would be the same as described for the Proposed Action resulting in post-reclamation disturbance of 181.4 acres under Alternative B.

2.8 Special Status Wildlife Species

The overall probability for impacts to special status wildlife species and the intensity of such impacts are consistently greater under Alternative B than the Proposed Action or Alternative A. However, the application of prescribed avoidance and mitigation measures (Section 2.1.4.2.9 and 2.1.4.2.10) as well as additional measures described in Section 4.8.5 of the DEIS would reduce the impact potential and allow for any of the action alternatives to be performed without significant impacts to wildlife.

2.9 Recreation

Well drilling, testing and production operations, and associated site preparation and construction activities have the potential to cause alterations to the recreation setting and recreation opportunities available to persons using the area. Some recreationists could be temporarily or permanently displaced from using certain locations associated with drilling and production activities. Displacement of recreationists could also result from changes in the numbers or distribution patterns of wildlife that attract hunters and wildlife observers to the area. The presence of construction and drilling equipment and associated increased evidence of human industrial activities in the area could reduce opportunities for recreationists seeking to experience solitude and isolation from human activity. Such changes could also result in displacement or redistribution of recreationists who would choose to avoid such conditions, as well as reduced satisfaction among others who might continue to engage in recreation activities in the area.

Alternative B would have significant short-term and long-term adverse impacts on the recreational resources of the project area. Impact Significance Criteria described in Chapter 4, Section 4.9.2 of the DEIS, would be exceeded.

2.10 Visual Resources

The areas of higher Scenic Quality within the project area would be compromised by the Proposed Action and alternatives. Both short-term and long-term impacts to the visual resource would occur where patterns of area, line, form, color, and texture in the characteristic landscape would be contrasted by drilling equipment, production facilities, and/or construction related damage to...
2.13 Transportation

Transportation effects of the Proposed Action and alternatives would occur primarily on US Interstate 80 (I-80), Wyoming Highway 789 (WYO 789), and Carbon County Road 700 (Poison Buttes Road). These public roads provide access to the project area from nearby communities. Secondary transportation effects would occur on operator-maintained roads within the analysis area.

The increases in traffic associated with the Proposed Action and Alternatives A and B would create direct impacts when compared to the No Action Alternative. These impacts would occur steadily over the ten-year drilling program. Due to the condition and the excess capacity of the impacted highways, these impacts are not considered significant.

2.14 Health and Safety

Potential risks associated with the proposed action include the normal risks associated with traffic, construction activities, and drilling and production operations. In most instances, exposure to these hazards would be limited to the project-related workforce. Implementation of environmental protection and mitigation measures described in Chapters 2 and 4 would minimize the risk of exposure to these hazards. H2S is not present within the South Baggs analysis area, and therefore, is not a safety concern for this area.

The Proposed Action and alternatives would not result in any substantial, increased risks to public health and safety, nor would it introduce any unusual occupational hazards or threats to the health and safety of oil and gas field workers.

2.15 Noise

A temporary increase in ambient noise levels in the vicinity of drilling and construction activities would be unavoidable. Workers on drilling rigs and heavy equipment would be exposed to the highest noise levels which would require hearing protection under Federal regulations. Noise from drilling activities generally would recede below the EPA standard of 55 dBA in 0.1 mile or less.

Construction-related impacts would be short-term, lasting as long as construction activities were ongoing at well sites, access roads, pipelines, and other ancillary facilities such as compressor sites. Noise would be created over a longer term at the individual well sites as a result of drilling activities.

Given the low human population densities in the South Baggs analysis area, construction and development operations under the Proposed Action and Alternatives A and B would be sufficiently distant from residences that none would likely be affected by construction or development operations. Overall noise produced by construction and support services equipment during peak activity periods would be moderate because of its dispersed and short-term nature.

Mitigation measures requiring the use of mufflers and other sound control measures at central compression facilities also would help to minimize the extent of this impact. No noise standards have been specified in affected leases and the project would be in compliance with RMP provisions related to noise.
EXECUTIVE SUMMARY

3.0 SCOPE OF ANALYSIS

The purpose of the scoping process, as stipulated (40 CFR, Parts 1500-1508), is to identify important issues, concerns, and potential impacts that require analysis in the EIS to eliminate insignificant issues and alternatives from detailed analysis. Public participation, consultation, and coordination have occurred throughout the planning process for this EIS through Federal Register notices, press releases, scoping meetings, individual contacts, and informal consultation. Contact dates and actions taken by BLM are summarized in Chapter 6 - Consultation and Coordination. All information received during the scoping process is available for review at the Rawlins District Office.

Also, during preparation of the DEIS, the BLM and consultant Interdisciplinary Team (IDT) have communicated with, and received input from various federal, state, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action.

4.0 SUMMARY OF CUMULATIVE EFFECTS

Chapter 2, Section 2.6 of the DEIS provides a comparison of environmental impacts and a summary of the cumulative effects of the field development alternatives. In addition, a summary of impacts for each project alternative, including the No Action Alternative, and a comparison of the alternatives in terms of cumulative impacts has been provided as Table 2-4 of the DEIS.

Assuming the implementation of environmental protection and mitigation measures discussed in Chapters 2 and 4 of the DEIS, no cumulative impacts in excess of threshold criteria would occur except in the case of recreation and air quality resources.

Cumulative recreation impacts were found to be significant for Alternative B because the project, in combination with past and reasonably foreseeable activities, would result in the complete displacement of non-motorized recreation activities from the project area. The average well density proposed under Alternative B would be 4.7 wells per section. Well sites and facilities at this level of density would dominate the landscape. The impacts would be significant with no practical mitigation measures that would lower the impact below the level of significant.

The Proposed Action and project Alternative A would not result in significant cumulative impacts to local or regionally significant recreation and tourism resources or destinations. The Proposed Action and project alternatives would be in compliance with recreation management provisions of the RMP.

Potential cumulative recreation impacts associated with implementation of the No Action Alternative would be unknown until alternative activities and locations were proposed.

The air quality visibility impact analysis assumed a 1.0 degree view "just noticeable change" would be a "reasonably foreseeable significant adverse" impact. Although there are no state or Federal regulatory visibility standards. Assuming project and other "reasonably foreseeable" natural gas compressors' NO, emission rates of 2 g/pen-hr (which is possible, but greater than levels recently permitted by WDEQ-AQD), there is a potential for a "just noticeable change" cumulative visibility impact (greater than a 1.0 degree view) on a single day at the mandatory Federal PSD Class I Rawlins Wilderness Area (at 1.69 degree view). Direct project operations under the Proposed Action or any Alternative, including "No Action") would not exceed this threshold alone.

Given the "reasonable, but conservative" nature of the cumulative air quality impact analysis (assuming all proposed wells would go into full production for the life of the project, all compressors operate continuously at the 2 g/pen-hr NO, emission rates, etc., it is unlikely that a "just noticeable change" would actually occur at the mandatory Federal PSD Class I Rawlins Wilderness Area even on a single day due to the cumulative sources combined. (See Chapter 4, section 4.3 for the air quality impact analysis).

As described in Chapters 2 and 4 for the Proposed Action and project alternatives, implementation of reclamation, sediment and erosion control measures would be instrumental in minimizing cumulative impacts to soils, vegetation, water quality, range and forage for wildlife species.

While impacts associated with water quality, geologic hazards, minerals and paleontological resources would not be significant if mitigation and environmental protection measures incorporated into the Proposed Action and Alternatives A and B were adopted, potentially significant impacts could occur under the No Action Alternative if such protective measures were not adopted. The Proposed Action and Alternatives A and B generally would produce positive, cumulative socioeconomic impacts but would vary in the magnitude of impact. The No Action Alternative is likely to have less cumulative impact but the actual extent of that cumulative impact cannot be determined given the uncertain level of future activity under this alternative.

Overall, the Proposed Action and project alternatives (including the No Action Alternative) would increase long-term, cumulative impacts to the surface of the project area. Cumulative effects are both additive and interactive. Chapter 4 of the DEIS discusses these effects under each resource discipline section.

Existing disturbance within the South Baggs project area was determined to be 2.2 percent of the 12,352-acre project area or 275 acres comprised of 65 acres of roads (68 acres of improved gravel, 13 acres of unimproved dirt, and 4 acres of trails), 45 acres of pipelines, 62 acres of well sites, three acres of ancillary facilities (compressor site and meter station), and approximately 80 acres of uranium mining activity. Approximately 165 acres of the 275 acres are in various stages of revegetation, and the balance, 110 acres, are unvegetated. During the construction phase, the Proposed Action would add 293.9 acres of impact for a cumulative area of 403.9 acres or 3.3 percent of the project area. Alternative A would increase existing disturbance by 235.4 acres to 345.4 acres or 2.8 percent of the project area. Alternative B would produce 527.9 acres of new impact for a total of 637.9 acres, 5.2 percent of the project area. Under Alternative C, additional surface disturbance beyond the existing 110 acres would occur on a case-by-case basis. It is anticipated that such impact would be similar to Alternative A.

Impacts within the South Baggs project area would be reduced upon reclamation of pipeline ROWs and unused portions of the drill pads and roadway disturbances during the production phase for each alternative. Under the Proposed Action, reclamation would reduce impacts to 101.4 acres. This includes 70.0 acres for well pads (1.4 acre per pad) and 30.0 acres for roads (approximately 16.0 feet wide, or 0.6 acres per well), and 0.0 acres for pipelines. The compressor site and meter station...
would not be reclaimed since the full size of the site would be needed during production. The cumulative impact for the Proposed Action would be 211.4 acres or 1.7 percent of the South Baggs project area. Alternative A impacts would decrease to 81.4 acres, with cumulative impacts affecting 191.4 acres or 1.5 percent of the South Baggs project area. Alternative B impacts would drop to 181.4 acres with cumulative impacts affecting 291.4 acres or 2.4 percent of the South Baggs project area.

The geographic area outside of the South Baggs project area considered in the cumulative impacts analysis (CIA) was defined following USDI-BLM (1994d) direction based on the USGS delineated watershed boundaries that the South Baggs project area covered or touched, an area approximately 44,544 acres in size. This area is shown in Chapter 4, Figure 4-1 of the DEIS. Existing disturbance in the CIA area was estimated from USGS topographic maps that were current for 1985 as well as relatively current BLM aerial photographs. Approximately 530 acres of disturbance was estimated for the CIA area not including the South Baggs project area (275 acres). In addition, a large portion of the CIA area, 17,870 acres, falls within the Creston/Blue Gap natural gas project area that is in various stages of development. Assuming two gas wells per section and the same length of roads and pipelines per well as assumed for this project, the Creston/Blue Gap project would likely add an additional 56 wells of disturbance or 300 acres of disturbance in the CIA area. Therefore, combined there would be approximately 1,105 acres of disturbance in the total CIA area, or 2.5 percent of the total CIA area. Impacts due to the Proposed Action would be approximately 294 acres. This combined with the other disturbance in the CIA and South Baggs areas would be approximately 1,399 acres or 3.1 percent of the combined area of 44,544 acres. However, a portion of this total disturbance (South Baggs and Creston/Blue Gap developments) would be reclaimed and only 110 acres of the 275 acres of existing disturbance in the project area is not revegetated and therefore long-term cumulative impacts would be approximately 529 acres or 1.2 percent of the CIA area.

Total potential disturbance due to Alternatives A and B would be approximately 3.0 percent and 3.7 percent of the CIA area, respectively. Taking reclamation into consideration, total potential of temporary disturbance due to Alternatives A and B would be approximately 1.1 percent and 1.4 percent of the CIA area, respectively.

5.0 AGENCY-PREFERRED ALTERNATIVE

The Proposed Action is the BLM’s Preferred Alternative for the South Baggs project area. The selection of the Proposed Action incorporates compliance with the Great Divide Resource Area Resource Management Plan (RMP) and implementation of various mitigation measures. Such measures include the following: (1) proponent-committed project-wide measures for preconstruction planning and design and specific resources, (2) BLM Standard Mitigation Guidelines (Appendix A), (3) Reclamation Guidelines (Appendix B), (4) Hazardous Materials Management Plan (Appendix C), and (5) additional mitigation measures recommended in Chapters 4 and 5 (Mitigation Summary of each resource element). The BLM has concluded that these detail a complete listing of practicable measures to reduce environmental harm resulting from the development and management in the South Baggs project area. The BLM also feels that the analyses demonstrate that the Proposed Action would meet the requirements of Federal Regulation 43 CFR 3162(a), which directs the Operators to conduct “...all operations in a manner which ensures the proper handling, measurement, disposition, and site security of leasehold production; which protects other natural resources and environmental quality; which protects life and property; and which results in maximum ultimate economic recovery of oil and gas with minimum waste and with minimum adverse effect on ultimate recovery of other mineral resources.”

Selection of the Proposed Action as the Agency-Preferred Alternative does not imply that this will be the BLM’s final decision. Additional information acquired during the FEIS public comment period, and public and BLM internal review comments, may result in the selection of an Agency Preferred Alternative in the Record of Decision (ROD) that combines components of the Proposed Action and Alternatives A and B to provide the best mix of operational requirements and mitigation measures needed to reduce environmental harm.
SECTION 2: ADDENDUM AND ERRATA

2.1 INTRODUCTION

The following sections have been prepared in response to public and agency review comments on the DEIS. The Addendum Section is to provide changes in the analysis described in the DEIS. Since there were no changes to the analysis provided in the DEIS, there will not be an Addendum Section. The Errata Section, Section 2.2 describes changes to the DEIS in response to public comments.

2.2 ERRATA

CHAPTER 1: PURPOSE AND NEED

1.2 Project Background

Page 1-3, paragraph 2, last sentence. Replace "Mesa Verde Formations" with "Mesaverde Formations".

Page 1-4, paragraph 7, first sentence. Replace "Mesa Verde Formations" with "Mesaverde Formations".

CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES

2.1.3.1 Completion and Testing Operations

Page 2-19, paragraph 2, first sentence. Replace "Mesa Verde Group" with "Mesaverde Group".

2.6.2 Summary of Cumulative Effects

Page 2-42, Table 2-4, column 3, paragraph 1, line 3. Replace "(at 1.68 deciview)" with "(at 1.69 deciview)"

Page 2-42, Table 2-4, column 3, paragraph 2, line 3. Replace "(at 1.68 deciview) and one day above Savage Run PSD Class II Wilderness Area background levels (at 0.67 deciview)," with "(at 1.69 deciview) and one day above Federal PSD Class II/Wyoming PSD Class I Savage Run Wilderness Area background levels (at 0.69 deciview),"

CHAPTER 3: AFFECTED ENVIRONMENT

3.2.2 Air Quality

Page 3-11, paragraph 2, line 2. Replace "Although the U.S. Environmental Protection Agency (EPA) recently revised both the ozone and particulate matter less than 2.5 microns in effective diameter (PM-2.5) Ambient Air Quality Standards, these revised limits will not be ..." with...
ADDENDUM AND ERRATA

"Although the U.S. Environmental Protection Agency (EPA) recently revised the particulate matter less than 2.5 microns in effective diameter (PM-2.5) National Ambient Air Quality Standards, the revised limits will not be ..."

Page 3-11, paragraph 3, line 8. Replace "including the Popo Agie and Savage Run wilderness areas," with "including the Popo Agie Wilderness Area."

Page 3-11, paragraph 3, line 10. After the phrase "stringent incremental air quality limits apply." insert the following sentence that reads: "The Savage Run Wilderness Area is a Federal PSD Class II and State of Wyoming PSD Class I area."

Page 3-12, paragraph 2. After the second paragraph insert a new paragraph that reads: "There are no applicable hazardous air pollutant, visibility impairment, or atmospheric deposition (acid rain) standards; the visibility impairment regulations for both "reasonably attributable" and "regional haze" impacts apply only within mandatory Federal PSD Class I areas."

Page 3-13, Table 3-6, line 6. Replace the entire "ozone" item with: "Ozone 8-hour 117 g/m³ 160 n/a n/a"

Page 3-13, Table 3-6, footnote 1. Replace "by" To supplement monitored NO2 data, a separate NO2 modeling analysis was performed, including many oxides of nitrogen (NOx) emission sources (BLM 1996). "by" To supplement monitored NOx data, a separate NOx modeling analysis was performed, including many oxides of nitrogen (NOx) emission sources (USDI-BLM 1996)."

3.3.2.1 General Soil Characteristics

Page 3-14, paragraph 4, line 6. Delete second reference to "Ustic Torriorthents."

Page 3-17, paragraph 3. Delete the third sentence: "Grah (1996) describes the results of the sample project in greater detail."

3.3.2.2 Site-Specific Soil Characterization

Page 3-17, paragraph 4. Delete the seventh sentence: "Detailed characterization of the soils based on the field sampling is presented in the Soils Technical Report (Grah 1996)."

