Appendix F

Air Quality Technical Support Document, Atlantic Rim Natural Gas Project and the Seminoe Road Gas Development Project, Wyoming

AIR QUALITY TECHNICAL SUPPORT DOCUMENT, ATLANTIC RIM NATURAL GAS PROJECT AND THE SEMINOE ROAD GAS DEVELOPMENT PROJECT, WYOMING

Prepared for

Bureau of Land Management,
Rawlins Field Office
Rawlins, Wyoming

Prepared by

TRC Environmental Corporation
Laramie, Wyoming

July 2006

AIR QUALITY TECHNICAL SUPPORT DOCUMENT, ATLANTIC RIM NATURAL GAS PROJECT AND THE SEMINOE ROAD GAS DEVELOPMENT PROJECT, WYOMING

Prepared for

Bureau of Land Management, Rawlins Field Office
Rawlins. Wyoming

By

TRC Environmental Corporation
Laramie, Wyoming
TRC Project 28822

July 2006

TABLE OF CONTENTS

LIST OF MAPS

LIST OF FIGURES

LIST OF FIGURES (CONTINUED)

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

µeq/l	Microequivalents per liter
µg/m^3	Micrograms per cubic meter
ANC	Acid neutralizing capacity
AQD	Air Quality Division
AQRV	Air Quality Related Value
AQTSD	Air Quality Technical Support Document
ARPA	Atlantic Rim Project Area
ARS	Air Resource Specialists
BLM	Bureau of Land Management
BTEX	Benzene, toluene, ethyl benzene, and xylene
BTNF-MA	Bridger Teton National Forest Management Area
C.F.R.	*Code of Federal Regulations*
CAAQS	Colorado Ambient Air Quality Standards
CBM	Coalbed methane
CDPHE/APCD	Colorado Department of Public Health and Environment/Air Pollution Control Division
CO	Carbon monoxide
COGCC	Colorado Oil and Gas Conservation Commission
DATs	Deposition Analysis Thresholds
Dv	Deciview
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FLAG	Federal Land Managers' Air Quality Related Values Workgroup
FLM	Federal Land Managers
GLEES	Glacier Lakes Ecosystem Experiments Site
HAP	Hazardous air pollutant
HNO3	Nitric acid
IDEQ	Idaho Division of Environment Quality
IDLH	Immediately Dangerous to Life or Health
IOGCC	Idaho Oil and Gas Conservation Commission
IWAQM	Interagency Workgroup on Air Quality Modeling
kg/ha/yr	Kilograms per hectare per year
LAC	Level of Acceptable Change

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

LOP	Life of Project
LULC	Land Use and Land Cover
MEI	Maximally Exposed Individual
MLE	Most Likely Exposure
MM5	Mesoscale Meteorological Model
MSUP	Master Surface Use Plan
N	Nitrogen
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act*
NIOSH	National Institute for Occupational Safety and Health
NO_2	Nitrogen dioxide
NO_3	Nitrate
NO_x	Oxides of nitrogen
NPS	National Park Service
NWS	National Weather Service
O_3	Ozone
PM_{10}	Particulate matter less than or equal to 10 microns in size
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in size
Ppb	Parts per billion
Protocol	Air Quality Impact Assessment Protocol
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance/Quality Control
REL	Reference exposure level
RfC	Reference Concentrations for Chronic Inhalation
RFD	Reasonably foreseeable development
RFFA	Reasonably foreseeable future actions
RMP	Resource Management Plan
ROW	Right of Way
S	Sulfur
SO2	Sulfur dioxide
SO4	Sulfate
SRPA	Seminoe Road Project Area
SWWYTAF	Southwest Wyoming Technical Air Forum
TEG	Tri-ethylene glycol
TRC	TRC Environmental Corporation
UDEQ-AQD	Utah Department of Environmental Quality-Air Quality Division
UDNR-DOGM	Utah Department of Natural Resources-Division of Oil, Gas, and Mining
URF	Unit risk factor
USDA	U.S. Department of Agriculture