3.5.1 General Vegetation

Page 3-34, paragraph 1, line 5. After "riverine and open water, and riparian scrub/forest", delete "...as described in detail in the Soils, Water Resources, and Vegetation Technical Report (Grah 1996)."

ADDENDUM AND ERRATA

3.7.4 Big Game

Page 3-46, paragraph 3, third sentence. Change the sentence to read "The boundary for this hard unit corresponds with the Bitter Creek road on the west, Interstate 80 on the north, and the Wyoming/Colorado border on the south."

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

4.2.1 Introduction

Page 4-5, line 1. Insert the following: "Potential direct and cumulative impacts to climate and air quality were analyzed as reported below. No significant, adverse impacts are anticipated from implementation of the Proposed Action or Alternatives."

4.2.1.2 Air Quality

Page 4-6, paragraph 4, line 3. Replace "An extensive air quality impact assessment document was prepared to analyze potential impacts from the South Baggs project and other "reasonably foreseeable" emission sources, and is available for review (TRC 1999)." with "An extensive revised air quality impact assessment document was prepared to analyze potential impacts from the South Baggs project and other "reasonably foreseeable" emission sources, and is available for review (USDI-BLM 1999b)."

4.2.3.3 Alternative B

Page 4-7, paragraph 2, line 4. Replace "(TRC 1999)." with "(USDI-BLM 1999b)."

Page 4-7, paragraph 4, line 2. Replace "natural gas would be burned (flared)" with "natural gas would typically be burned (flared)".

Page 4-8, paragraph 2, line 3. Replace "the second-maximum measured" with "the maximum measured".

Page 4-8, paragraph 4, line 4. Replace "(VOC) emissions to less than 38 tons per year" with "(VOC) emissions to less than 41 tons per year".

Page 4-9, paragraph 3, line 1. Replace "At the predicted ratio (5.2:1), the nomograph" with "At the predicted ratio (5.7:1), the nomograph".

Page 4-9, paragraph 3, line 4. Replace "Air Quality Standard of 235 µg/m³" with "Air Quality Standard of 160 µg/m³ (8-hour)."

Page 4-9, paragraph 3, line 6. After the phrase "rural Wyoming" insert the following: ", and it is unlikely the maximum 1-hour predicted ozone impact would occur for a consecutive 8-hour
ADDENDUM AND ERRATA

Page 4-9, paragraph 4, line 7. Replace "from individual wells and 100 m from the compressor station boundary," with "from individual wells and along the compressor station boundary."

Page 4-9, paragraph 6, line 2. Replace "to estimate the individual cancer risk at the nearest residence (500 m from a well site and 100 m from the compressor station)," with "to estimate the incremental cancer risk at the nearest residence (500 m from a well site and along the compressor station boundary)."

Page 4-9, paragraph 7, line 4. Replace "the individual cancer risks for benzene (0.6 x 10^-8), formaldehyde (0.8 x 10^-8)," with "the individual cancer risks for benzene (0.7 x 10^-8), formaldehyde (0.7 x 10^-8),"

Page 4-9, paragraph 7, line 6. Replace "Therefore, the long-term cancer risk" with "Therefore, the long-term incremental cancer risk"

Page 4-10, Table 4-1. Replace the table contents with:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Cancer Risk (10^-8)</th>
<th>Long-Term Cancer Risk (10^-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>benzene</td>
<td>128.3</td>
<td>30.0</td>
</tr>
<tr>
<td>toluene</td>
<td>118.6</td>
<td>1,870.0</td>
</tr>
<tr>
<td>ethyl benzene</td>
<td>6.8</td>
<td>4,340.0</td>
</tr>
<tr>
<td>xyylene</td>
<td>161.8</td>
<td>2,170.0</td>
</tr>
<tr>
<td>n-hexane</td>
<td>630.7</td>
<td>1,800.0</td>
</tr>
<tr>
<td>formaldehyde</td>
<td>2.6</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Page 4-11, paragraph 4, line 2. Replace "examine potential project-wide air quality impacts," with "examine potential air pollutant emission source air quality impacts."

4.2.4 Impacts Summary

Page 4-11, paragraph 1, line 3. Replace "(TRC 1999)." with "(USDI-BLM 1999b)."

Page 4-11, paragraph 1, line 8. Replace "to be located at least 500 m from a well or 100 m from the compressor station boundary) with "to be located at least 500 m from a well or along the compressor station boundary."

4.2.5 Cumulative Impacts

Page 4-11, paragraph 1, line 1. Replace "a separate air quality cumulative impact assessment (TRC 1999) was conducted" with "a separate revised air quality cumulative impact assessment (USDI-BLM 1999b) was conducted"

Page 4-11, paragraph 1, line 4. Replace "deposition (and their related impacts) at downwind PSD Class I wilderness area sensitive lakes; and 3) predict potential impacts to regional visibility in downwind PSD Class I wilderness areas," with "deposition (and their related impacts) in sensitive lakes; and 3) predict potential impacts to regional visibility."

Page 4-12, paragraph 6, line 1. Replace "natural gas compressors' NOx emission rates" with "natural gas compressors' NOx emission rates" and "direct project operations" with "Direct project operations"

Page 4-13, paragraph 1, line 1. Replace "on a single day at both the PSD Class I Rawah Wilderness Area (1.68 decivilv) and the PSD Class II Savage Run Wilderness Area (0.67 decivilv)," with "on a single day at both the mandatory Federal PSD Class I Rawah Wilderness Area (1.69 decivilv) and the Federal PSD Class II/Wyoming PSD Class I Savage Run Wilderness Area (0.69 decivilv)."

Page 4-13, paragraph 2, line 8. Replace "continuously at the 2 g/hp-hr NOx emission rate" with "continuously at the 2 g/hp-hr NOx emission rate" and "examine potential air pollutant emission source air quality impacts" with "examine potential air pollutant emission source air quality impacts."

4.2.6 Mitigation Summary


Page 4-13, second bullet, line 4. After the phrase "emission rate of 1-5 g/hp-hr," insert the following sentence: "The cost effectiveness of this control technology applied to 2,500 to 4,000 hp rich-burn engine ranges from $315 to $395 per ton of NOx removed."

Page 4-14, first bullet, line 4. After the phrase "emission rate of 1.5-4 g/hp-hr," insert the following sentence: "The cost effectiveness of this control technology applied to 2,500 to 4,000 hp rich-burn engine ranges from $480 to $500 per ton of NOx removed."

Page 4-14, second bullet, line 4. After the phrase "emission rate of 1.25-2.5 g/hp-hr," insert the following sentence: "The cost effectiveness of this control technology applied to 2,500 to 4,000 hp rich-burn engine ranges from $700 to $890 per ton of NOx removed."

Page 4-14, third bullet, line 5. After the phrase "coal-fired power plants," insert the following sentence: "Using current industrial electrical rates and assuming 100% control due to elimination of 2 g/hp-hr NOx emissions at the compressor site, the cost effectiveness of electric compression is roughly $26,000 per ton of compression NOx removed."
January 1996, there were only 160 of these units operating worldwide. The cost effectiveness of this control technology ranges from $20,000 to $40,000 per ton of NO\textsubscript{x} removed.

Page 4-16 paragraph 2, line 1. Replace the sentence "The BLM, in cooperation with WDEQ-AQD, could continue to track total NO\textsubscript{x} emissions." with "In addition to sources located within the Rock Springs Field Office area, the BLM, in cooperation with WDEQ-AQD, could track total NO\textsubscript{x} emissions from additional South Baggs project sources located outside the Rock Springs Field Office area."

Page 4-16, paragraph 2. After the second paragraph insert the following paragraph: "Proposed South Baggs project NO\textsubscript{x} emitting sources would be located outside the Rock Springs Field Office area. Therefore, either a mutually acceptable revision or a separate agreement would be required to track NO\textsubscript{x} emission sources not subject to the current agreement."

4.2.7 Residual Impacts

Page 4-16, paragraph 1, line 2. Replace "quality impacts from the Proposed Action in addition" with "quality impacts from the South Baggs project in addition"

Page 4-16, paragraph 1, line 9. After the phrase "this air quality impact assessment." insert the following sentence: "Finally, the Southwest Wyoming Technical Air Forum is developing a secondary organic aerosol model, but it is not currently available for use."

CHAPTER 5: MITIGATION AND MONITORING

There were no changes to Chapter 5 text.

CHAPTER 6: CONSULTATION AND COORDINATION

6.2 List of Preparers

Page 6-4, Table 6-2. Add the following list of "stakeholders"

Don Aragon, Director
Wind River Environmental Quality Shoshone and Northern Arapahoe
First and Washakie, Building 10
P.O. Box 217
Fort Washakie, WY 82514

Tamara Blett, Air Quality Specialist
USDA-Forest Service
Rocky Mountain Region (R2)
740 Simms Street
P.O. Box 25127
Lakewood, Co 80225

ADDITIONS AND ERRATA

Doug Blewitt, Air Programs Coordinator
BP-Amoco Corporation (MC 1175)
1670 Broadway
P.O. Box 800
Denver, Co 80201

Coleen Campbell
State of Colorado
Department of Public Health and Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80222-1530

Susan Caplan, Air Resource Specialist
USDI-Bureau of Land Management
Wyoming State Office (WY-530)
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P.O. Box 1828
Cheyenne, WY 82003

Teri Deakins, Lead Environmental Protection Specialist
USDI-Bureau of Land Management
Rock Springs Field Office (WY-040)
280 Highway 191
P.O. Box 1869
Rock Springs, WY 82901-1869

Robert Edgar, Air Quality Specialist
U.S. Environmental Protection Agency-Region VIII
Office of EcoSystem Protection and Remediation (SEPR-EP)
999 18th Street, Suite 500
Denver, CO 80202-2406

Pete Guernsey, Environmental Scientist
TRC-Mariah Associates, Inc.
605 Skyline Drive
Laramie, WY 82070-8909

Dan Heilig, Associate Director
Wyoming Outdoor Council
262 Lincoln Street
Lander, WY 82520

Gary Holsan, Gary Holsan Environmental Planning
P.O. Box 275
Thayne, WY 83127

South Baggs Area Natural Gas Field Development Final EIS - April 2000
ADDENDUM AND ERRATA

Larry Jackson, South Baggage EIS Contact
USDI-Bureau of Land Management
Great Divide Field Office (WY-037)
1300 North Third Street
Rawlins, WY 82301

Clare Miller, Continental Divide EIS Contact
USDI-Bureau of Land Management
Great Divide Field Office (WY-037)
1300 North Third Street
Rawlins, WY 82301

Tim Morris
Santa Fe Synder Corporation
1625 Broadway, Suite 2200
Denver, CO 80202

Darla Poiter
Visibility Smoke Management & EIS Coordination
State of Wyoming
Department of Environmental Quality Air Quality Division
Herschler Building 4-W 122 West 25th Street
Cheyenne, WY 82002

John Rector
Union Pacific Resources (MS-2807)
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Fort Worth, TX 76101

Joseph Scire, Vice President
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196 Baker Avenue
Concord, MA 01742-2167

Chris Shaver, Chief
USDI-National Park Service
Air Resources Division
P.O. Box 25287
Denver, CO 80225-0287

Kirk Steinle
Environmental Specialist
BP-Amoco Corporation
P.O. Box 1357
Pinedale, WY 82941

REFERENCES CITED

Page R-1, reference 3, after the reference to Adamul (1983), insert:

Page R-2, reference 13, delete the following reference:
"CDPHE-APCD. 1996. Background pollutant information on file at the Colorado Department of Public Health and Environment, Air Pollution Control Division. Denver, CO.


Page R-3, reference 7. delete the following reference:
"Colorado Department of Public Health and Environment, Air Pollution Control Division (CDPHE-APCD). 1996. Background pollutant information on file at the Colorado Department of Public Health and Environment, Air Pollution Control Division. Denver, CO."

Page R-4, reference 10, after the reference to Eaton (1978) insert:

ADDENDUM AND ERRATA

Page R-12, reference 14, delete the following reference:

Page R-12, reference 15, delete the following reference:

Page R-13, reference 2, after the reference to USDA-FS (1980), insert:

ADDENDUM AND ERRATA

Page R-14, reference 12, after the reference to USDI-BLM (1996), insert:

Page R-15, reference 8, after the reference to Volger (1996), insert:

GLOSSARY

Page G-3, glossary item 10 [Class(es)]. Delete all references to "airsheds," "Airshed Classes," and the entire "Wind Speed and Stability Class Distributions" table.

Page G-11, glossary item 10 [particulates]. Replace "particulates: Small particles in the air and generally considered pollutants." with "particulate matter: fine solid or liquid particles in the air (or emitted from an air pollution source), including dust, smoke, fumes, spray and fog. Particulate matter is typically measured and regulated based on the effective diameter of the particles. Total Suspended Particulates (TSP) are all particles less than about 70 microns; fine particles (PM-10) are all particles less than about 10 microns; and inhalable particles (PM-2.5) are all particles less than about 2.5 microns."

Page G-12, glossary item 4 [prevention of significant deterioration (PSD)], line 1. Replace "under the Clean Air Act (P.L. 84-159, as amended)" with "under the Clean Air Act (as amended)"

APPENDIX A: STANDARD MITIGATION GUIDELINES

There were no changes to Appendix A text.
ADDENDUM AND ERRATA

APPENDIX B: RECLAMATION RECOMMENDATIONS
There were no changes to Appendix B text.

APPENDIX C: HAZARDOUS MATERIALS MANAGEMENT PLAN
There were no changes to Appendix C text.

APPENDIX D: AIR QUALITY - CUMULATIVE IMPACTS ANALYSIS
Page D-1, paragraph 1, line 1. Replace "Based on a separate assessment predicting potential future far-field (cumulative) air quality impacts (TRC 1999)," with "Based on a separate revised assessment predicting potential future far-field (cumulative) air quality impacts (USDI-BLM 1999b),".

Page D-1, paragraph 1, line 4. Replace "determine if the PSD Class I NOx increment with "determine if the PSD Class I and II NOx increments"

Page D-2, Table D-1. Replace the entire Table with the following:

"Table D-1  Predicted Direct Project NOx PSD Class I and II Sensitive Receptor Impacts (µg/m³).

<table>
<thead>
<tr>
<th>Location</th>
<th>Direct Project Sources</th>
<th>Annual PSD Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSD Class I Sensitive Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridger Wilderness</td>
<td>0.001</td>
<td>2.5</td>
</tr>
<tr>
<td>Fitzpatrick Wilderness</td>
<td>&lt;0.001</td>
<td>2.5</td>
</tr>
<tr>
<td>Mount Zirkel Wilderness</td>
<td>0.01</td>
<td>2.5</td>
</tr>
<tr>
<td>Rawah Wilderness</td>
<td>0.005</td>
<td>2.5</td>
</tr>
<tr>
<td>PSD Class II Sensitive Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjacent to CDWll Projects</td>
<td>21.2</td>
<td>25</td>
</tr>
<tr>
<td>Adjacent to South Baggs Project</td>
<td>1.8</td>
<td>25</td>
</tr>
<tr>
<td>Dinosaur National Monument</td>
<td>0.009</td>
<td>25</td>
</tr>
<tr>
<td>Popo Agie Wilderness</td>
<td>0.001</td>
<td>25</td>
</tr>
<tr>
<td>Wind River Roadless Area</td>
<td>&lt;0.001</td>
<td>25</td>
</tr>
<tr>
<td>Federal PSD Class II/Wyoming PSD Class I Sensitive Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savage Run Wilderness Area</td>
<td>0.008</td>
<td>25/2.5</td>
</tr>
</tbody>
</table>

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ADDENDUM AND ERRATA

Page D-3, Table D-2. Replace the entire Table with the following:

"Table D-2  Predicted Change In Acid Neutralizing Capacity in PSD Class I and II Area Sensitive Lakes (percent change).