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

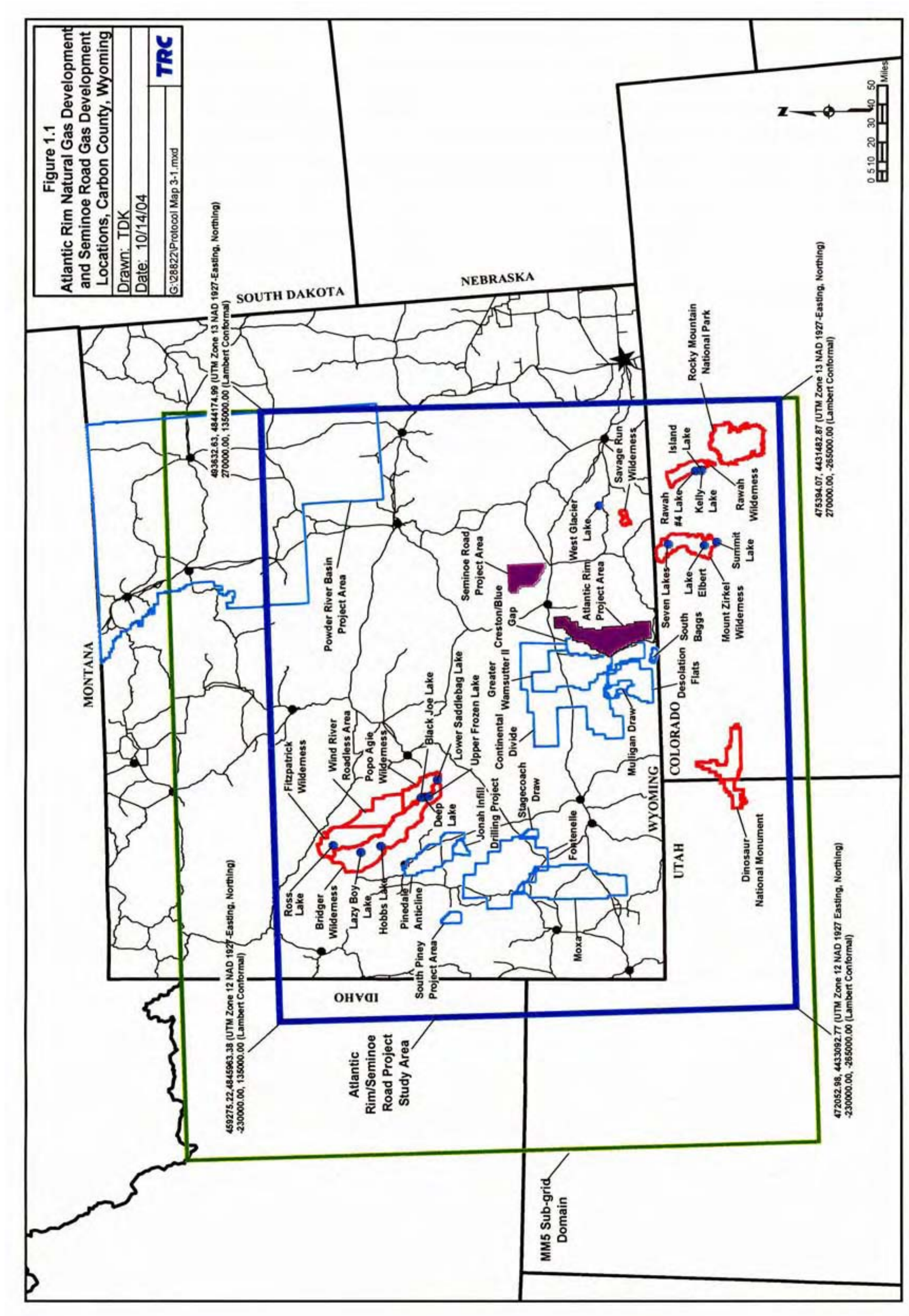
USGS	U.S. Geological Survey
VOC	Volatile organic compound
WAAQS	Wyoming Ambient Air Quality Standards
WAQSR	Wyoming Air Quality Standards and Regulations
WDEQ	Wyoming Department of Environmental Quality
WOGCC	Wyoming Oil and Gas Conservation Commission
WRAP	Western Regional Air Partnership