<table>
<thead>
<tr>
<th>Location</th>
<th>Minimum ANC (µeq/l)</th>
<th>Project Sources</th>
<th>Cumulative Sources</th>
<th>Thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSD Class I Sensitive Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridger Wilderness</td>
<td>49.0</td>
<td>0.1</td>
<td>1.4</td>
<td>10</td>
</tr>
<tr>
<td>Deep Lake</td>
<td>(2.7-year turnover)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mount Zirkel Wilderness</td>
<td>14.2</td>
<td>0.3</td>
<td>1.5</td>
<td>7.0 a/</td>
</tr>
<tr>
<td>Pothole A-8</td>
<td>30.0</td>
<td>0.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>Seven Lakes</td>
<td>22.6</td>
<td>0.2</td>
<td>1.0</td>
<td>4.4 a/</td>
</tr>
<tr>
<td>Upper Slide Lake</td>
<td>64.6</td>
<td>&lt;0.1</td>
<td>0.4</td>
<td>10</td>
</tr>
<tr>
<td>Rawah Wilderness</td>
<td>43.5</td>
<td>0.1</td>
<td>0.6</td>
<td>10</td>
</tr>
<tr>
<td>Island Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. 4 Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicine Bow National Forest</td>
<td>29.7</td>
<td>0.4</td>
<td>4.6</td>
<td>10</td>
</tr>
<tr>
<td>West Glacier Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Popo Agie Wilderness</td>
<td>58.3</td>
<td>&lt;0.1</td>
<td>0.5</td>
<td>10</td>
</tr>
<tr>
<td>Lower Saddlebag Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a/ For lakes with minimum existing ANC values <25 µeq/l, the threshold of concern is less than a 1 µeq/l reduction below the minimum existing ANC value (e.g., for Pothole A-8 in the PSD Class I Mount Zirkel Wilderness Area, 0.070 x 14.2 µeq/l equals 1 µeq/l)."
ADDENDUM AND ERRATA

Page D-4, Table D-3. Replace the entire Table with the following:

<table>
<thead>
<tr>
<th>Location</th>
<th>Direct Project</th>
<th>&quot;No Action&quot; Total Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sources g/</td>
<td>Sources</td>
</tr>
<tr>
<td>PSD Class I Sensitive Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridger Wilderness</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fitzpatrick Wilderness</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mount Zirkel Wilderness</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rawah Wilderness</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PSD Class II Sensitive Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinosaur National Monument</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Popo Agie Wilderness</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wind River Roadless Area</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Federal PSD Class II/Wyoming PSD Class I Sensitive Area</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Savage Run Wilderness Area</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Page D-4, paragraph 2, line 5. Replace "examine potential project-wide air quality impacts" with "examine potential air pollutant emission source air quality impacts."

APPENDIX E: U.S. FISH AND WILDLIFE SERVICE LETTERS

There were no changes to Appendix E text.

APPENDIX F: WILDLIFE

There were no changes to Appendix F text.

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SECTION 3: CONSULTATION AND COORDINATION

3.1 SCOPING PROCESS

The BLM published a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in the Federal Register on January 23, 1996.

A Scoping Notice was prepared and submitted to the public by the BLM on February 1, 1996, requesting input into the proposed South Baggs Area Natural Gas Development project. Scoping documents were sent out to the public listed on the BLM mailing list, as well as organizations, groups, and individuals requesting a copy of the scoping document. The Scoping Notice explained the scope of the Merit Energy South Baggs natural gas development Proposed Action and requested comments concerning the level of analysis included in the DEIS.

There were 29 written responses received during the scoping period in response to this project. These written responses consisted of 13 letters in favor of the drilling proposal and 16 letters that did not state a position in regard to the project but provided suggested mitigation if the project were implemented. There were no letters that specifically stated the project should not be implemented. The issues and concerns identified by the public during the scoping period are summarized in Chapter 1 of the DEIS.

During preparation of the EIS, the BLM and the consultant interdisciplinary team (IDT) have communicated with, and received or solicited input from various federal, State, county, and local agencies, elected representatives, environmental and citizens groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action. The contacts made are summarized in the following sections.

3.2 DRAFT EIS CONSULTATION AND COORDINATION

The BLM consulted with the Department of Interior U.S. Fish and Wildlife Service and the Wyoming Game and Fish Department on issues, impacts, and mitigation for Mountain Plover, Black-footed Ferret, and other wildlife populations and habitats; and consulted with the Department of Environmental Protection Agency, the U.S. Forest Service and Wyoming Department of Environmental Quality on issues, impacts, and mitigation for air quality. The BLM has also consulted and coordinated with local, state, and county government officials. Native American Indian tribes were provided notices of the proposed project.

3.3 PUBLIC REVIEW OF DRAFT EIS

The Environmental Protection Agency's Notice of Availability was published in the Federal Register on May 21, 1999. Over 250 copies of the draft EIS were made available to the public and interested agencies for a 60-day public comment period. The date by which the comments had to be received was July 13, 1999. The public was invited to provide written comments on the draft EIS.
SECTION 3: CONSULTATION AND COORDINATION

One press release was prepared announcing the availability of the Draft EIS. Press releases were printed in the Rawlins Daily Times on May 28, 1999; the Laramie Boomerang on June 1, 1999; and the Casper Tribune on June 17, 1999.

A public meeting was conducted by the BLM on June 22, 1999 at the Rawlins Field Office in Rawlins, Wyoming. The meeting was attended by 5 persons, of that, no attendees gave public statements.

All of the comments received during the public comment period and during the public meeting have been considered in the preparation of the final EIS. Responses to all the comments expressed during the public meeting can be found in Section 5 entitled Response to Public Comments on the Draft EIS.

3.4 DRAFT EIS COMMENTS

A total of 13 comment letters were received on the draft EIS. Responses to public comments received on the draft EIS are included in this final EIS. In many cases respondents submitted virtually identical comments. Rather than repeating a response, the reader may be referred to an earlier response. Reference to a previous response in no way reflects upon the value of the comment. The comment letters and responses to the comments are contained in Section 5 entitled Response Comments following the reprinted letters. Comments are numbered sequentially within a letter and correspond to the numbered response.

Specific changes in the text of the draft EIS are found in Section 2 of the final EIS. Where a response to a comment indicates "see Errata", Section 2 of the final EIS should be consulted for the specific rewording or clarification of the text.

3.5 COMMON CONCERNS

Respondents shared several common concerns about the proposed drilling project. The concerns were: technical approach used in the air quality analysis; concerns with recreation and wildlife management; alternatives to the proposed action; cumulative effects of the proposed action and alternatives; and general questions on the environmental analysis process used for preparing an Environmental Impact Statement.

SECTION 4:

COMMENT LETTERS RECEIVED ON THE DRAFT EIS
SECTION 4: COMMENT LETTERS RECEIVED ON THE DRAFT EIS

4.1 INTRODUCTION

The following comment letters were submitted by the public and interested agencies on the South Baggs Natural Gas Development Draft EIS. The 60-day comment period was May 14, 1999 through July 13, 1999.

A total of 13 comment letters were submitted during this time. The comment letters are reproduced in this section. Each letter is given a unique identifying number. Substantive comments requiring a response are identified by comment number associated with heavy vertical lines in the margin of each letter. For instance, comment No. 1-1 is the first comment on comment letter no. 1 requiring a response. All responses are presented in the following Section 5. Each response identifies the letter and comment number that it is associated with.

This page is intentionally left blank.
COMMENT LETTERS RECEIVED ON THE DRAFT EIS

Wildlife Management Institute

South Baggs Area Natural Gas Field
Development Final EIS - April 2000

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South Baggs Area Natural Gas Field Development Final EIS - April 2000

Page 4-4
COMMENT LETTERS RECEIVED ON THE DRAFT EIS

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Page 4-11

1. No one should present the environmental impacts of the proposal and the alternatives in comparison form. Directly following the issue statement and narrative value statement (paragraphs 1-4), a summary of the major environmental impacts of the proposal and similarly of the alternatives should be presented. In the summary of the impacts the proposal and alternatives should be compared in an approximate manner. Without such an approximate comparison of the alternatives in an approximate manner the reader has no basis to consider the significance of the differences and the proposal. (paragraph 3)

2. Wyoming Outdoor Council - South Bags Area Comments

13. In a conservation alternative, the BLA should consider recommendations of the Wyoming Outdoor Council. (paragraph 3)

12. The DRAFT EIS should include a discussion of the potential impacts of the proposed action. In the Draft EIS the future of the proposed action should be discussed and the potential impacts of the proposal should be compared and summarized. (paragraph 3)

11. Wyoming Outdoor Council - South Bags Area Comments

13. In a conservation alternative, the BLA should consider recommendations of the Wyoming Outdoor Council. (paragraph 3)

12. The DRAFT EIS should include a discussion of the potential impacts of the proposed action. In the Draft EIS the future of the proposed action should be discussed and the potential impacts of the proposal should be compared and summarized. (paragraph 3)

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COMMENT LETTERS RECEIVED ON THE DRAFT EIS

South Bags Area Natural Gas Field Development Final EIS - April 2000

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COMMENT LETTERS RECEIVED ON THE DRAFT EIS

CUMULATIVE EFFECTS

As you know, WOC has long argued that the SLM should perform an ES to evaluate the cumulative impacts of its proposed natural gas development projects. We believe such an effort is essential given the high density of existing wells in the Baggs area and the significant potential for surface developments in the area. The SLM should prepare an ES to evaluate associated impacts, but the SLM has not provided any documentation or evidence that it has evaluated the cumulative impacts of its proposed natural gas development projects.

PRIVATE LANDS

We request that the SLM study the effects of all other projects (PLD). Other PLD may be subject to cumulative impacts that are not currently considered in the SLM EIS. If the SLM is to determine the cumulative effects, it must identify and analyze both public and private lands that may be directly affected by the proposed natural gas development projects.

1 Wyoming Outdoor Council - South Baggs Area Comments

AUTHORSHIP

The SLM should consider the format of the draft EIS and update the authorship of the EIS so that all comments are acknowledged. The EIS should include a list of all individuals who reviewed the EIS and made comments. The EIS should also include a list of all individuals who provided input or contributed to the draft EIS.

1 Wyoming Outdoor Council - South Baggs Area Comments

USE OF TECHNOLOGIES

Technologies are available to minimize the impacts of natural gas development projects. The SLM should consider incorporating these technologies into its EIS to ensure that the proposed natural gas development projects are designed to minimize the impact on the environment.

1 Wyoming Outdoor Council - South Baggs Area Comments

COMMENT LETTERS RECEIVED ON THE DRAFT EIS

WATER QUALITY

The SLM should consider incorporating and proposing new water quality standards for the area. The SLM should also consider incorporating new water quality standards for the area.

1 Wyoming Outdoor Council - South Baggs Area Comments

COMMENT LETTERS RECEIVED ON THE DRAFT EIS

WILDLIFE

The SLM should consider incorporating additional measures to protect wildlife in the area. The SLM should also consider incorporating additional measures to protect wildlife in the area.

1 Wyoming Outdoor Council - South Baggs Area Comments

JAGGER COMPANY

Jaggar Company is a natural gas exploration and production company. We believe that the SLM should consider incorporating additional measures to protect wildlife in the area.

1 Wyoming Outdoor Council - South Baggs Area Comments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The EPA should consider incorporating additional measures to protect wildlife in the area.

1 Wyoming Outdoor Council - South Baggs Area Comments

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South Baggs Area Natural Gas Field Development Final EIS - April 2000
SECTION 5: RESPONSE TO COMMENTS

Responses to comments are organized by responder and are numbered in the order received. Page and section numbers, unless otherwise noted, refer to the draft EIS issued in May 1999.

COMMENT LETTER 1: DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 1-1. BLM recognizes that the Corps of Engineers and the U.S. Environmental Protection Agency are responsible for making jurisdictional determinations for the purposes of Section 404 of the Clean Water Act (CWA). As stated in the DEIS, the large areas of wet meadow, shown on the Little Snake River alluvial bottomlands, are not jurisdictional since they are solely supported by artificial flood irrigation. This determination was made by on-site investigation. Also, as stated in the DEIS, wetland investigations within the project area were performed in support of, but do not replace, site specific jurisdictional wetlands inventories necessary for CWA 404(b)(1) compliance. Mitigation measures committed to by Merit (Chapter 2) include compliance with Section 404(b)(1) guidelines of the federal CWA.

Comment 1-2. Thank you for the update on General Permit 98-08.

COMMENT LETTER 2: WILDLIFE MANAGEMENT INSTITUTE

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 2-1. Cumulative impacts for all potentially affected resources are addressed in the DEIS, Chapter 4 (Analysis of Environmental Consequences). Cumulative impacts to wildlife are discussed specifically in Section 4.7.5 of the DEIS. Also, a summary of cumulative effects is provided in Chapter 2 (Proposed Action and Alternatives), Section 2.9.2 (Summary of Cumulative Effects). Table 2-4 provides a comparative impact summary of the Proposed Action and alternatives.

Comment 2-2. The Proposed Action is the proposal put forth by the Operator because it is their proposed development. The BLM does not make the initial proposal for development, as it is not in the business of recovering and marketing oil and gas resources. Rather, the BLM is charged with evaluating development proposals within the legal mandates of allowing mineral recovery while affording appropriate protection to the environment. The BLM and others, during scoping, proposed alternatives to the Proposed Action. Reasonable alternatives, including the No action Alternative, receive the same consideration as the Proposed Action. Without a proposal, evaluating development throughout the whole of southwest Wyoming and northwest Colorado must be considered unreasonable. It must be pointed out that NEPA requires that significant impacts including cumulative negative impacts be disclosed. NEPA does not require that a proposal be denied because of these impacts.

South Baggs Area Natural Gas Field Development Final EIS - April 2000
SECTION 5: RESPONSE TO COMMENTS

Comment 2-3. The BLM will consider your comment during preparation of the Record of Decision (ROD) for this project.

Comment 2-4. The main outdoor recreation activity in the EIS area is hunting, and hunting may be the only recreation activity that can be monitored. There is no conclusive evidence that oil and gas development has had significant impacts to big game herds; however, the DEIS indicates that significant indirect impacts could occur to big game herds even with the implementation of standard mitigation measures (see DEIS Section 4.7.6). Rather, big game numbers are regulated primarily by natural forces, especially the weather, and by harvest quotas set by WGFID. The WGFID currently monitors the big game herds in the state and identifies factors that may be limiting. Pronghorn numbers, for instance, vary considerably from year to year and can usually be linked to climatic conditions or management decisions. Standard mitigation for big game would be implemented regardless of monitoring findings; however, additional mitigation may be developed and implemented based on monitoring results.

Comment 2-5. Data on big game use of the area for the level of analysis you are suggesting are not available and it is, therefore, necessary to make the best professional judgements possible from utilizing the data which are available. Wyoming Game and Fish Department deer survey data for the winter of 1997 show that the maximum number of animals found on and proximal to the 12,352-acre project area at any one time was 305 deer on February 7. This translates into a maximum deer density of 0.025 animals per acre on the project area (305/12,352 = 0.02469). The deer density of 0.072 that was used in calculating impacts in the DEIS is nearly three times greater than the maximum density of deer observed on the project area and, therefore, represents an extreme, worst-case scenario that errors in favor of the deer. See Table 4-4 on page 4-50 of the DEIS.

The bottom line is that the Proposed Action would result in the post-reclamation disturbance of 99.4 acres of Mule Deer Crucial Winter Range. In the absence of any other estimate or standard for measuring impacts to big game, BLM is using the best information available.

It would be more representative to look at maximum deer densities within the specific boundaries of the project area to see what maximum impacts might be for the removal of a given amount of acreage of Crucial Winter Range.

There is just as much above average CW habitat as below average CW habitat within the project area so disturbance estimations should compensate or average out. In the absence of a map detailing which portions of the CW range are above or below average during which kinds of weather, an average is utilized.

By definition CW range are those areas most critical for animals survival during the most severe winter.

Comment 2-6. The BLM will consider your comment during preparation of the Record of Decision (ROD) for this project.

COMMENT LETTER 3: NATIONAL PARK SERVICE

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

COMMENT LETTER 4: UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 4-1. Applicant-committed mountain plover survey protocol have been included in the FEIS. Survey protocol were not included previously because the draft document was prepared prior to mountain plover being identified as a proposed species for listing. Survey protocol to be used are the current USFWS survey methods. Formal conferencing with the USFWS regarding impacts to mountain plover has been initiated and additional standards may be applied based on conference results. Conference results will be identified in the ROD for this project.

Comment 4-2. Formal consultation for threatened and endangered species and conferencing for proposed species was requested on November 19, 1999. See also comment response for #4-1 above.

Comment 4-3. In order to maintain consistency with USFWS recommendations and buffer zones identified in the Continental Divide/Wc/;mutter il EIS, and the Green River RMP, buffer zones for bald eagles, peregrine falcons and ferruginous hawks will encompass a radius of one mile. Buffer zones for all other non-listed raptor species will encompass a radius of one half mile.

Comment 4-4. Comment noted.

Comment 4-5. Since the USFWS did not accept the DEIS as satisfying the requirement of the Biological Assessment (BA), the concern raised in the comment will be addressed with mitigations in the BA which is being prepared.

Comment 4-6. Please refer to comment response 4-3 above.

Comment 4-7. Comment noted.

Comment 4-8. The description of the habitat and its suitability for and use by sage grouse will be more fully explained in the BA. While sagebrush habitat dominate 75% of the project area, many years worth of surveys by both Wyoming Game and Fish Department biologists and BLM biologists, as well as transect data designed to detect sage grouse use of the area, reveal that sage grouse use of the area is extremely limited, if used at all. The BA will reflect this updated description of the area.
SECTION 5: RESPONSE TO COMMENTS

Comment 4-9. Historic lek searches in the project area reveal that sage grouse use of the area is extremely limited at best. No leks have been identified within the project area, and no nesting or winter use of the area has been detected over the past several years.