1.0 INTRODUCTION

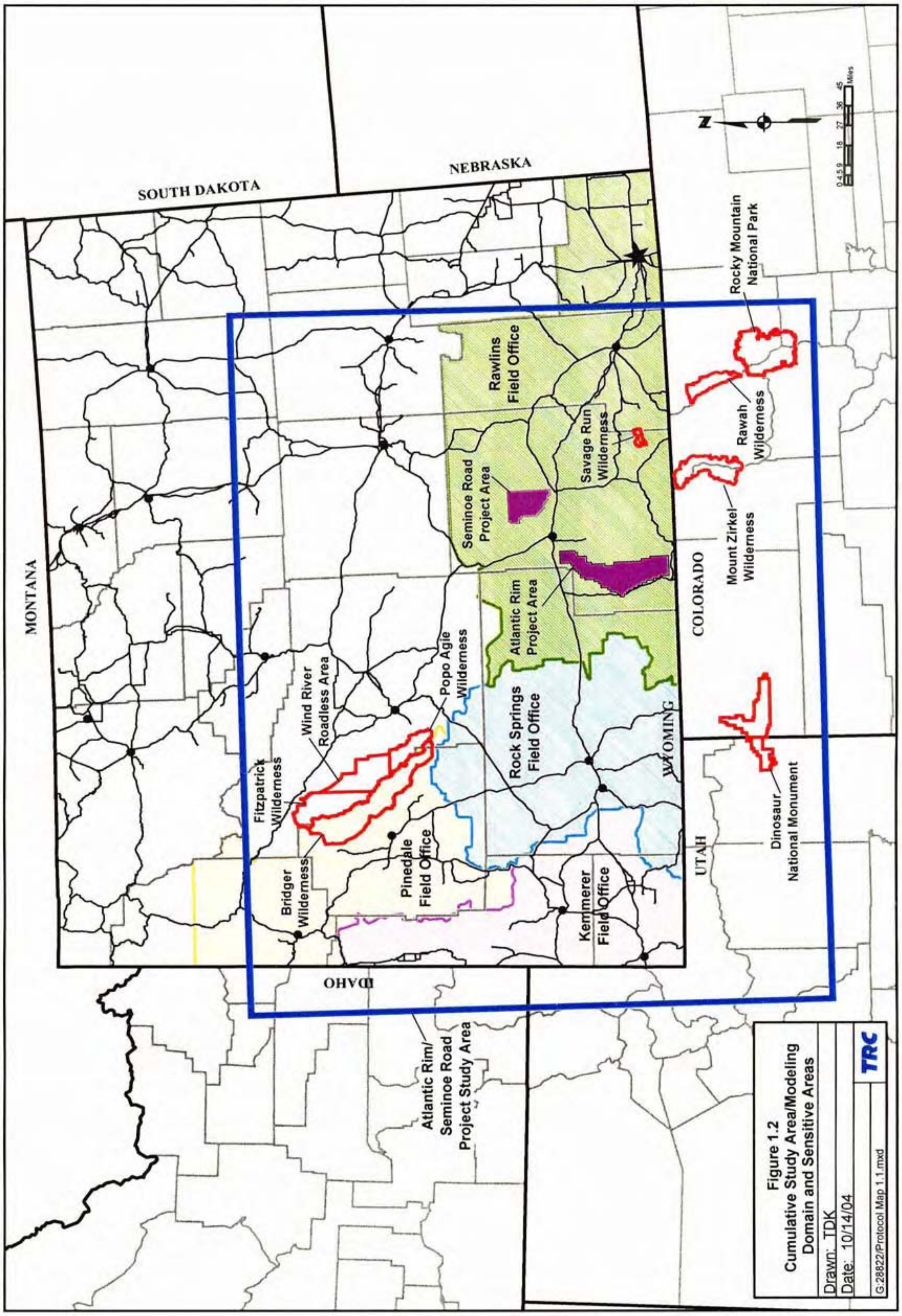
This Air Quality Technical Support Document (AQTSD) was prepared to summarize analyses performed to quantify potential air quality impacts from the proposed Atlantic Rim Natural Gas Project (Atlantic Rim Project) and the Seminoe Road Gas Development Project (Seminoe Road Project). The methodologies utilized in the analysis were originally defined in an air quality impact assessment protocol (Protocol) prepared by TRC Environmental Corporation (TRC) (2004) with input from the lead agency, U.S. Department of Interior Bureau of Land Management (BLM), and project stakeholders including the U.S. Environmental Protection Agency (EPA), National Park Service (NPS), U.S. Department of Agriculture Forest Service (USDA Forest Service), and Wyoming Department of Environmental Quality Air Quality Division (WDEQ-AQD). The AQTSD discusses those methodologies as necessary and summarizes the findings of the air emissions inventories and subsequent dispersion modeling analyses performed.

The Projects' location in south-central Wyoming required the examination of the Atlantic Rim Project, Seminoe Road Project, and cumulative source impacts in Wyoming, northwestern Colorado, and northeastern Utah, and southeastern Idaho within a defined study area, or modeling domain (Maps 1.1 and 1.2). The analysis area includes the area surrounding the proposed Project areas (ARPA and SRPA) and the federal Prevention of Significant Deterioration (PSD) Class I Bridger, Fitzpatrick, Mt. Zirkel, and Rawah Wilderness Areas and Rocky Mountain National Park, the Savage Run Wilderness Area (Federal Class II, Wyoming Class I), Dinosaur National Monument (Federal Class II, Colorado Class I SO_2 only), Popo Agie Wilderness Area (Federal Class II), and Wind River Roadless Area (Federal Class II). These areas were identified as sensitive areas of concern by project stakeholders during preliminary stakeholders meetings.

Impacts analyzed include those on air quality and air quality related values (AQRVs) resulting from air emissions from the 1) project sources within ARPA and SRPA, 2) non-project state-



Map 1.1 Atlantic Rim Natural Gas Development and Seminoe Road Gas Development Locations, Carbon County, Wyoming.



Map 1.2 Air Quality Study Area/Modeling Domain.

permitted and reasonably foreseeable future action (RFFA) sources within the study domain, and 3) non-project reasonably foreseeable development (RFD) within the study domain. Predicted pollutant concentrations were compared to applicable ambient air quality standards and PSD increments, and were used to assess potential impacts to AQRVs including visibility (regional haze) and acid deposition.

Project source emission inventories were performed in accordance with the Protocol and following WDEQ-AQD oil and gas inventory guidance. Non-project sources were inventoried as part of a cooperated effort between the BLM Wyoming State Office, the Atlantic Rim and Seminoe Road Project proponents, and the Jonah Infill Drilling Project proponents. These data were obtained for use in the Rawlins and Pinedale Resource Management Plan (RMP) revisions, the Atlantic Rim and Seminoe Road Project environmental impact statements (EIS) air quality analysis, and Jonah Infill Drilling Project EIS air quality analysis. This inventory is described in greater detail in Chapter 2.0 of this document.