Comment 4-10. Comment noted.

Comment 4-11. The biological assessment will quantify a projected water use figure for the project area. We will assume that this amount is a depletion and consult informally with the USFWS on the results.

Comment 4-12. Standard mitigation guidelines for the Great Divide Resource Area RMP-ROD specify a buffer of 500 feet between surface disturbances and surface water and/or wetland/riparian areas. Except for Red Creek, stream channels in the project area are ephemeral and do not provide sufficient hydrology for wetlands to develop.

The intent of the statement on page 4-39 of the DEIS is to demonstrate that wetlands will be avoided where possible and that the operator and BLM will work with the COE to mitigate/compensate any impacts that are unavoidable. If unavoidable impacts occur, mitigation plans will be developed on a site by site basis in consultation with the COE.

Comment 4-13. Appendix B of the DEIS specifies reclamation recommendations. Reclamation objectives are outlined (both short- and long-term) as well as seed mixes for four different habitat or community types. These community types are; 1) mixed desert shrub, badlands, and juniper woodlands community type, 2) moist ephemeral alkaline areas in the mixed desert shrub community, 3) greasewood dominated valley bottoms and bluffs, and 4) wet meadow community types. Performance standards for the short and long term objectives are specified for all years, the second year and five years after reclamation.

Comment 4-14. Comment noted. The BLM believes that cumulative impacts have been adequately addressed in this EIS. The results of the southwest Wyoming evaluation indicate that an EIS analyzing the cumulative impacts of oil and gas development in southwest Wyoming is unnecessary.

Comment 4-15. Please refer to comment responses 4-1, 4-3, 4-8, 4-9 and 4-11.

COMMENT LETTER 5: OFFICE OF FEDERAL LAND POLICY

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 5-1. The overlap of the CALPUFF modeling domains and the use of the same modeling techniques in both studies was very clearly and openly discussed at the protocol meeting with WDEQ-AQD's full knowledge and participation. In addition, the WDEQ-AQD gave the Bureau written permission to release the MM5 data produced under the SWWYTA study (Olson 1998). Given the location and nature of both modeling studies, it is not surprising that some of the same information was used in both studies. However, no proprietary SWWYTA information was used in the South Baggs project air quality impact analysis.

Comment 5-2. See response to comment 7-1.

Comment 5-3. See response to comment 6-2.

Comment 5-4. Comment noted.

COMMENT LETTER 6: WYOMING STATE GEOLOGICAL SURVEY

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 6-1. Thank you for pointing out this error. The text on pages 1-3, 1-4, and 2-19 of the FEIS has been corrected to reflect the proper spelling of Mesaverde Formation or Group.

Comment 6-2. Comment noted.

Comment 6-3. Comment noted.

COMMENT LETTER 7: WYOMING GAME AND FISH DEPARTMENT

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 7-1. The Wyoming Game and Fish Department was sent a scoping statement when the project was first announced. BLM received your comments in February of 1996, and they were used in defining the issues addressed in the DEIS. "Gary Hosan Environmental Planning", the contractor for this project and his subcontractors, have been in contact with the local WG&F biologists while the DEIS was being prepared. Most of this interaction took place in the early part of the project prior to when the DEIS was released for comment. There has been a long delay with this project while the issue of air quality was addressed. During this delay, additional communication between BLM and the WGFD occurred. Communications with the WGFD have since been re-established for WGFD input into the preparation of a biological assessment being required by the USFWS.

Comment 7-2. Merit Energy Company, the South Baggs project proponent, has assured the BLM that 50 well is all the wells they plan to drill in the next ten years. Alternative "B" addresses a maximum development scenario of 90 wells. This is a 80 percent increase over the 50 wells analyzed in the proposed action. If unforeseen circumstances should arise that would make the drilling of more then 50 wells necessary, then the analysis of the 90 well scenario could be used to make a determination if additional development beyond the 50 well scenario was warranted.
RESPONSE TO COMMENTS

Comment 7-3. Impacts produced by the construction of roads were factored into the estimated disturbance for each well site. See Section 4.7.3.1, Paragraph 1, last sentence in DEIS (P.4-46) where it states that: "...the analysis of impacts to wildlife for this alternative is based on an average density of 2.60 new well pads per section with an associated disturbance of 5.85 acres per well site, which includes 3.25 acres for the pad and 2.6 acres for associated roads and pipelines.

Impacts to big game were broken into four subsections consisting of: (1) Surface disturbance that impact forage resources; (2) Potential for displacement impacts associated with drilling activities and traffic; (3) Vehicle collisions, and (4) Poaching and general harassment. Disturbance to big game on the winter range and in general was described under subsections 2.3, and 4 for each species and for each of the three action alternatives. For example, see pp. 4-51, paragraphs 4 and 5; p. 4-52, first full paragraph for description of impacts to pronghorn under the Proposed Action.

Comment 7-4. Wyoming Game and Fish Department district biologist Tim Wooley's deer survey data for the winter of 1997 show that a maximum number of animals found on and proximal to the project area (915). This translates into a maximum density of 0.074 animals per acre on the project area (915/12,352), which is essentially the same as the density of 0.072 that was used in calculating impacts in the DEIS. As stated in the DEIS, this density number was used to represent the maximum density of deer during an extreme or worst-case scenario, and errors in favor of the deer. See Table 4-4 on page 4-50 of the DEIS. Hand-picking a maximum temporal concentration of deer to represent the overall winter range on the project area is not a reasonable or representative way to estimate deer densities for a unit of range because the animals move constantly and the concentration or density level shifts accordingly. It is more representative to look at maximum deer densities within the specific boundaries of the project area to see what maximum impacts might be for the removal of a given amount of acreage of the winter range.

The bottom line is that the Proposed Action will result in the post-reclamation disturbance of 99.4 acres of Mule Deer Winter Range.

We are not sure where in the DEIS you are referencing when you comment that the EIS should more accurately disclose the time it would take for reclamation benefits to be realized. Under section 4.5.4 Impacts Summary, on page 4-39 of the DEIS, the comment is made that: "The reclamation of the disturbed areas would likely take 20 to 30 years for the mixed desert shrub community type. Again under section 4.5.7. Residual Impacts, on page 4-41 of the DEIS, it states "[t]he vegetation of "predisturbance" conditions would require 30 years or more..." While the drilling phase is analyzed over a 10-year development period, it is stated that the benefits of reclamation will not be realized for many years after the drilling phase is completed.

Comment 7-8. Unless construction activities were continuous and extended over the entire Poison Basin area throughout the migratory period, mule deer movements are not likely to be curtailed. A study of the effects of winter 3D seismic operations on mule deer distribution and movements on the Birch Creek Allotment in Western Wyoming found that intensive activities involving blasting and a ground crew displaced, for short distances, deer that were migrating into the area, but that seismic operations were not impeding mule deer migratory movements through the area (HWA 1994).

Comment 7-6. See response to comment 7-4.

Comment 7-7. Cheatgrass is identified as an exotic species in Chapter 3, section 3.5.1 (page 3-35 paragraph 4). By implementing mitigation provided in Chapter 2 (Section 2.1.4.2.8, Vegetation and Wetlands), weeds will be kept to a minimum. Appendix "B" (Section 4.5, Monitoring and Maintenance) provides a monitoring program that include noxious weed invasions.

Comment 7-8. Thank you for pointing out this error. The text on page 3-46 of the DEIS has been corrected to reflect the Bitter Creek Road as the western boundary of the Baggs Mule Deer Herd Unit.

Comment 7-9. Comment noted.

COMMENT LETTER 8: STATE OF WYOMING, DEPARTMENT OF ENVIRONMENTAL QUALITY

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 8-1. Responses to specific comments on the South Baggs DEIS and the supporting Air Quality Impact Assessment Technical Support Document are addressed below. Comments on the Continental Divide/Wamsutter II DEIS and its supporting Air Quality Impact Assessment Technical Support Document are addressed in the Continental Divide/Wamsutter II Final EIS.

Comment 8-2. The Bureau regrets any confusion it caused by referring to the Savage Run Wilderness Area as a PSD Class II area. Under the Federal Clean Air Act (42USC7472), all international parks, national wilderness areas and national memorial parks over 5,000 acres, and national parks over 6,000 acres in existence on August 7, 1977, were designated as mandatory Federal PSD Class I areas. All other areas classified as either "attainment" or "unclassed" pursuant to the National Ambient Air Quality Standards were designated as PSD Class II areas. A formal process for redesignation of PSD Class II areas to either Class I or Class III was also defined (42USC7474). The Federal visibility protection goal and requirements (42USC7491 and 7492) are applicable only within mandatory Federal PSD Class I areas. In addition, mandatory Federal PSD Class I areas may not be redesignated, although the spatial extent may vary if the original area’s boundary is modified (i.e.; wilderness area boundary expansions, etc.)

Under the State of Wyoming Air Quality Standards and Regulations (Section 24(c) Prevention of Significant Deterioration), all national parks, national wilderness areas, and national memorial

RESPONSE TO COMMENTS
parks in Wyoming (regardless of size) as of January 25, 1979, were designated Class I and may not be redesignated. Among other preconstruction permit application requirements, the State of Wyoming requires that an analysis be conducted of potential impairment to visibility, soils, and vegetation having significant commercial or recreational value, and other associated growth that would occur.

Since the Savage Run Wilderness Area was established under the Endangered American Wilderness Act of 1978 (P.L. 95-237, dated February 24, 1978), and has not been redesignated as prescribed in the Federal Clean Air Act (42 USC 7474a), it is a Federal PSD Class II area and a State of Wyoming Class I area. Similarly, since the Cloud Peak, Encampment River, Gros Ventre, Huston Park, Jedediah Smith, Platte River, Popo Agie, and Winegar Hole Wilderness Areas were established under the Wyoming Wilderness Act of 1984 (P.L. 98-550, dated October 30, 1984), they are all Federal and State of Wyoming PSD Class II areas.

As clearly stated in the DEIS (Executive Summary, Page 5-5) “BLM approved activities must comply with all applicable local, state, tribal and Federal air quality laws, statutes, regulations, standards and implementation plans...” Therefore, Bureau approved activities are required to conduct an analysis of potential visibility impairment within the Savage Run Wilderness Area under State of Wyoming regulations, even though the National Visibility Goal and Regulations are not applicable. In addition, potential air quality impacts within the Savage Run Wilderness Area would be limited by applicable Federal PSD Class II increments and State of Wyoming PSD Class I increments.

Both the FEIS text (2.6.2 Summary of Cumulative Impacts, 3.2.2 Air Quality, 4.2.5 Cumulative Impacts, Appendix D, Table D-1, and Table D-3) and the Revised Air Quality Impact Assessment Technical Support Document text (Executive Summary - Pages ii and iii, Volume I - 1.0 Introduction, Volume II - 1.0 Introduction, Figure 1-1, and Table 5-3) have been revised to clarify the status of the Savage Run Wilderness Area as recommended.

Comment 8-3. The FEIS text (3.2.2 Air Quality and Table 3-6) and the Revised Air Quality Impact Assessment Technical Support Document text (Volume I - Tables 5.1, 5.6 and 5.13) have been revised to clearly indicate the new ozone standard.

Comment 8-4. As clearly stated in the DEIS (Executive Summary, Page 5-5) “BLM approved activities must comply with all applicable local, state, tribal and Federal air quality laws, statutes, regulations, standards and implementation plans...” and “...there is no applicable state or Federal regulatory visibility standards.”

The Clean Air Act does require Federal land management agencies to exercise their “affirmative responsibility” to protect the air quality related values (including visibility) within mandatory Federal PSD Class I areas, indicating to the appropriate air quality regulatory agency whether a specific proposed facility would have an adverse impact on such values (through Federal land management participation in the New Source Review process). For the limited purposes of the PSD Permit review, it is appropriate for the Federal land management agency to select any organization may agree that selecting a visibility threshold of significance less that 1.0 deciview would be more restrictive, but not generally perceptible. Also see responses to comments [5-A11], [7-A2], and [7-A4].

Comment 8-5. See response to comment 5-1.

(Comments on the Draft Environmental Impact Statement)

Comment 8-6. See response to comment 8-3.

Comment 8-7. See response to comment 8-2.

Comment 8-8. See response to comment 8-3.

Comment 8-9. The FEIS text (4.2.3.3 Alternative B and Appendix D) and the Revised Air Quality Impact Assessment Technical Support Document text (Executive Summary and 1.0 Introduction) have been revised as recommended.

Comment 8-10. The FEIS text (3.2.2 Air Quality) has been revised to indicate there are no applicable hazardous air pollutant, visibility impairment, or atmospheric deposition (acid rain) standards, and that the existing “reasonably attributable” and new “regional haze” visibility impairment regulations apply only within Federal Mandatory PSD Class I areas. However, as requested through the advisory stakeholder process, the Air Quality Impact Assessment analyzed potential visibility impacts at both PSD Class I and Class II sensitive areas. In addition, both the FEIS text and the Revised Air Quality Impact Assessment Technical Support Document (USDI-BLM 1999b) text have been revised to clarify the status of the Savage Run Wilderness Area as recommended. Also see response to comment 8-2.

Comment 8-11. The USDA-Forest Service has requested that all NEPA analyses be compared to their "6 of a just noticeable change" (0.5 deciview) Limit of Acceptable Change.

Comment 8-12. See response to comment 8-9.
RESPONSE TO COMMENTS

Comment 8-13. The FEIS text (4.2.5 Mitigation Summary) has been revised to clearly indicate that the proposed South Baggs NOx emission sources would not be included in the existing Rock Springs Field Office area tracking agreement, and that either a mutually acceptable revision or a separate agreement would be required to include those proposed emission sources.

Comment 8-14. See response to comment 8-10.

Comment 8-15. See response to comment 8-11.

Comment 8-16. The FEIS text (Appendix D) has been revised to clearly indicate that a reduction of NOx emissions from existing sources in southwestern Wyoming is anticipated, primarily due to the installation of additional control devices on the Naughton coal-fired electrical generation facility.

Comment 8-17. The FEIS text (Appendix D) has been revised to indicate SWWYTAO is developing a secondary organic aerosol model, but it is not currently available for use.

Comment 8-18. See response to comment 8-9.

(Comments on Air Quality Technical Support Document - Volume I)

Comment 8-19. See response to comment 8-9.

Comment 8-20. See response to comment 8-2.

Comment 8-21. See response to comment 8-11.

Comment 8-22. See response to comment 8-2.

Comment 8-23. See response to comment 8-2.

Comment 8-24. See response to comment 8-9.

Comment 8-25. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - 2.5 Emissions Inventory - Cumulative Emissions Sources) has been revised as recommended.

Comment 8-26. See response to comment 8-3.

Comment 8-27. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - Appendix D1) has been revised as recommended.

(Comments on Air Quality Technical Support Document - Volume II)

Comment 8-28. See response to comment 5-1.

RESERVED TO COMMENTS

Comment 8-29. See response to comment 5-1.

Comment 8-30. See response to comment 5-1.

Comment 8-31. Method 1 is the original, Phase I IWAQM methodology. It has been replaced by Method 2.

Method 2 uses the mean of the 20% cleanest seasonal visibility conditions (extinction values reconstructed from two IMPROVE 24-hour fine particulate mass concentration samples per week), which were assumed to occur on every day during an entire season (a conservative assumption in predicting the frequency of visibility impacts). This method therefore inherently separates the meteorological conditions which occurred in determining the "cleanest" background, and those conditions applied in the modeling analysis. Unlike the IWAQM protocol, the South Baggs project analysis limited observed relative humidity levels to 90% (e.g., 91-99% values were set to 90%).

Method 3 is the same as method 2, except predicted impacts are eliminated whenever the relative humidity (RH) exceeds the maximum allowed (RHMAX), rather than capping the RH at RHMAX, as in Method 2.

Method 4 compares directly observed hourly extinction values measured with an IMPROVE transmissometer, with hourly modeled extinction values calculated from the predicted primary and secondary particulate matter concentrations, adjusted for hourly relative humidity levels, interpreted on a daily basis.

There is also a Method 5, which is the same as Method 4, except it uses IMPROVE nephelometer data rather than transmissometer data.

Comment 8-32. See response to comment 8-11.

Comment 8-33. See response to comment 8-10.

Comment 8-34. See response to comment 8-11.

COMMENT LETTER 9: WYOMING DEPARTMENT OF STATE PARKS & CULTURAL RESOURCES - STATE HISTORIC PRESERVATION OFFICE

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 9-1 The need for the BLM and Operator to comply with State of Wyoming State Historic Preservation Office regulations is acknowledged in DEIS Table 1-3 and Section 2.1.4.2.15.