The remainder of this document describes the Atlantic Rim Project and Seminoe Road Project in further detail, provides a description of the alternatives proposed and evaluated, and presents a list of tasks performed for the study. Chapter 2 specifically presents an overview of the emissions inventories. Descriptions of the near-field air quality impact assessment methodologies and impacts are provided in Chapter 3. Chapter 4 describes the analyses performed using the CALPUFF modeling system for assessment of direct Project and cumulative impacts at far field locations and within each Project area.

1.1 ATLANTIC RIM PROJECT DESCRIPTION

Anadarko E&P Company LP and other oil and gas companies (including Warren E&P, Inc., Double Eagle Petroleum, Julander Energy, and Merit Energy Company), collectively referred to as the Atlantic Rim Operators, propose to continue development of coalbed methane and natural gas resources located within the ARPA (Map 1.1). The proposed project area is generally located in Townships 13 through 20 North, and Ranges 89 through 92 West, Carbon County, Wyoming. The total project area encompasses approximately 310,335 acres, of which 199,558 acres are federal surface, 16,156 acres are State of Wyoming surface/mineral estate, and 94,621 acres are private surface.

The Proposed Action for this project involves the development of 2,000 new wells, including 1,800 coalbed methane wells and 200 natural gas wells, on 1,800 new surface locations. No alternatives besides the No Action Alternative are planned to be proposed at this time.

1.1.1 Well Development

Drilling operations are expected to last from approximately 6 to 10 years, with a life-of-project (LOP) of 20-30 years. Each drill site location would be approximately 200 feet by 200 feet in size, with surface disturbance at each wellsite approximately 1 acre. Temporary mud pits 15 feet by 35 feet would be constructed and reclaimed following completion operations. Drilling of the natural gas and coalbed methane wells, or water injection wells to be used in support of coalbed methane production operations, would utilize wither a conventional or truck-mounted drilling rig. Additional equipment and materials needed for drilling operations would be trucked to the wellsite. Each producing coalbed methane well would be drilled to a depth of 2,700 feet to 3,800 feet or deeper, depending upon the depth of the coal seam. Approximately 26 days would be required to develop each gas well (4 days to construct the well pad and access road, 2 days for rig-up, 10 days for drilling, 2-5 days for completion, 2 days for rig-down, and 3 days for pipeline construction). Methane gas may be flared or vented during the testing period at natural gas wells; no gas would be flared or vented at coalbed methane wells.

Drilling water injection wells would utilize gas well drilling equipment and personnel. The injection well depth is expected to range from 3,200 to 4,000 feet, and injection well drilling and completion is expected to require 7-14 days plus an additional 14 days to install surface equipment.

Non-productive gas wells would be reclaimed to the approximate landform existing prior to construction using techniques specified in the Master Surface Use Plan (MSUP). The ARPA is currently accessed by existing developed roads, and access to drill locations from the existing road network would be provided by new and upgraded roads when necessary. If drilling is productive, access roads to the wellsite would remain in place, and partial reclamation would be completed on segments of the well pad and access road right-of-way (ROW) no longer needed.

Gas-gathering pipeline systems (low pressure, from wellhead to central compressor station), produced water-gathering pipeline systems (low pressure, from wellhead to centralized conditioning facilities or injection facilities), and gas-delivery pipelines (high pressure, from compressor station to existing transmission pipelines) would be constructed in the ARPA. Reclamation of pipeline corridors would occur as soon as practical after pipeline construction was complete.

1.1.2 Well Operation

Coalbed methane wells would utilize electricity to power pumps required during well development and required to initiate and maintain production. Either natural gas- or propane-fired engines would be used to run generators on a temporary basis to power pumps at individual wells until electric distribution lines were installed. Atlantic Rim Operators may elect to use centrally located generation equipment at area compressor stations and an underground distribution system to provide necessary power to wellsites.

Natural gas wells would utilize natural gas-fired equipment at each wellsite. Several gas-fired heaters would operate intermittently to eliminate the freezing of separated liquids. A burner would also operate with the dehydrator to heat glycol solution. No electricity would be required at natural gas well locations. No wellsite compression would be utilized at natural gas wells.

1.1.3 Ancillary Facilities

Twelve compressor stations are planned for the ARPA. Each compressor station facility is expected to be constructed within a site area covering approximately 300 feet by 300 feet. About one-half of the compressor station site area will be affected by the construction, maintenance, and operation of the facility. The compressor station facility will be of all-weather construction, having a thick layer of gravel surfacing over the pad site. Topsoil will be removed and conserved for later reclamation activities. The compressor station will consist of an insulated header building containing a separator or a separator and allocation meters for each well. Additional equipment at each compressor station would include a tri-ethylene glycol (TEG) dehydration system, which would dry the gas to meet pipeline-quality specifications of the market pipeline. The water removed in the dehydration system will be pumped from the header building to an approved injection well.

Each compressor station will be sited to allow for the installation of one compressor initially, with the addition of up to two more compressors later in the life of the field. Each compressor would be driven by a natural gas engine that would be designed to meet all specifications established by the Wyoming Department of Environmental Quality, Air Quality Division (WDEQ-AQD).