Source: South Baggs Area Natural Gas Field Development Final EIS - April 2000
RESPONSE TO COMMENTS

COMMENT LETTER 10: WYOMING STATE ENGINEER'S OFFICE

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 10-1 Thank you for your comment. The need for the Operator to contact the State Engineer's Office regarding surface and ground water utilization and surface discharge is acknowledged in DEIS Table 1-3 and Section 2.1.4.2.15.

COMMENT LETTER 11: USDA, FOREST SERVICE, ROCKY MOUNTAIN REGION

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

Comment 11-1. Responses to specific comments on the South Baggs DEIS and the supporting Air Quality Impact Assessment Technical Support Document are addressed below. Comments on the Continental Divide/Wamsutter DEIS and its supporting Air Quality Impact Assessment Technical Support Document are addressed in the Continental Divide/Wamsutter II Final EIS.

Comment 11-2. The Bureau recognizes that the U.S. Congress established the National Wilderness Preservation System (P.L. 88-577, dated September 3, 1964) and specific Wilderness Areas (numerous subsequent laws, including P.L. 94-567, P.L. 95-237, and P.L. 98-550), and directed the appropriate Federal land management agency to administer those lands .. for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness ...

The Bureau also recognizes that the U.S. Congress established procedures for the Prevention of Significant Deterioration of Air Quality (P.L. 95-95, dated August 7, 1977) ... to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional, natural, recreational, scenic, or historic value ... and ... to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources ... Further, the U.S. Congress gave specific Federal land management agencies ... an affirmative responsibility to protect the air quality related values (including visibility) of any such lands within a class I area and to consider, in consultation with the Administrator, whether a proposed major emitting facility will have an adverse impact on such values ... under the Preconstruction Requirements (New Source Review) of the Clean Air Act.

However, the U.S. Congress did not require that all Wilderness Areas either have, or achieve, pristine air quality conditions, nor did the U.S. Congress grant any Federal land management agency air quality regulatory authority. In fact, ever since the original Clean Air Act was passed (P.L. 159, dated July 14, 1955), it has been the declared policy of the U.S. Congress ... to preserve and protect the primary responsibilities of the States [Tribal] and local governments in controlling air pollution ...

In 1977, after considerable debate, the U.S. Congress did amend the Clean Air Act (P.L. 95-95, dated August 7, 1977) to address air quality on certain Federal lands by: 1) establishing 158 mandatory Federal PSD Class I areas where additional air pollutant levels above existing concentrations would be limited for specific pollutants (PSD Class I increments), 2) providing for Federal land management agency review and comment on major air pollutant emission source permit applications (Major Stationary Source - New Source Review), and 3) establishing the National Visibility Goal of "... the prevention of any future, and the remediying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution" (Clean Air Act Section 169A(a)(1)).

By establishing the PSD Class I increments for nitrogen dioxide, particulate matter and sulfur dioxide, the total concentration of these pollutants due to all non-temporary anthropogenic emission sources is restricted to a small level above legally defined baseline conditions. The U.S. Congress specified 158 areas as mandatory Federal PSD Class I Areas, and provided a mechanism by which each applicable air quality regulatory agency could establish additional Federal PSD Class I areas. However, the only Class I redesignations since 1977 have been completed by four specific tribal governments. In addition, EPA regulations specified that baseline conditions be legally defined only after a "major stationary source" permit was submitted, often many years after 1977. Of the nearly 625 current Wilderness Areas (Landres and Meyer, 1998), only 120 are mandatory Federal PSD Class I areas. Therefore, over 500 Wilderness Areas have no special air quality regulatory status.

By providing for Federal land management agency participation in the New Source Review process, Federal PSD Class I area managers can exercise their "affirmative responsibility" to protect the air quality related values (including visibility) within their PSD Class I areas through review and comment on major air pollutant emission source permit applications, indicating to the air quality regulatory agency whether a specific proposed facility will have an adverse impact on such values. However, these reviews are limited, to only those new emission sources (or modifications) which would result in either a 250 ton per year increase for all stationary source types, or a 100 ton per year increase for Congressionally specified stationary source types. In addition, although the Federal land management agency's participation is legally mandated, the air quality regulatory agency's response is not. Therefore, although the Federal land management agencies have an "affirmative responsibility," they do not have "affirmative authority," to protect the air quality related values (including visibility) on any lands they administer.

The Congressional goal to prevent and eliminate all anthropogenic visibility impairment within 158 mandatory Federal PSD Class I areas is very clear. However, the U.S. Congress did not specify when the goal was to be reached, at what level visibility impacts could be considered natural (non-anthropogenic), nor even at what level air pollutants cause visibility impairment (a "just noticeable change"). Since the EPA visibility regulations allowed Federal land management agencies to identify areas where visibility is not an important value, the USDA-Forest Service identified two mandatory Federal PSD Class I areas where the National visibility goal is no longer applicable. In addition, until very recently (Final Regional Haze Regulations, 40CFR51.300 at seq, Federal Register, Vol. 64, No. 126, dated July 1, 1999), the EPA regulations focused on...
As directed under NEPA, the Bureau conducted the very conservative, but much simpler, visibility screening analysis further analysis was necessary. However, because the screening methodology showing the least impairment... selected as the impact to be discussed in the executive summaries of both EIS's and the conclusions section in the Air Quality Technical Support Document.

As clearly described in the DEIS text (Appendix D), "A conservative visibility screening level analysis indicated that proposed project operations might result in a perceptible (1.0 deciview) visibility reduction on very clear days at several the PSD Class I and II sensitive receptors, therefore a more refined potential visibility impact analysis was performed" and "As shown in Table D-3, the refined visibility impact analysis predicted that a just noticeable change 'greater than 1.0 deciview would occur on a single day at only the PSD Class I Rawah Wilderness Area. This predicted impact would not occur from the project sources or the 'No Action' sources alone, but from all sources combined (total cumulative sources)." The DEIS further described the USDA-Forest Service (Regions 2 and 4) visibility significance threshold of a 0.5 deciview Limit of Acceptable Change, and that based "on this more restrictive ½ of a 'just noticeable change' level, cumulative operations would exceed the USDA-Forest Service 'Limit of Acceptable Change' on a single day at both the PSD Class I Rawah Wilderness Area (1.68 deciview) and the Federal PSD Class II Savage Run Wilderness Area (0.87 deciview)." These predicted impacts would not occur from the project sources or the 'No Action' sources alone, but from all sources combined (total cumulative sources)." Since the 'project sources' (both the CDWIL and the South Baggs projects) would not exceed the USDA-Forest Service LAC together, clearly the South Baggs Proposed Action would not exceed the USDA-Forest Service LAC by itself.

The Bureau conducted the very conservative, but much simpler, visibility screening analysis (method 2) to determine if potential visibility impacts within several sensitive receptors was possible. If no potential impacts were predicted using the very conservative method; then no further analysis was necessary. However, because the screening analysis did not preclude a potential for significant adverse visibility impacts, and based on the Bureau's experience in predicting potential visibility impacts in this region for previous NEPA assessments, the more refined potential visibility impact analysis (method 4) was performed.

As directed under NEPA (40CFR1502.12), the Executive Summary "adequately and accurately" summarized "the major conclusions, areas of controversy (including issues raised by agencies and the public), and the issues to be resolved (including the choice among alternatives)." The Bureau also provided a detailed description of both analyses' methods and results in a separate Air Quality Technical Support Document (USDI-BLM 1999a). The Bureau also assembled all air quality modeling inputs, code and results onto compact disks. All of these materials were available to the general public upon request, and copies were provided "for inspection by potentially interested persons within the time allowed for comment."

Finally, the Federal Land Managers' Air Quality Related Values Workgroup (FLAG) has revised their recommended visibility impact technical analysis procedure as described in the "Draft Phase I Report" dated May 4, 1999 (NPS 1999). Although this is an internal review document, FLAG anticipates circulating its preliminary final version for public review and comment through a Notice of Availability to be published in the Federal Register in the Winter of 1999-2000. FLAG has developed analytical procedures in order to evaluate potential air pollution effects on air quality related values (specify visibility, vegetation/ozone, soils and surface waters/atmospheric deposition), as required under the Prevention of Significant Deterioration procedures of the Clean Air Act (New Source Review).

Although not required by NEPA, the Bureau has chosen to analyze and report potential visibility impacts from the Proposed Action and Alternatives using the FLAG Draft Phase I Report procedures for disclosure to the general public and the decisionmaker. Since the FLAG procedures are limited to mandatory Federal PSD Class I areas, FLAG values for the Bridger Wilderness Area were applied for the Popo Agie Wilderness Area and the Wind River Roadless Area. Additionally, FLAG values for the Mount Zirkel Wilderness Area were applied for Dinosaur National Monument and the Savage Run Wilderness Area.

FLAG "Draft Phase I Report" Predicted Visibility Impacts in PSD Class I and II Sensitive Areas (number of days above a "4% just noticeable change" of 0.5 deciview).

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<tr>
<td>Savage Run Wilderness</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

a/ Direct Project Sources include the Continental Divide, Wamsutter II and South Baggs projects.
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For potential visibility impacts predicted to be at or above a "1% just noticeable change" of 0.5 deciview for any day, the FLAG Draft Phase I Report states "The FLM [Federal Land Management] would take into account magnitude, frequency, duration, and other factors in making an adverse impact determination" as required under the Prevention of Significant Deterioration procedures of the Clean Air Act (New Source Review). Given the results of the conservative visibility screening level analysis (method 2) reported in the Air Quality Impact Assessment Technical Support Document text (Volume II - Table 5-4) and the FLAG Draft Phase I Report analysis above, the potential for significant adverse impacts was based on the more refined visibility impact analysis (method 4).

Comment 11-4. Since there are no air quality regulatory limits or standards defining a significant adverse visibility impact level, the Bureau followed NEPA direction by including "(1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community" (40CFR1502.22(b)).

As clearly described in the DEIS text (Appendix D), "A 1.0 deciview change is considered potentially significant as adopted by the Grand Canyon Visibility Transport Commission and reported in Pitchford and Malm (1994). A 1.0 deciview change is defined as about a 10 percent change in the extinction coefficient, which is a small but perceptible scenic change under many circumstances. The 1.0 deciview value corresponds to a 2 to 5 percent change in contrast, for a 'black target' against a clear sky, at the most optically sensitive distance from an observer. Factors such as the magnitude of deciview change, frequency, time of the year, and the meteorological conditions during times when deciview thresholds are above 1.0 (as well as inherent conservatism in the modeling analyses) should all be considered when determining the significance of potential impacts."

Since the DEIS was published, EPA issued their Final Regional Haze Regulations (40CFR51.300 et seq., Federal Register, Vol. 64, No. 126, dated July 1, 1999) which considered voluminous visibility impact measures. As stated by EPA "The final rule maintains the deciview as the principle visibility metric used in establishing reasonable progress goals, in defining baseline, current, and natural conditions, and in tracking changes in visibility conditions over time. States may choose to express visibility changes in terms of other metrics, such as visual range or light extinction, as well as in terms of deciview."

EPA reached this conclusion because the deciview "metric expresses uniform changes in haziness in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions" and "A one deciview change in haziness is a small but noticeable change in haziness under most circumstances when viewing scenes in Class I areas." The Final Regional Haze regulations further state "The EPA believes the deciview metric has been adequately reviewed for use in the regional haze program. The deciview concept was introduced in 1994 in an article appearing in the peer-reviewed journal Atmospheric Environment. It was presented in the 1996 Criteria Document for the PM NAAQS as a valid metric for characterizing visibility impairment. The EPA also recognized the deciview as an appropriate metric for regulatory purposes in chapter 8 of the 1996 Staff Paper for the PM NAAQS review. Both of these documents were reviewed and accepted by the Clean Air Scientific Advisory Committee. Visibility conditions at Class I areas have been characterized in terms of deciview in summary reports on the IMPROVE visibility monitoring network." The EPA also supported use of the deciview metric because it satisfies the National Academy of Science (NAS) Committee on Haze in National Parks and Wilderness Areas for "development of an index that takes into account both measurement of physical changes (i.e., changes in air quality) with elements of human perception." Further, the Congressional Research Service found "that the deciview index 'conforms closely' to the NAS recommendation cited above."

When questioned whether a 1.0 deciview change is "the threshold of perception [a "just noticeable change"] in all cases for "10 percent,"* EPA agreed that a one deciview change should not be considered the threshold of perception in all cases for all scenes. The EPA believes that visibility changes of less than one deciview are likely to be perceptible in some cases, especially when the scene being viewed is less sensitive to small amounts of pollution. The EPA also acknowledges the technical point made by some commenters that for other types of scenes with other site-specific conditions, [Footnote 70: For example, where the sight path to a scenic feature is less than the maximum visual range] a change of more than 1 deciview might be required in order for the change to be perceptible. However, EPA wishes to emphasize that the overall goal of the regional haze program is not to track changes in visibility for only certain vistas at a specific Class I area. Rather, the program is designed to track changes in regional visibility for the range of possible views of sky and terrain found in any Class I area, and to assure progress toward the national goal. For this purpose, EPA supports the use of the deciview metric as calculated from ambient monitoring data for tracking changes in regional visibility." EPA concluded "Thus, although a 1 deciview change may not be the threshold of perception in all situations, the fundamental advantage of using the deciview remains: the deciview metric expresses uniform changes in haziness in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions."

Again, since there is no applicable regulatory visibility standard or threshold, the Bureau evaluated potential visibility impacts "based upon theoretical approaches or research methods generally accepted in the scientific community."

The DEIS text (4.2.5 Cumulative Impacts and Appendix D) also clearly stated "in addition, the USDA-Forest Service, Regions 2 and 4 (Blett 1999), have also identified the following 'Limit of Acceptable Change' regarding potential significant visibility impacts for the PSD Class I and II sensitive areas analyzed: no day greater than 0.5 deciview, calculated on a 24-hour basis."

The DEIS compared the potential visibility impact analysis results to both the 1.0 deciview "just noticeable change" significance threshold level and the USDA-Forest Service "1% of a just noticeable change" 0.5 deciview Limit of Acceptable Change. Certainly any organization may select any other significance level for their own purposes, and the Bureau agrees that selecting a visibility threshold of significance less that 1.0 deciview would be more restrictive, but not generally perceptible.
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Finally, when the Bureau presented it’s basis for using 1.0 deciviews "just noticeable change" as a visibility impact significance threshold at the EPA Region 8 Federal Leadership Forum meeting (Boettcher Mansion Conference Center, Golden, Colorado, on June 24, 1999), USDA-Forest Service staff indicated the developers of the deciview metric (Pitchford and Malm) were dismayed that their publication was being quoted selectively and otherwise misrepresented. The Bureau has contacted both authors requesting written clarification indicating which parts of their publication should either be deleted, revised or supplemented with new information. The Bureau has not yet received a written response from the authors.

Comment 11-5. See response to comment 8-4.

Comment 11-6. It is assumed this comment refers to Page 31 of the Air Quality Impact Assessment Technical Support Document text (Volume II - 4. Dispersion Modeling Options), which has been revised to state "it would be desirable to have a longer time period to include many more meteorological-source impact events than is possible in a one year data set. The very conservative, but much simpler, multi-year visibility screening analysis (method 2) projected impacts represent an upper estimate of potential air quality impacts which are unlikely to actually be reached."

The DEIS included both the very conservative, but much simpler, visibility screening analysis (method 2) and the more refined visibility impact analysis (method 4) results. However, all air quality impact assessment materials presented in the DEIS represent the Bureau’s "preferred method" of displaying the potential visibility degradation and not "industry's." Also see responses to comments 11-3 and 8-8.

Comment 11-7. As clearly described in the Air Quality Impact Assessment Technical Support Document text (Volume II - 4. Dispersion Modeling Options) "the refined analysis (Method 4) used hourly direct IMPROVE transmissometer optical extinction measurements for defining the actual visibility conditions observed throughout 1995. Therefore, the meteorological conditions which occurred in defining the actual background are the same as those applied in the modeling analysis. The IMPROVE transmissometer values measured at the Bridger, Rocky Mountain National Park, and the Mount Zirkel, Rawah, and Savage Run Wilderness Areas were assumed to be representative of the Wind River Roadless Area, and the Bridger, Fitzpatrick, and Popo Agie Wilderness Areas. The IMPROVE transmissometer values measured at Rocky Mountain National Park were assumed to be representative of Dinosaur National Monument, and the Mount Zirkel, Rawah, and Savage Run Wilderness Areas."

"In CALPOST Method 4, hourly transmissometer measurements are averaged to compute 24 hour average background extinction values for each day in 1995. The main advantage of this technique is that correlations between meteorological conditions, actual visibility conditions, and potential source impacts can be evaluated in the deciview calculation rather than using the conservative long term mean of the 20% cleanest seasonal background data alone. For this reason, Method 4 is considered the 'refined' technique. Because Method 4 compares potential visibility impacts to the entire range (from the 1% level to the 100% level) of actual measured background visibility conditions, it may, in fact, produce larger peak visibility impacts than Method 2 which only uses the 90% level. Since the Method 2 screening approach assumes the 20% cleanest visibility conditions would occur every day of the year, the peak impact would be less, but the number of days predicted to have perceptible impacts would be greater. Method

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4 is simply designed to use more detailed information on the actual background visibility conditions measured during 1995 when potential source impacts on visibility are predicted in the sensitive areas.