1.2 ATLANTIC RIM ALTERNATIVES EVALUATED

The Proposed Action and the No Action Alternative were the only alternatives evaluated.

Modeling analyses were performed to quantify "near-field" pollutant concentrations, within and nearby the ARPA, from project related emissions sources for the Proposed Action. Near-field impacts are described in detail in Chapter 3.0.

Direct project and cumulative "far-field" modeling analyses were preformed for the Proposed Action and the No Action Alternative. These modeling scenarios assumed the maximum field emissions which could potentially occur concurrently (i.e., the final year of construction representing the maximum annual construction activity rate combined with nearly full-field production). Far-field impacts and their applicability to each alternative are described in greater detail in Chapter 4.0.

1.3 ATLANTIC RIM STUDY TASKS

The following tasks were performed for air quality and AQRVs impact assessment:

1. **Project Air Emissions Inventory.** Development of an air pollutant emissions inventory for the Atlantic Rim Project.
2. **Regional Air Emissions Inventory.** Development of an air pollutant emissions inventory for other regional sources not represented by background air quality measurements, including state-permitted sources, RFFA, and RFD.
3. **Project Near-Field Analysis.** Assessment of near-field air quality concentration impacts resulting from activities proposed within the ARPA.
4. **Far-Field Impact Analysis.** Assessment of air quality concentrations and AQRV impacts at far-field PSD Class I and sensitive PSD Class II areas resulting from Atlantic Rim Project and other regional sources inventoried under item 2 above.

1.4 SEMINOE ROAD PROJECT DESCRIPTION

Dudley & Associates, LLC (the project Proponent) notified the Bureau of Land Management (BLM) in September 2002 of its desire to continue to drill and develop coalbed methane natural gas wells and associated facilities at the Seminoe Road Pilot Plant Project Site. The project site is located in Carbon County, Wyoming just north of the Town of Sinclair in Townships 21, 22, 23, and 24 North, Ranges 84, 85, and 86 West, in Carbon County, Wyoming. The site is accessed via County Road 351, also known as the Seminoe Road. The SRPA is approximately 137,000 acres in size and involves a “checkerboard” mixture of mostly federal (49%) and private (49%), with some state land (1%). The BLM Rawlins Field Office manages the federal surface lands and the federal mineral estate. Dudley owns or controls oil and gas leasehold interests comprising approximately 80 percent of the ARPA.

The proposal includes drilling and developing up to 1,240 wells, on up to 785 well pad sites spaced at approximately 1 well pad site every 160 acres. Associated facilities include roads, gas and water collection pipelines, compressor stations, water disposal systems, and a power supply system. The total development, operation, and reclamation of the project is anticipated to occur over a period of between 30 and 40 years. The site will be developed in about 11 phases, with each phase requiring a separate environmental assessment.

1.4.1 Well Construction

The three main construction activities on the site which will cause disturbance include:

- Access roads,
- drill pads, and
- compressor sites.

Access will be needed to all drill sites and compressor sites. An effort will be made to utilize existing roads on site, however, these roads will also require upgrading. Approximately 2,195 acres will be disturbed by access roads. Initially, 2.2 acres will be disturbed for each drill pad. Once wells are completed, about 1.2 acres on each site will be reclaimed. There will be three compressor sites for the project, with each disturbing about 5 acres. Most water, gas, and utility lines will be buried within the access road disturbance corridor.

1.4.2 Well Development

Drilling will be conducted using conventional rotary drill rigs drilling vertical holes. Drilling and spacing unit of 160 acres (i.e. maximum of four wellsites per 640-acre section) is anticipated for the project area. The shallower Medicine Bow and Fox Hill coalbed methane extraction zones will be produced from separate wellbores; however, they will share a common wellsite with their

Mesaverde counterparts. With Medicine Bow and Fox Hill wellbores sharing a common well pad site with their Mesaverde counterparts, no additional land surface is planned to be disturbed in the course of the Medicine Bow and Fox Hill developments. It is estimated that 25% of the original total surface disturbance can be reclaimed as soon as practicable following drilling and well completion operations.

1.4.3 Ancillary Facilities

The initial analysis of gas produced from the pilot project wells in the Mesaverde coals indicates no need for nitrogen or CO_2 extraction facilities. Plans for construction of a compressor facility and a 20-mile long high-pressure pipeline were recently approved by the BLM (WY-030-EA2-229) to connect the pilot project wells to a sales transmission pipeline near Walcott, Wyoming. It is anticipated that two more compressor facilities/sites will be needed over the life of the project. In the event of field electrification, rights-of-way for utility lines will also be required.

1.4.4 Power Requirements

The Proposed Action includes electrification of the SRPA. It is anticipated that the lighting, pumps and compressors will utilize electricity from the existing power line which runs through the project site.

1.4.5 Reclamation

At the time of final reclamation, the following steps will occur as approved by the APDs for the project:

- decommissioning of facilities,
- removal of structures, facilities and roads,
- well abandonment and sealing,
- recontouring and regrading,
- soil replacement,

- mulching,
- permanent revegetation, and
- reclamation management and monitoring.

1.5 SEMINOE ROAD ALTERNATIVES EVALUATED

The Proposed Action, a non-electrification scenario, and the No Action Alternative were evaluated.

Modeling analyses were performed to quantify "near-field" pollutant concentrations, within and nearby the SRPA, from project related emissions sources for the worst-case scenario, which was the non-electrification scenario. Near-field impacts are described in detail in Chapter 3.0.

Direct project and cumulative "far-field" modeling analyses were preformed for the Proposed Action, the non-electrification, and the No Action Alternatives. These modeling scenarios assumed the maximum field emissions which could potentially occur concurrently (i.e., the final year of construction representing the maximum annual construction activity rate combined with nearly full-field production). Far-field impacts and their applicability to each alternative are described in greater detail in Chapter 4.0.

1.6 SEMINOE ROAD STUDY TASKS

The following tasks were performed for air quality and AQRVs impact assessment:

1. **Project Air Emissions Inventory.** Development of an air pollutant emissions inventory for the Seminoe Road Project.
2. **Regional Air Emissions Inventory.** Development of an air pollutant emissions inventory for other regional sources not represented by background air quality measurements, including state-permitted sources, RFFA, and RFD.
3. **Project Near-Field Analysis.** Assessment of near-field air quality concentration impacts resulting from activities proposed within the SRPA.

4. **Far-Field Impact Analysis.** Assessment of air quality concentrations and AQRV impacts at far-field PSD Class I and sensitive PSD Class II areas resulting from Seminoe Road Project and other regional sources inventoried under item 2 above.

2.0 EMISSIONS INVENTORY

2.1 ATLANTIC RIM PROJECT EMISSIONS

The Proposed Action includes the development of up to 2,000 gas wells. Ten percent (two hundred) of the wells would be traditional natural gas wells and the remaining 1,800 wells would be coal-bed methane wells.

Criteria pollutant and hazardous air pollutant (HAP) emissions were inventoried for construction and production activities and for ancillary facilities. Criteria pollutants include nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxides (SO_2), volatile organic compounds (VOCs), and particulate matter. Particulate matter is further classified by its size; PM_{10} refers to particulate matter less than 10 microns in diameter, and $PM_{2.5}$ refers to particulate matter less than 2.5 microns in diameter. HAPs include n-hexane, BTEX (benzene, toluene, ethylbenzene, and xylene), and formaldehyde. All emission calculations were completed in accordance with WDEQ-AQD Oil and Gas Guidance, Environmental Protection Agency's (EPA's) AP-42, or other accepted engineering methods (see Appendix A, Air Quality Impact Assessment Protocol).

2.1.1 Construction Emissions

Construction activities would be a source of primarily criteria pollutants. Emissions would occur from well pad and resource road construction and traffic, rig moving/drilling and associated traffic, completion activities and traffic, pipeline installation and traffic, and wind erosion during construction activities. A timeline illustrating the duration of construction activities for a single well is provided in Figure 2.1.

Well pad and resource road emissions would include fugitive PM_{10} and $PM_{2.5}$ emissions from 1) construction activities and 2) traffic to and from the construction site. NO_X, CO, VOC, and $PM_{10}/PM_{2.5}$ emissions would occur from diesel combustion in haul trucks and heavy construction

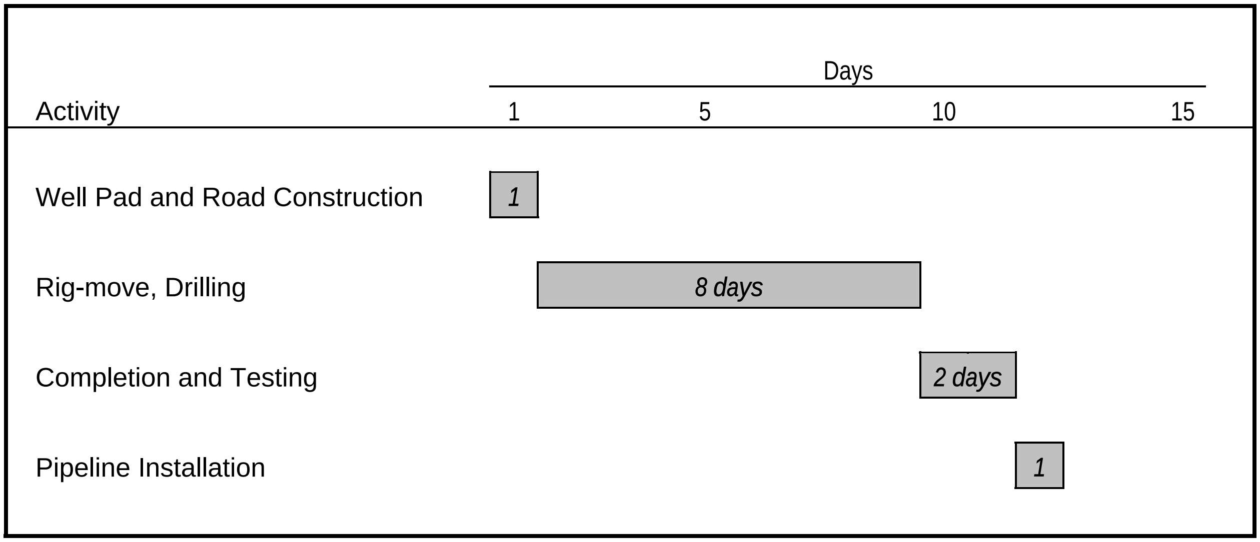


Figure 2.1 Approximate Single Well Development Timeline.

equipment. On unpaved roads within the Project Area, no water or chemical dust suppressant is proposed for fugitive dust control.