Because the very conservative, but much simpler, visibility screening analysis (method 2) assumes the 20th percentile cleanest seasonal IMPROVE fine particulate matter concentrations would occur on every day of the year, the visibility screening analysis (method 2) simply can not provide "more realistic estimates" of visibility impacts than the more refined visibility impact analysis (method 4) based on direct hourly optical measurements.

In addition, IWAQM (EPA 1998) does not specify the period of "baseline visibility data," nor does IWAQM indicate a preference for "at least a 5 year average." IWAQM does state "As noted previously, visibility analyses are compared against a background condition. The estimates of background visibility conditions at Class I areas are derived from the IMPROVE (Interagency Monitoring of PROtected Visual Environments) network. There are several methods of obtaining estimates of the background visibility. These include reconstructed extinction from speciated measurements of particulate matter, direct measurement of extinction with a transmissometer, and estimates of extinction from photographs."

The statement that "... visibility impacts on 'dusty days' are less apparent to the human eye ..." is also incorrect. As stated in the IWAQM document, the deciview visibility index was specifically designed so that anywhere along its scale, haziness changes that are equally perceptible correspond to the same deciview difference. For example, a 3 dv difference caused by a change in air quality should result in about the same perceived change in haziness, whether under clean or highly polluted conditions.

However, adding equal air pollutant amounts into either clean or polluted background conditions will certainly have different visual impacts, and if future background optical conditions are more clear than those measured in 1995, greater potential visibility impacts would be predicted. Similarly, if future background optical conditions are less clear than those measured in 1995, fewer potential visibility impacts would be predicted.

Finally, as clearly described in the Air Quality Impact Assessment Technical Support Document text (Volume II - Appendix G - Analysis of Visibility Data in SW Wyoming and NW Colorado) "In order to assist in determining the 'representativeness' of 1995 optical data, Mr. Neth also prepared graphical displays of seasonal and annual 10-50-90 percentile Standard Visual Range bar charts for the Bridger and Rocky Mountain optical data period of record (Fall 1988 through Summer 1997). As would be expected, both monitoring locations showed an annual cycle with the highest (most clear) conditions occurring in Winter, and the lowest (most obscured) conditions occurring in Summer/Fall. In general, the 1995 data year was well within extreme values measured in other years (it was neither the 'most clear' or 'most obscured' data year) although the range of difference between the 10th and 90th percentile values was less than most other data years."

Comment 11-8. As clearly described in the Air Quality Impact Assessment Technical Support Document text (Volume II - S.2 Visibility Impacts) "It is also important to remember that both the screening (Method 2) and refined (Method 4) visibility impact analyses assumed: 1)
reconstructed or measured background conditions measured at one location were representative of the entire sensitive area (as well as other sensitive areas); 2) the maximum modeled 24-hour primary and secondary particulate matter concentration at one location was representative of the entire sensitive area; and 3) these predicted conditions would occur uniformly throughout the calculated view distance (i.e.: 250 km). These are conservative assumptions."

The Bureau regrets any confusion it caused by referring to the assumption "reconstructed or measured background conditions measured at one location were representative of the entire sensitive area (as well as other sensitive areas)" as conservative. This assumption neither overestimates nor understimates potential impacts.

However, assuming the maximum primary and secondary particulate matter concentrations predicted at any single location within the sensitive area would occur evenly throughout the entire sensitive area, as well as in all directions throughout the entire visible range (up to hundreds of kilometers), are very conservative assumptions. The Revised Air Quality Impact Assessment Technical Support Document text (Volume II - 5.2 Visibility Impacts) has been revised to clarify the last two assumptions are very conservative. Also see responses to comments 11-9 and 11-39.

Comment 11-9. As clearly described in the Air Quality Impact Assessment Technical Support Document text (Volume II - Appendix C Analysis of Visibility Data in SW Wyoming and NW Colorado)... the 1995 Mount Zirkel PSD Class I Area nephelometer optical data are flawed, and should not be used in the Continental Divide/Greater Wamsutter II and South Baggs Projects Air Quality Impact Assessment... the Mount Zirkel data displayed much greater variability sometimes up to 100 km changes in a single day. The Mount Zirkel data were especially erratic in the winter months, but even when they 'settled down' in the summer months, the measured visibility values were typically 50 km higher (more clear) than either the Bridger or Rocky Mountain values. Erratic Mount Zirkel winter values could be consistent with local pollution source impacts and/or atmospheric cleansing by snowfall, and the summertime offset could be consistent with an incorrect assumption of Rayleigh (pure air) scattering and/or a background light absorbing component. Regardless of the cause, the Mount Zirkel data are too inconsistent to properly represent background conditions."

It may appear that the Bureau "rejected... Mt. Zirkel visibility background data in favor of the RMNP visibility data" for "non-valid reasons" given a very simplistic comparison of nephelometer and transmissometer data. However, a more thorough understanding of how these monitoring devices operate (EPA 1999) support excluding the Mount Zirkel nephelometer data.

The Bridger and Rocky Mountain transmissometers measure the actual, total optical extinction observed in the atmosphere over a path length of a nearly 4 to 5 kilometers at elevations around 2500 meters. Transmissometers do not modify the atmosphere in any way, and directly measure light absorption due to particles (such as soot) and gases (such as NOx), and light scattering due to particles (both fine and coarse size ranges) and gases (Rayleigh scattering). Most importantly, transmissometers measure the optical characteristics that a human observer would see, that is, a smoke plume or clouds in the sight path will indicate high extinction and low visibility.
maximum compression at production onset, the maximum total field compression would not occur until after construction activities were completed, several years after the last well went into production.

Both the FEIS text (4.2.3.3 Alternative B) and the Revised Air Quality Impact Assessment Technical Support Document text (Volume I - 2.2 CDEWWA Production Emissions and 5.1.4 HAP Impacts) have been revised to clearly include potential well blowdown VOC emission impacts (including HAPs impacts). Although the potential 8-hour benzene concentration increased, there was no significant change in the incremental long-term cancer risk for a Most Likely Exposure and a Maximally Exposed Individual. No other 8-hour HAP concentrations exceeded the lower end of the states Acceptable Ambient Concentration Levels (AACl).

Comment 11-11. Although not required by NEPA, the Bureau chose to use an advisory stakeholder process when developing the CDEWWA Air Quality Impact Assessment Protocol (USDI-BLM 1998) describing the methodology the Bureau intended to use prior to conducting the air quality impact assessment. The sole purpose was to enhance "cooperation before the environmental impact statement is prepared, rather than submission of adversarial comments on a completed document" consistent with NEPA regulations (40CFR1500.5). However, the advisory stakeholder process does not in any way alter the Bureau's authority and responsibility to conduct the air quality impact assessment consistent with existing NEPA regulations. When used, each air quality impact assessment protocol must be developed on a case-by-case basis, and no standard protocol is anticipated.

The advisory stakeholder team included representatives of: the Operators (Amoco Oil Company, Merit Energy Company, Union Pacific Resources Company, Yates Petroleum, Snyder Oil Corporation, and others); Analysis Contractors (TRC Mariah Associates, Inc., Earth Tech, Inc., and Gary Holsan Environmental Planning); State Air Quality Regulatory Agencies (Wyoming Department of Environmental Quality-Air Quality Division and Colorado Department of Public Health and Environment-Air Pollution Control Division); Federal Agencies (U.S. Environmental Protection Agency, USDA-Forest Service, USDA-Bureau of Land Management, and USDA-National Park Service); a Tribal Agency (the Wind River Environmental Quality Commission); and an Environmental Organization (the Wyoming Outdoor Council).

Prior to and during advisory stakeholder meetings, the Bureau emphasized that the team's purpose was to enhance cooperation before the Bureau conducted it's air quality impact assessment, rather than to simply risk receiving adversarial comments on the DEIS. The Bureau also expressed a desire to obtain consensus, but insisted where consensus was not possible, the Bureau was solely responsible for conducting the assessment. Apparently, some stakeholder participants either misunderstood or chose to ignore the advisory nature of the team. This may be because in most cases consensus was reached and the Bureau conducted the air quality impact assessment as discussed by the advisory stakeholders.

Three formal advisory stakeholder team meetings were held, and formal stakeholder comments were solicited until April 10, 1998. In addition, the Bureau also communicated with individual stakeholder team members as needed prior to issuing the Final Air Quality Impact Assessment Protocol on September 28, 1998 (USDI-BLM 1998). All "protocol and modeling related decisions" were made by the Bureau, and not by any other stakeholder (including Amoco Oil

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Company).

Finally, as clearly stated in the Final Protocol (Page 1) "The purpose of this protocol is to ensure that the approach, input data, computational methods, etc., are acceptable to BLM, and that interested parties have had the opportunity to review and provide input, before the study is initiated." In a few instances, based on unforeseen circumstances after the Final Protocol was issued, the Bureau modified the air quality impact assessment procedures. These changes are described in the Revised Air Quality Impact Assessment Technical Support Document (USDI- BLM 1999b), and were discussed at a preliminary results presentation for the Bureau's Wyoming State Director (held February 16, 1999). The entire advisory stakeholder team was invited to attend that presentation and to present any comments at that time. Although not required by NEPA, using an advisory stakeholder process to assist the Bureau in implementing it's authority and responsibility to conduct air quality impact assessments is consistent with existing NEPA regulations.

Comment 11-12. As required by NEPA, the Bureau addresses each of it's potential management decisions separately depending on the specific Proposed Action. Although there is no "standard" air quality impact analysis methodology, the Bureau follows the Federal NEPA regulations faithfully. Regarding individual Proposed Actions and Alternatives, the methods used to evaluate potential air quality impacts are determined on a case-by-case basis. This is consistent with NEPA direction to discuss impacts "in proportion to their significance" (40CFR1502.2(b)) and to apply analysis methods that are generally accepted in the scientific community (40CFR1502.24). It is logical that the Bureau may use much of the same data and many of the same methods as state, tribal or local air quality regulatory agencies (which must be standard by law), however NEPA specifies only the systematic approach (depending on the scope, potential significance, etc.), and not standard methods to adequately disclose potential air quality impacts from a Proposed Action and Alternatives before such activities are authorized.

Comment 11-13. See response to comment 8-2.

Comment 11-14. See responses to comments 11-9 and 11-39.

Comment 11-15. Also see responses to comments 11-3, 11-7, and 12-28.

Comment 11-16. As described in response to comment 11-11, the Bureau chose to use an advisory stakeholder process to prepare a protocol describing the methodology the Bureau intended to use prior to conducting the air quality impact assessment. That formal process was completed when the Final Protocol was issued on September 28, 1998. The visibility analysis was done in a "technically supportable" manner, and no re-analysis is necessary. Also see responses to comments 8-4, 11-2, 11-3, 11-4, 11-7, 11-33, 12-28, and 13-2.

(Continental Divide/Wamsutter II/South Baggs Air Quality Technical Support Document Comments - Volume I, Near Field Analysis)

Comment 11-17. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - Executive Summary) has been corrected.
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Comment 11-18. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - Figures 1.1 and 2.3) has been revised to indicate the correct location of the South Baggs project area. However, these figures were not used to determine modeled source locations in the analysis, but only to show the approximate locations of general features within the Cumulative Impact Analysis Area. Modeled sources and receptors were located using Universal Transverse Mercator (UTM) coordinates determined from USGS and BLM maps.

Comment 11-19. The assumed time frames are consistent between the CD/WII DEIS and the Air Quality Impact Assessment Technical Support Document (Volume I - Appendix A1) emissions calculations for rig up/rig down, pipeline construction, and well pad/resource road construction. Because the completion and testing phase (during which flaring will take place) is estimated to occur for a maximum of 15 days, flaring emissions were conservatively calculated for a period of 15 days, 24 hours per day.

The time durations for rig up/rig down, pipeline construction, well pad/resource road construction, and completion/testing reported in the South Baggs DEIS are inconsistent with those used to calculate pollutant emissions in the Air Quality Impact Assessment Technical Support Document (Volume I - Appendix A2). However, because activity duration estimates reported in the CD/WIIIPA were greater than those reported in the South Baggs EIS, the CD/WIIIPA time durations were conservatively used to calculate South Baggs emission rates.

Finally, the Revised Air Quality Impact Assessment Technical Support Document text (Volume I - 2.1 Construction Emissions) has been revised to clearly describe the completion and flaring emission assumptions.

Comment 11-20. As authorized under NEPA (40CFR1502.21 and 40CFR1502.24), the Bureau provided a detailed description of the methodology used in performing the air quality impact assessment in separate Air Quality Impact Assessment Technical Support Documents (USDI-BLM 1999a and USDI-BLM 1999b). The Bureau also assembled all air quality modeling inputs, code and results onto compact disks. All of these materials were available to the general public upon request, and copies were provided “for inspection by potentially interested persons within the time allowed for comment.”

Comment 11-21. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - 4.1 Meteorology and Figure 1.1) has been revised to indicate the correct location of Rawlins, Wyoming.

Comment 11-22. A representative meteorological data set was selected for use in each modeling analysis. The South Baggs surface meteorology data were determined to be most representative of meteorological conditions at the South Baggs Project area, and are representative of a small portion of the CD/WIIPA. There are terrain features close to the South Baggs Project Area that affect the observed meteorology. For the CD/WIIAPA, the Rock Springs data were selected due in part to Rock Springs’ close proximity. These data also best represent typical regional meteorology conditions in southwest Wyoming, exhibiting a greater frequency of high wind speeds and persistent wind direction.
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Comment 11-23. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - Table 4.1) has been revised to clearly indicate that the assumed South Baggs Area background concentrations were based on data collected throughout southwestern Wyoming and northern Colorado.

Comment 11-24. The particulate modeling analysis included emissions from construction activities at a single well site, and concurrent construction of adjoining well sites is not likely; therefore, well spacing was not addressed.

However, the dispersion modeling analyses for CO, NO, and HAPs examined production impacts at multiple well sites. For these analyses, the minimum well site spacing as displayed in the Revised Air Quality Impact Assessment Technical Support Document (Volume I - Figure 5.8) was used to maximize potential impacts.

Comment 11-25. See response to comment 11-10.

Comment 11-26. The Revised Air Quality Impact Assessment Technical Support Document text (Volume I - Table B1-1.5) has been revised to clearly describe the table's contents.

Comment 11-27. Due to the similarity in surface disturbance size in the CDWIIIPA, the Baggs, Wyoming, wind data were initially used to calculate wind erosion emissions for both the South Baggs and CDWII project areas. This assumption resulted in an underestimation of wind erosion emission in the CDWIIIPA. which has been revised in both the Revised Air Quality Impact Assessment Technical Support Document text (Volume I - 2.4 Wind Erosion Emissions, and Table 5.2) and the CDWIIIPA FEIS text (4.1.1.1 Proposed Action).

Comment 11-28. As was done for previous NEPA documents, and because the Reference (Schefle 1988) would not otherwise be "reasonably available for inspection by potentially interested persons" (40CFR1502.21), the Bureau included the most legible available copy in the Air Quality Impact Assessment Technical Support Document (Volume I - Appendix E VOC/NOx/Point Source Screening Tables). Subsequent to your comment, the Bureau contacted the author for a more legible version, but the document is currently out of print. Although the version printed for the DEIS is not perfect, the Bureau finds the text completely legible, and would gladly meet with the USDA-Forest Service to jointly review the document.

(Continental Divide/Wamsutter II/South Baggs Air Quality Technical Support Document Comments - Volume II, Far Field Analysis)

Comment 11-29. As clearly described in the DEIS text (4.2.3.3 Alternative B) and in the Air Quality Impact Assessment Technical Support Document text (Volume I - 5.1 Continental Divide/Wamsutter II Near-Field Modeling and 5.2 South Baggs Near-Field Modeling), potential near-field air quality impacts were modeled separately for each proposed action. However, for the far-field cumulative analysis (as described in the Final Air Quality Impact Assessment Protocol), given the same likelihood of potential development, both the Continental Divide/Wamsutter II and South Baggs projects were combined and reported as "Project Sources." Although dependent on temporal meteorological conditions, distance to sensitive

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receivers, etc., it is safe to assume the combined predicted "Project Sources" impacts are dominated by the CDWII Proposed Action (with 3,000 wells, 5 compressor stations and one gas plant) rather than the South Baggs Alternative B (with 90 wells and one compressor station).

Comment 11-30. The Revised Air Quality Impact Assessment Technical Support Document text (Volume II - Figure 3.2) has been revised to clearly see the modeled wind vectors.