After the road and pad are prepared, rig moving/drilling would begin. Emissions would include fugitives from unpaved road travel to and from the drilling site, diesel haul truck tailpipes, and emissions from diesel drilling engines. Drilling engine emissions were calculated using manufacturer's emission data. Emissions from well completion and testing, which follow the drilling phase, would include fugitive PM_{10} and $PM_{2.5}$ emissions from unpaved road traffic and from diesel haul truck tailpipes.

Throughout the well construction process, particulate emissions occur from vehicle travel to and from wellsites on unpaved roads. Two roads access the field, 1) from Rawlins via County Road 605 and 2) from Baggs or Rawlins via Wyoming Highway 789. County Road 605 accesses the field from the north and Highway 789 accesses the field from the west. A shorter travel distance on unpaved roads results in lower pollutant emissions, and accessing the field via Wyoming Highway 789 results in a smaller number of vehicles miles traveled on unpaved roads.

No conventional natural gas wells have yet been drilled in the ARPA; therefore, no constituent analysis or data regarding flaring volumes are available. As a result, flared components and volumes developed for the Jonah Infill Project were utilized and are believed to represent a conservative estimate of future potential flaring operations at the 200 conventional natural gas wells proposed in the ARPA.

Pollutant emissions would also occur from pipeline installation activities, including general construction activities, travel on unpaved roads to and from the pipeline installation site, and diesel combustion from on-site construction equipment.

Fugitive dust (PM_{10} and $PM_{2.5}$) would occur during well pad construction, resource road construction, and pipeline installation due to wind erosion of disturbed areas. Wind erosion emissions were computed using methods described in EPA handbook AP-42 (EPA 1995). Rawlins 2002 meteorological data was used to quantify potential wind erosion events. Wind erosion emissions only occur for those periods when ambient wind speed exceeds a threshold value of 16.5 m/sec. Wind erosion emissions and output are shown in Appendix B1. See AP-42, Section 13.2.5, for further wind erosion calculation methodology.

A summary of construction emissions for a single wellsite is shown in Table 2.1. Construction emission calculations are provided in detail, showing all emission factors, input parameters, and assumptions, in Appendix B1. Calculations shown in Appendix B1 are available upon request.

2.1.2 Production Emissions

Traditional natural gas and coalbed methane well field production equipment and operations would be a source of criteria pollutants. Traditional natural gas wells would also be a source of HAPs; no HAPs would be emitted from the CBM wells. Pollutant emission sources during field production would include the following:

- travel via unpaved roads to and from wellsites within the field;
- diesel combustion emissions from haul trucks;

Table 2.1 Single Well Construction Emissions Summary.[1]

Pollutant	Well Pad and Access Road Construction		Rig Move and Drilling		Completion and Testing		Pipeline Construction		Total	
	lb/hr	tons/well	lb/hr	tons/well	lb/hr	tons/well	lb/hr	tons/well	lb/hr	tons/well
NO_x	2.96	0.025	20.79	0.998	4.61	0.055	1.69	0.008	30.04	1.086
CO	0.85	0.007	3.57	0.171	1.01	0.012	0.42	0.002	5.85	0.193
SO_2	0.31	0.003	2.21	0.106	0.30	0.004	0.19	0.001	3.02	0.113
PM_{10}	14.91	0.075	19.12	0.918	7.62	0.091	20.01	0.100	61.66	1.185
$PM_{2.5}$	3.71	0.019	4.90	0.235	1.43	0.017	4.07	0.020	14.12	0.292
VOC	0.30	4.865	0.60	0.029	0.38	0.005	0.13	0.001	1.40	4.899

[1] Traffic emissions based on travel to Jolly Rogers.

- separator heaters, condensate truck traffic, and condensate storage tank flashing (all associated with traditional natural gas wells);
- wind erosion of well pad disturbed area; and
- natural gas-fired reciprocating internal combustion compressor engines.

Fugitive PM_{10} and $PM_{2.5}$ emissions would occur from road travel and wind erosion from well pad disturbances. NO_X, CO, VOC, and $PM_{10}/PM_{2.5}$ emissions would occur from diesel combustion in haul trucks (condensate trucks) traveling in the field during production.