Comment 11-31. The Revised Air Quality Impact Assessment Technical Support Document text (Volume II - 4.2 Modeling Grid and Receptors) has been revised as recommended.

Comment 11-32. As clearly stated in the Air Quality Impact Assessment Technical Support Document text (Volume II - 4.4 Dispersion Modeling Options), "The relative humidity correction is intended to account for aerosol growth by hygroscopic particles" and "The tabulated relative humidity adjustment factors in the FLAG report (NPS 1998) are used to determine F_r. Unlike the FLAG protocol, however, a maximum relative humidity of 90% has been used in computing F_r rather than 98%, because it is highly unlikely, due to non-uniform cloudiness, that fundamental aerosol and observed visibility criteria (i.e., homogenous atmosphere, uniform sky brightness, etc.) would occur under high relative humidity conditions in the analysis area. The basis for limiting aerosol growth at 90% relative humidity is because optical monitoring devices are not reliable at humidity values above this level. In CALPOST, the FLAG methodology is implemented as visibility Method 2."

The basic formula for calculating visibility impacts, developed by H. Koschmieder in 1924, includes the assumption that sky brightness at the observer is similar to the sky brightness at the observed object. As described in "Protecting Visibility - An EPA Report to Congress" (EPA 1979) "The effect on visual range of inhomogeneous illumination, such as that under scattered clouds, is difficult to analyze by elementary methods. Limited experimental evidence indicates that this effect may not be great for short visual ranges (less than 50 km)" however "The studies were conducted in relatively polluted conditions. The effect of scattered clouds or differing sky brightness on visual range in clean areas should be further investigated."

In 1991, the U.S. National Acid Precipitation Assessment Program (NAPAP 1991), in their "Report 24 - Visibility: Existing and Historical Conditions - Causes and Effects" stated "To the person on the street (and to perception investigators), visibility is associated with changes in the appearance of scenic characteristics (e.g., changes in color, loss of detail, or limits on the most distant visible feature). In addition to the optical characteristics of the atmosphere, lighting conditions and intrinsic scene characteristics control the appearance of scenes. Lighting conditions change continually due to variations in sun angle. Scene characteristics (i.e., cloud cover, vegetation, snow, etc.) are more erratic than sun angle changes and are generally beyond quantitative measurement or prediction. ... With a number of assumptions and for simple lighting conditions (e.g., no clouds in the sky) scene measurements can be used to estimate optical indices. The Report further stated "There are a number of variables such as sun angle, cloud cover, and scene composition that are firmly integrated into judgments of aesthetic value of a scenic resource. Therefore, studies designed to assess social, psychological, or economical value associated with a given change in atmospheric particulate concentration must be designed in such a way that these confounding variables do not affect the outcome of the experiment."
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In addition, the DEIS applied the deciwe visual index developed by Pitchford and Malm (1994) to indicate the potential for a "significant adverse" visibility impact. The authors concluded: "a 1 to 2 d (deciew) difference corresponds to a small, visually perceptible change in scene appearance where the assumptions used to develop the deciwe scale are met." Their assumptions included: "... that the sky radiance at the target is the same as the sky radiance at the observer" (e.g., no clouds in the sky).

Finally, IWAQM (EPA 1998) makes no recommendation regarding the rejection of transmissometer data "on the basis of RH unless it exceeds ... 98%." IWAQM does state "As noted previously, visibility analyses are compared against a background condition. The estimates of background visibility conditions at Class I areas are derived from the IMPROVE (Interagency Monitoring of PROtected Visual Environments) network. There are several methods of obtaining estimates of the background visibility. These include reconstructed extinction from speciated measurements of particulate matter, direct measurement of extinction with a transmissometer, and estimates of extinction from photographs." In fact, the IMPROVE "Standard Operating Procedures and Technical Instructions for Transmissometer Systems" (EPA Resource Specialist, Inc., n.d.) and the EPA "Visibility Monitoring Guidance" (EPA 1999) both clearly state "When the relative humidity measured at the receiver is greater than 90%, the corresponding transmissometer measurement is flagged as having a possible interference" and "... inferring a precise knowledge of the meteorological conditions along a sight path at high relative humidity from a single point measurement is very difficult. When the relative humidity is above 90% at one end of the path, small random temperature or absolute humidity fluctuations along the path can lead to condensation of water vapor causing meteorological interferences. Thus, in accordance with the conservative philosophy expressed above, the 90% relative humidity limit was selected for this test."

Comment 11-33. NEPA directs the Bureau to "succinctly describe the environment of the area(s) to be affected" (40CFR1502.15), to "provide full and fair discussion of [potential] significant environmental impacts" (40CFR1502.1), and to "present the [potential] environmental impacts of the proposal and alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public" (40CFR1502.14).

The refined visibility impact analysis used hourly transmissometer optical monitoring data collected during 1995 at both the Bridger Wilderness Area and Rocky Mountain National Park mandatory Federal PSD Class I areas in order to define existing background conditions. Since there are a number of "reasonably foreseeable" air pollutant emission sources which were not operating in 1995, their potential visibility impacts were analyzed to establish the future Affect ed Environment (adjusted background). Finally, potential visibility impacts from the Proposed Action and Alternatives were combined with the adjusted background in order to fully disclose potential cumulative environmental impacts. Given the mixture of impacts from existing sources, proposed, but not operating) reasonably foreseeable sources, and the Proposed Action and Alternatives, the Bureau could not use a 5-year average of measured optical conditions. See also responses to comments 8-31, 11-3, 11-7, 12-28, and 13-2.
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Comment 11-41. As described in the Air Quality Impact Assessment Technical Support Document text (2.1 Construction Emissions), "The pollutant emissions that occur during pipeline construction include construction emissions from heavy equipment; tailpipe emissions from diesel construction equipment; road dust from truck traffic; and tailpipe emissions from the trucks." Further, during operations, emissions from vehicle traffic would be negligible small because the automobile and truck traffic would be minimal once construction begins.

Comment 11-42. South Baggs DEIS Table 2-4 (Comparative Impact Summary) was prepared based on the mitigation and potential impact analyses presented in Chapter 4 (Analysis of Environmental Consequences) of the DEIS. For air quality, assumed and potential additional mitigation measures were detailed in both the DEIS text (4.2.6 Mitigation Summary) and the Air Quality Impact Assessment Technical Support Document text (Volume I - 3.0 NO, Mitigation).

Comment 11-43. Section 3.3.2.1 has been revised to delete one of the references.

Comment 11-44. This was the most recent data available at the time the analysis was completed. Although there are likely changes in the data presented in the DEIS, it is doubtful that the changes would have bearing on the conclusions provided in the Impacts Summary of the DEIS (section 4.12.4).

Comment 11-45. The FEIS text (4.2.1 Introduction) has been revised to describe the climate and air quality impact analysis materials presented in Chapter 4 (Analysis of Environmental Consequences).

Comment 11-46. As clearly stated in the DEIS text (4.2.3.1 Proposed Action [50 wells in addition to existing operations], 4.2.3.2 Alternative A [40 wells in addition to existing operations], and 4.2.3.4 Alternative C - No Action [continue existing operations]), "Potential air quality impacts would be less than those described under the Alternative B - 90 Well Total Development Scenario ..." Although short-term construction impacts would be the same for each alternative, both the compression requirements and the total number of well impacts would be less than those described for Alternative B. No significant, adverse impacts are anticipated from implementation of the Proposed Action or any Alternative.

Comment 11-47. Near-field dispersion modeling was performed for a patch of eight producing wells surrounding the proposed 3,000 hp compressor station operating at maximum capacity. Spacing between wells and to the centralized compressor station was the minimum well spacing defined in the proposed action. Maximum modeled concentrations from well emissions alone were found to occur at receptors closest to the well. Maximum modeled concentrations from the compressor station were found to occur several hundred meters away from the facility but within the representative production area. Considering the "reasonable, but conservative" source layout and emissions used, and the localized nature of maximum modeled concentrations, it is reasonable to state that adding additional wells beyond the modeled well patch would not significantly increase the overall maximum concentration.

Comment 11-48. See response to comment 11-20.
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NEPA, in this EIS.

Comment 12-4. The BLM believes that the measures proposed in the Biological Assessment are adequate for wildlife protection. Furthermore, this project under any alternative has not yet been approved; the Record of Decision (ROD) is the project authorizing document, and all required mitigations will be identified therein. Alternatives considering fewer wells (see Section 2.2 of the DEIS) were considered, as were alternate drilling techniques (see Section 2.5 of the DEIS).

Comment 12-5. The BLM believes that measures provided in the standard mitigation guidelines (see Appendix A), and mitigation measures provided by Merit and by environmental analysis are adequate for resource protection. The BLM cannot deny all development within the areas you have mentioned because leases have already been issued. Furthermore, we do not believe that such restrictions are necessary to give adequate protection to the various resources. Such restrictions would essentially create a no-surface-occupancy situation and preclude the recovery of the oil and gas resources.

Comment 12-6. The term or classification Sensitive Resource Area (SRA) was used in the Continental Divide/Wamsutter II DEIS to identify area of special concern within a very large area. The South Baggs area is a much smaller area and to subdivide it into smaller areas would serve no practical purpose. The concerns you mentioned have been addressed in the DEIS. The situations that might define an SRA were identified during the scoping process as issues. These issues have been addressed in the DEIS.

Comment 12-7. Thank you for your comment. The exact location of every well can not be determined at this time. The location of each well depends on information provided by the Operator, and may be subject to change. Since the South Baggs Project area is within overlapping winter range, this important wildlife habitat area cannot be avoided. There will be a site-specific EA prepared for each well during the APD, ROW, and Sundry Notice review process. The WGFD will be notified of every well and have the opportunity for providing input into the process. Site-specific information gathered during the field visits will be used during these site-specific reviews. The need for any additional site-specific information will also be evaluated during the APD review process.

Comment 12-8. Large or numerous development facilities are not a component of the South Baggs Project area. Developing an entirely new compressor facility is proposed, concentrated development facilities would not be practical.

Comment 12-9. Comment noted. Grazing practices on public lands within the South Baggs project area may be modified as deemed necessary by the BLM if such practices are detrimental to establishment of vegetation on disturbed areas or adversely effect other resource values.

Comment 12-10. As stated on Comment 12-5 above, the BLM believes that measures provided in the standard mitigation guidelines (see Appendix A), and mitigation measures provided by Merit (section 2.4.1.2 of the DEIS) and by environmental analysis are adequate for resource protection.

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Comment 12-11. Please see response to Comment 12-5 above.

Comment 12-12. The BLM believes that this EIS adequately discloses the potential impacts of the proposed project on all the surface resources of the South Baggs project area, and includes appropriate protection/mitigation for the affected surface resources. Required resource protection measures will be identified in the ROD and further specified during subsequent APD and ROW application reviews.

Comment 12-13. It is essential to recognize that no action does not mean that no oil and gas development would occur on federal lands. The no action alternative is the continuation of the existing situation, the present situation and the existing line. Continued recovery of oil and gas resources is part of the existing situation. Recovery of oil and gas resources is authorized by the Great Divide Resource Area RMP. To stop the development of oil and gas resources would not be in compliance with the RMP.

To deny all oil and gas activity on the valid leases in the South Baggs area, would constitute a breach of contract of the Operator's rights to conduct development activities on the leased lands. Authority for complete denial can be granted only by Congress, which can order the lease forfeited subject to compensation. The BLM can only suspend the lease pursuant to Section 39 of the Mineral Leasing Act pending consultation with Congress for a grant of authority to preclude drilling and provide compensation to the lessee.

Comment 12-14. Comment noted. As stated in the DEIS (section 1.5.4), the proposed natural gas production project is in conformance with management objectives and actions provided in the Great Divide Resource Area RMP.

Comment 12-15. Comment noted. The BLM believes that cumulative impacts have been adequately addressed in this EIS. The results of the southwest Wyoming evaluation indicate that an EIS analyzing the cumulative impacts of oil and gas development in southwest Wyoming is unnecessary.

The DEIS clearly described the proposed and reasonably foreseeable air pollutant emission sources included in the air quality impact assessment, identified potential cumulative air quality impacts, and listed analysis assumptions which "could lead to an under-estimation of potential impacts, but are beyond the scope of the cumulative air quality impact assessment for predicting 'reasonably foreseeable significant adverse effects on the human environment' (Appendix D). In addition, the Air Quality Impact Assessment Technical Support Document provided maps of the cumulative air quality impact analysis area (including air pollutant source locations and sensitive air quality area boundaries) and a complete listing of all modeled air pollutant emission source locations and characteristics. As clearly described in the DEIS text (3.2.2 Air Quality and 4.2.5 Cumulative Impacts), existing air pollutant emission sources were represented by the background air quality conditions or were specifically modeled as 'reasonably foreseeable' facilities.

Comment 12-16. Impacts from all known private land development as well as those from all known past, present, and reasonably foreseeable future actions are analyzed in this EIS. The
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DEIS considers all direct, indirect, and cumulative impacts for all affected resources on federal, state, and private lands and considers additional mitigation for federal lands. The BLM has considered the impacts of granting ROWs to access non-federal lands under the No Action Alternative.

Comment 12-17. Comment noted. The BLM believes that the mitigation measures and associated plans are adequately presented in the DEIS.

Comment 12-18. Comment noted. The BLM believes the mitigation and monitoring measures presented in the DEIS are adequate for identifying potential problem areas.

Comment 12-19. As clearly stated in the DEIS (sections 4.7.3.1.3 and 4.7.3.1.4) aerial and ground surveys were conducted to determine sage grouse and raptor populations and distributions. Additionally, the DEIS (section 4.8) discusses populations and distributions of special status wildlife species, to include aerial and ground survey data. BLM believes this survey data is adequate to implement monitoring and mitigation plans.

Comment 12-20. The mitigation measures and monitoring requirements found in Chapters 2 and 4 will be added to, modified, or selectively withheld by the authorized officer, based on site-specific information gathered during the on-site review of an application for permit to drill (APD) or right-of-way (ROW). The APD or ROW holder is required to comply with the surface use plan they submitted with their application and all conditions of approval or stipulations added to the permit at the time of approval. Compliance with the surface use plan, conditions of approval, and stipulations is mandatory. Noncompliance can result in fines or trespass fees.

Installation of any project is monitored by the BLM, both while being installed and after construction is completed.

All of BLM’s ROW files are open for public review, and all mineral lease files, except for some down-hole proprietary information, are also open to the public. Additionally, all monitoring results would be available for public review.

Comment 12-21. As clearly stated in the DEIS (Executive Summary) “Since BLM approved activities must comply with all applicable local, state, tribal and Federal air quality laws, statutes, regulations, standards and implementation plans, significant adverse impacts to air quality are not anticipated to occur from implementation of any of the alternative actions.” The technical basis for this conclusion were presented in the DEIS (3.2. Air Quality) and the Air Quality Impact Assessment Technical Support Document.

Comment 12-22. See response to comment 11-29.

Comment 12-23. See response to comment 11-50.

Comment 12-24. See response to comment 11-10.

Comment 12-25. The DEIS neither “downplays and ignores” the conservative visibility

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screening level analysis results, nor did the Bureau use “questionable methods to achieve these results.” Also see responses to comments 11-3, 11-7, 12-28, and 12-2.

Comment 12-26. See response to comment 11-4.

Comment 12-27. See response to comment 11-6.

Comment 12-28. It is not clear why some agencies prefer to use the visibility screening analysis (method 2) as part of their PSD Permit - New Source Review, but that method: 1) is very easy to apply; 2) represents a conservative (over-estimate) of potential visibility impacts; 3) provides a conservative buffer against possible perceptible impacts; and 4) represents the desired future condition of no manmade visibility impairment in mandatory Federal PSD Class 1 areas.

The DEIS did not confuse “the public by combining the two models without disclosing their results separately and then choosing to display only the results from Method 4 that diminish the visibility impacts.” Both the very conservative, but much simpler, visibility screening analysis (method 2), and the more refined visibility impact analysis (method 4) were performed and their results clearly reported separately in the DEIS.

However, your statements effectively demonstrate the general confusion among Federal land management agencies and the general public regarding the different purposes and interpretation techniques of visibility impact analyses for air regulatory purposes (permit review) and non-regulatory potential environmental impact analysis and disclosure (NEPA review). For air pollutant emission permitting, very specific project design information, very specific air regulatory agency analysis procedures, and Federal land management review and comment procedures have all been established (and must be followed) under the Clean Air Act and other applicable air quality regulatory directives. Once a permit is issued, the applicant has permission to operate. Under NEPA, project designs are often preliminary (enhancing a review of alternatives), the specific environmental impact analysis methods are selected based on the specific situation (although the overall analysis process is defined by NEPA), and although the decisionmaker may require specific mitigation measures, the applicant can not operate until all applicable operating permits (including air quality) have been issued. In summary, both processes use similar analysis techniques (monitored data, dispersion modeling, etc.), but their purpose and needs vary greatly.

Also see responses to comments 11-3, 11-7, 11-33, and 13-2.

Comment 12-29. Please see responses to comments 11-9 and 11-38.

Comment 12-30. Please see responses to comments 13-4 and 13-6.

Comment 12-31. To the extent the “NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken” (40CFR1500.1(b)), the comment that “all that is available are untested assumptions” is correct. However, air pollutant emission limits and ambient air quality monitoring requirements are the responsibility of the applicable air quality regulatory agency, based on their

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air pollutant emission permit analysis and approval. The U.S. Congress did not grant any Federal land management agency air quality regulatory authority. In fact, ever since the original Clean Air Act was passed (P.L. 159, dated July 14, 1955), it has been the declared policy of the U.S. Congress "... to preserve and protect the primary responsibilities of the States [Tribal] and local governments in controlling air pollution ...".

Comment 12-32. As clearly stated in the DEIS text (4.2.3.3 Alternative B), "... neither the State of Wyoming nor EPA have established HAP standards ...". Of six chemicals analyzed, only benzene exceeded the most restrictive 8-hour Pinellas County Air Pollution Control Board (Florida) Acceptable Ambient Concentration Level. Further analysis of the potential incremental long-term cancer risk for a Most Likely Exposure and a Maximally Exposed Individual due to benzene and formaldehyde indicated no potential for concern. Also see response to comment 12-31.

Comment 12-33. See response to comment 12-31.

Comment 12-34. Existing activities contributing to water quality reductions in the South Baggs project area are described in DEIS sections 3.4.2.1 and 3.4.2.2. Petroleum activities are not identified as the only cause of stream impairment. Rather, a number of factors, including high natural erosion rates in this arid climate, combine to reduce water quality. The BLM believes that project-specific and cumulative impacts to water quality are adequately addressed in DEIS.

Comment 12-35. While no point source discharges are anticipated at this time, your comment is noted, and the BLM concurs and would work with the WDEO/WQD to ensure that no point source discharges are authorized to "water quality limited segments."

Comment 12-36. The proposed project would be in compliance with all existing water quality standards (see DEIS section 2.1.4.2.6).

Comment 12-37. The DEIS (section 4.7.3.1.2, page 4-62, paragraph 3) clearly states that post-reclamation disturbance for crucial winter/yearlong range of the project area under the proposed action would be approximately 99.4 acres, not thousands of acres.

The BLM intends to do everything it can to mitigate the removal of sagebrush in the South Baggs project area and to protect sage grouse and the other species that depend upon this ecosystem. Numerous mitigation measures are outlined in the DEIS to this end. However, just as protection of wildlife habitat is a legitimate use of BLM lands, so is oil and gas development.

Comment 12-38. The DEIS discusses at length the impacts of the proposed project to wildlife species. These impacts and associated mitigations are presented in DEIS throughout sections 4.7 and section 4.9.

Comment 12-39. Baseline wildlife studies were conducted on the South Baggs project area and an extensive review of extant data was completed. Oil and gas exploration and development activities have been ongoing in the South Baggs area for some time, and the BLM realizes that the landscape will change from its existing characteristics under additional oil and gas development. To characterize such changes as an "industrial landscape" is an overstatement.

Comment 12-40. Comment noted. As stated in section 4.7.3.1.3 of the DEIS, available evidence indicates that sage grouse do not currently make use of the South Baggs project area. There are no records of leks within two miles of the project area, and transect surveys revealed no evidence of grouse use within the sagebrush habitat.

Comment 12-41. Comment noted. See response to comment 12-40.

Comment 12-42. The BLM believes that the DEIS adequately addresses potential impacts on sage grouse and that an informed decision can be made. See response to comment 12-40.

Comment 12-43. The USFWS is being consulted regarding the proper procedures for clearance for mountain plover. An updated biological assessment (BA) has been completed for the project area and adjacent lands. Information and opinions provided in the BA will be incorporated into the Record of Decision (ROD).

Comment 12-44. See response to comments 2-4 and 2-5.

Comment 12-45. Thank you for your comment. The BLM does follow USFWS guidelines for black-footed ferret surveys (see DEIS section 4.8.2.1). The USFWS is being consulted regarding possible changes for surveying Black-Footed Ferret. An updated biological assessment (BA) has been completed for the project area and adjacent lands. Information and opinions provided in the BA concerning the Black-Footed Ferret will be incorporated into the Record of Decision (ROD).

Comment 12-46. Comment noted.

Comment 12-47. Consultation with Native American government bodies is required by several laws. Consultation is guided by BLM Manual Handbook H—B160-1 General Procedures Guidance of Native American Consultation. In Wyoming, the BLM views consultation with Native Americans as an ongoing process. Native American cultural groups that may have a historical interest in the area were contacted to convey to the BLM any questions and/or concerns they may have regarding the South Baggs project. The BLM will continue to take the concerns of tribal representatives into account in developing management strategies for the South Bags area.

Comment 12-48. The BLM manages the public lands for multiple resources and believes that this EIS identifies that the use of the various resources can be balanced in a reasonable way.

COMMENT LETTER 13: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION 8

Comment Response: Entire Letter - Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.
RESPONSE TO COMMENTS

Comment 13-1. Thank you for taking the time to review the DEIS and for providing your comments. The BLM considers all comments during preparation of an EIS.

The BLM believes the procedures identified for monitoring, evaluation, review, and potential modification (e.g., changed mitigation actions) identified in the DEIS Reclamation Plan, (Appendix B) provide for adequate adaptive environmental management for most resources with the potential for significant impacts. The BLM does not believe an adaptive environmental management plan is necessary for air quality since no project-specific significant air quality impacts are anticipated, and in any event the BLM cannot implement specific air quality mitigation since we have no authority to do so. The following provides a brief summary of how the reclamation plan provides for adaptive environmental management.

The Reclamation Plan (DEIS Appendix B) involves components designed to protect or otherwise minimize impacts to many area resources including surface and ground waters, vegetation communities, wildlife, livestock grazing, recreation, and visual resources. While only the BLM and the South Baggs Operator are involved in evaluating reclamation success, the BLM believes the success criteria presented in DEIS, Appendix B are adequate and that reclamation success determinations do not require alternate agency and/or public involvement.

The BLM believes that an adaptive environmental management program for surface water resources in the South Baggs area may be appropriate since no formal, project-specific surface water quality or quantity monitoring program currently exists. However, the BLM believes existing surface water protection measures presented in this EIS would adequately protect these resources.

Comment 13-2. All air quality impact assessment materials presented in the DEIS represent the BLM’s preferred method of displaying the potential visibility degradation, and not the proponents’.

In addition, Table D-3 does not present the minimum number of days of potential (visibility) degradation. As clearly described in the DEIS text (4.2.5 Cumulative Impacts), “in reviewing these predicted cumulative impacts, it is important to understand the ‘reasonable, but conservative’ assumptions made regarding potential resource development. In developing this analysis, there is uncertainty regarding ultimate development (i.e., number of wells, equipment to be used, specific locations). The analysis was also based on a ‘reasonably foreseeable’ development scenario, including several conservative assumptions...” After detailing the conservative assumptions, the DEIS text (4.2.3.3 Alternative B) clearly concludes “Based on these numerous ‘reasonable, but conservative’ analysis assumptions, which may actually compound one another, the projected impacts represent an upper estimate of potential air quality impacts which are unlikely to actually be reached.” Also see response to comment [7-A3].

Comment 13-3. Thank you for your comment. The FEIS text (4.2.6 Mitigation Summary) and the Revised Air Quality Impact Assessment Technical Support Document text (Volume I - 3.0 NOx Mitigation) have been revised to include cost effectiveness information.

Comment 13-4. As required by NEPA (40CFR1502.16(h), the DEIS text clearly described “means to mitigate adverse environmental impacts, including applicant-committed mitigation, additional potential BLM-required mitigation, and other ‘mitigative opportunities’ outside the jurisdiction of BLM’s authority (4.2.6 Mitigation Summary). Although NEPA does require the lead agency (40CFR1505.3(c)(1) upon request, [to] inform cooperating or commenting agencies on progress carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision,” actual mitigation selection and implementation, and the use of “a formal Adaptive Environmental Management Plan,” are not required by NEPA. Mitigation measures (including monitoring) may be included by the decisionmaker to reduce potential significant adverse impacts in the ultimate Record of Decision.

Comment 13-5. Please refer to Comment Response 13-1 above.

Comment 13-6. As clearly stated in the DEIS text (Executive Summary) “Since Bureau approved activities must comply with all applicable local, state, tribal and Federal air quality laws, statutes, regulations, and implementation plans, significant adverse impacts to air quality are not anticipated to occur from implementation of any of the alternative actions.” The technical basis for this conclusion were presented in the DEIS (4.2 Air Quality) and the Air Quality Impact Assessment Technical Support Document (USDH- BLM 1999a).

The DEIS did not predict “a high potential for degradation” of visibility in sensitive areas, nor do “effective mitigation measures need to be defined to offset this potential degradation.” As clearly described in the DEIS text (Appendix D), “A conservative visibility screening level analysis indicated that proposed project operations might result in a perceptible (1.0 deciview) visibility reduction on very clear days at several of the PSD Class I and sensitive receptors, therefore a more refined potential visibility impact analysis was performed” and “As shown in Table D-3, the refined visibility impact analysis predicted that a ‘just noticeable change’ greater than 1.0 deciview would occur on a single day at only the PSD Class I Rawah Wilderness Area.” After detailing the conservative assumptions used in the refined visibility impact analysis, the DEIS clearly concluded “Based on these numerous ‘reasonable, but conservative’ analysis assumptions, which may actually compound one another, the projected impacts represent an upper estimate of potential air quality impacts which are unlikely to actually be reached.” Also see responses to comments 11-2 and 13-2.

Comment 13-7. Scaling factors were initially developed to account for well heater operation schedules provided by the field operators. In the case of Jonah II, Snyder Oil Company provided specific well heater operating cycle information. The dehydrator heaters were estimated to operate year-round, for at most 15 minutes per hour. The separator heaters were estimated to operate from October through April, for at most 15 minutes per hour. Scaling factors were used in the modeling to adjust full load emission rates to account for the heater operating schedules. Lacking similar specific operating cycle information, the dehydrator heaters in other well fields were assumed to operate year-round, for 30 minutes per hour, and separator heaters operated full time during the winter months (October – March).

In addition, the scaling factors developed for well heater schedules were used to adjust modeled well field emissions, based on the WDEQ-AQD recently permitted source inventory. Therefore, each set of scaling factors varies between each well field to account for sources that were included in the WDEQ-AQD emissions inventory.
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Comment 13-8. The Bridger transmissometer data base includes the category "number of readings not in average due to weather." All 24 hours in Julian day 146 were excluded due to weather. There is no code indicating exactly what the weather was during that hour although the relative humidity was at or above 93% for 17 hours. Since the measured visual extinction on day 146 is not known, then the refined visibility analysis (Method 4) cannot be applied.

Comment 13-9. As clearly reported in the Air Quality Impact Assessment Technical Support Document text (Volume II - 5.2 Visibility Impacts), "Any one-day and two-day gaps throughout the year are filled by interpolation of measured extinction values for the previous valid day and the following valid day. This brings the number of valid days for the Bridger Wilderness Area to 307 (267 + 16 + 14), and for Rocky Mountain National Park to 319 (276 + 19 + 24), providing nearly 84% and 87% data recovery, respectively."

In addition, Appendix E (b) - Daily Summary of Bridger Transmissometer Data indicated that approximately 65 per cent (2461 hours of the total 3765) of the invalid hours were weather related for which no visibility impact analysis can be performed. Similarly, Appendix E (b) - Daily Summary of Rocky Mountain National Park Transmissometer Data indicated that approximately 93 per cent (3479 hours of the total 3753) of the "invalid" hours were weather related.

This compares to only a 47 per cent valid 1995 nephelometer data recovery for the "Mt. Zirkel Wilderness Area Reasonable Attribution Study of Visibility Impairment" (Watson et al 1998), where the instrument was not operated 23 per cent of the year, 25 per cent of the possible data were effected by weather (even including measurements up to 95 per cent relative humidity), and nearly 4 per cent other invalid data. The theoretical maximum data recovery for reconstructed extinction from IMPROVE fine particulate samplers is only 29 per cent (two 24-hour samples per week).

The DEIS clearly used and reported the most complete and representative background optical data available to predict potential visibility impacts from the Proposed Action and Alternatives. In addition, it is just as possible the missing 13 to 16 per cent transmissometer data would not lead to an under-estimation of potential impacts as "could lead to an underestimation of potential impacts."

Comment 13-10. The concern that using MMS and observed data could lead to "double counting" of the precipitation (and therefore overestimation of the wet deposition) is not justified. The precipitation from MM5 was not added to the observed values. Rather, the data sets were merged in a way to give weight to the observed data in areas near the observational stations and to give weight to the MM5 data in areas where no observations were made. The MM5 data were adjusted to reflect the spatial patterns of precipitation in the PRISM (Parameter-elevation Regressions on Independent Slopes Model) data set, developed by Dr. Christopher Daly of Oregon State University (USDA-NRCS 1998).

Comment 13-11. The CALMET simulations did include terrain effects such as slope flows (ISLOPE=1) and terrain channeling (Froude number) effects (IFRAOJ=1). The kinematics effects option was not used (IKINE=0) in accordance with the recommended (default) model settings because this option may produce unrealistically high wind speeds in Layer 2 when relatively small grid sizes are used. Any fine-scale simulations with IKINE=1 could potentially contain inappropriate Layer 2 winds.

Comment 13-12. The context in which the data were used must be considered. In this project, unlike the Mount Zirkel Visibility Study, hourly MMS predictions on a 20-km grid were available to initialize the CALMET wind fields. As indicated in the Air Quality Impact Assessment Technical Support Document text (Volume II - 3.3 Meteorological Data Base), the QA/QC protocols followed at the secondary meteorological sites were less stringent than those required under EPA PSD monitoring guidelines (ARS 1997). There is also a question as to the slinig of some of the monitors and the representativeness of the data relative to larger scale flow patterns. Although the data might be quite suitable for the purposes for which they were collected, they do not meet the requirements for modeling purposes. Rather than potentially degrade the wind fields by introducing potentially non-representative data into a relatively data-rich environment (due to the MMS data), the secondary sites were not used.

Comment 13-13. The general IWAOI recommended procedure is to exclude puff splitting. The puff splitting option is available to address special cases where there is evidence of important shear effects, but for the CDWII Proposed Action and Alternatives, there is no reason to believe shear is important during the critical periods.

Comment 13-14. The actual particle size distribution of the potential particulate matter emissions in unknown. In reviewing data for mining operations, the particle sizes varied significantly based on the type of operation and the meteorological conditions. The use of a 10 micron diameter is one limit of the possible range. It is possible to model a lower range as well, and to put bounds on the uncertainty of the results due to this unknown factor. However, primary particulate matter was not a significant factor in the air quality impact analysis (including critical visibility 3rv,4); so this detailed further analysis is not necessary.

Comment 13-15. Because local ammonia monitoring data are not available, the CALPUFF default value of 1 ppb ammonia was used in the analysis. This value is designed as a conservative assumption, favoring the formation of secondary particulate matter and resulting visibility impacts. Assuming only 1 ppb background ammonia could limit gas to particle conversion, and understate potential visibility impacts.

Comment 13-16. The hourly relative humidity values used in the visibility calculations were derived from the nearest MM5 grid point to the receptor. A vertical average from the surface to 200 meters above the surface was used in the calculations. Although no detailed comparison of the MM5 relative humidity predictions to the measured values was done, the qualitative patterns produced by MM5 are reasonable. Given the known deficiencies of the observed data (i.e., limited or no data collected in the higher terrain areas, near-surface values only, potentially missing data, etc.), the comprehensive MM5 data were determined to be appropriate. Also see response to comment 13-17.

Comment 13-17. As clearly stated in the Air Quality Impact Assessment Technical Support Document text (Volume II - 4.3 Meteorological Modeling Options), "The relative humidity used to determine F_m has been computed as a 200-meter vertical average of the humidity predicted at the nearest MM5 grid point to the receptor. This allows for terrain effects on relative humidity to..."
be better evaluated than if surface-based relative humidity measurements at the NWS stations were used. The NWS stations tend to be located in flat areas at lower elevations than the sensitive areas of interest. The 200 m vertical average is intended as a compromise between the desire for a near-surface relative humidity value (reflecting the presence of the observer at the surface) and that for a vertical average to represent the distribution of the pollutants in the vertical sight path. Relative humidity measurements observed at the transmissometer location have the same limitation. This text also clearly stated “In CALPOST Method 2, the hygroscopic component of the background is subject to the same relative humidity adjustment as the modeled primary and secondary particulate matter concentrations.” Also see response to comment 13-16.