Twelve compressor stations are projected to be operational throughout the Atlantic Rim Project Area. The engines would be a source of NO_x, CO, VOCs, and formaldehyde. Each compressor station would have the following equipment: 1) two compressor engines, 1,206 horsepower (hp) CAT G3516TALE or similar engines; 2) two generator engines, 1,206 hp CAT G3516TA or similar engines; 3) one 10 MMSCFD glycol dehydration unit; and 4) one 400-bbl condensate storage tank. The dehydrator and condensate storage tanks would be a source of BTEX and n-hexane. The dehydrator heaters would be a source of NO_x and CO, and the dehydrator gas processing operations would be a source of VOC, BTEX, and n-hexane. Because 200 natural gas wells were included in the proposed action, emissions from the dehydrators operations were calculated using GRI-GLYCalc version 4.0. A gas analysis was developed for the calculations assuming 10% traditional natural gas and 90% CBM gas. Dehydrator emissions and the GRI-GLYCalc input and output are provided in Appendix B1. Calculations shown in Appendix B1 are available upon request.

Total maximum production emissions of criteria pollutants and HAPs occurring from a single CBM well and a single natural gas well are presented in Table 2.2. Production emission calculations are provided in detail, showing all emission factors, input parameters, and assumptions, in Appendix B1. These emissions were based on current WDEQ guidance at the time this analysis was completed. Calculations shown in Appendix B1 are available upon request.

Table 2.2 Single Well Production Emission Summary.

Well Configuration	Pollutant	Traffic Emissions Single Well (tpy)	Production Emissions Single Well (tpy)	Total Emissions Single Well (tpy)
CBM Well	NO_x	0.003	--	0.003
	CO	0.004	--	0.004
	SO_2	0.000	--	0.000
	PM_{10}	0.271	--	0.271
	$PM_{2.5}$	0.041	--	0.041
	VOC	0.002	--	0.002
	Benzene	--	--	0.000
	Toluene	--	--	0.000
	Ethylbenzene	--	--	0.000
	Xylene	--	--	0.000
	n-hexane	--	--	0.000
Traditional Gas Well	NO_x	0.003	0.219	0.222
	CO	0.004	0.046	0.050
	SO_2	0.000	0.000	0.000
	PM_{10}	0.590	0.010	0.600
	$PM_{2.5}$	0.089	0.010	0.099
	VOC	0.002	30.001	30.003
	Benzene	--	0.560	0.560
	Toluene	--	0.560	0.560
	Ethylbenzene	--	0.033	0.033
	Xylene	--	0.190	0.190
	n-hexane	--	3.060	3.060

[1] Traffic emissions based on travel to Jolly Rogers.

2.1.3 Total Field Emissions

Annual emissions in the ARPA under the Proposed Action are shown in Table 2.3. Emissions assume construction and production occurring simultaneously in the field and include one year of maximum construction emissions plus one year of production at maximum emission rates. Construction emissions were calculated based on the number of wells constructed per year and the type of well constructed. Production emissions were calculated based the total number of producing wells in the field. Total producing wells were equal to the difference in number of wells proposed and the number of well constructed per year.

Table 2.3 Estimated Atlantic Rim Project Annual Emissions Summary - Construction and Production.

Alternative/ Pollutant	Wells Development Rate	Annual Construction Emissions (tpy)	Total Proposed Wells	Total Producing Wells	Annual Production Emissions[1] (tpy)	Total Annual Emissions (tpy)
Proposed Action						
NOx	100	627.29	2,000	1,900	47.59	674.88
SO_2		65.13			0.17	65.30
PM10		696.64			423.14	1,119.77
$PM_{2.5}$		182.61			64.90	247.51
VOC		163.13			5,706.30	5,869.44

[1] Assumes 10% the producing wells are traditional and 90% are CBM.

2.2 SEMINOE ROAD PROJECT EMISSIONS

The Proposed Action for this project includes the development of 1,240 coal-bed methane wells on up to 785 well pad sites spaced at approximately 1 well pad site every 160 acres.

Criteria pollutant and HAP emissions were inventoried for construction and production activities and for ancillary facilities. Criteria pollutants include NO_x, CO, SO_2, VOCs, PM_{10}, and $PM_{2.5}$. All emission calculations were completed in accordance with WDEQ-AQD Oil and Gas Guidance, Environmental Protection Agency's (EPA's) AP-42, or other accepted engineering methods (See Appendix A, Air Quality Impact Assessment Protocol).

2.2.1 Construction Emissions

Construction activities would be a source of primarily criteria pollutants. Emissions would occur from well pad and resource road construction and traffic, rig moving/drilling and associated traffic, completion traffic, utility installation and traffic, and wind erosion during construction activities. A timeline illustrating the duration of construction activities for a single well is provided in Figure 2.2.

Well pad and resource road emissions would include fugitive PM_{10} and $PM_{2.5}$ emissions from 1) construction activities and 2) traffic to and from the construction site. NO_X, CO, VOC, and $PM_{10}/PM_{2.5}$ emissions would occur from diesel combustion in haul trucks and heavy construction equipment. Unpaved roads within the Project Area are proposed to be graveled, which reduces silt content of the roads and resultant emissions. No water or chemical dust suppressant is proposed on the graveled roads.

After the road and pad are prepared, rig moving/drilling would begin. Emissions would include those from unpaved road travel to and from the drilling site and from diesel drilling engines. Drilling engine emissions were calculated using manufacturer's emission data with engine requirements based on two depth ranges of wells drilled in the field. Emissions from the well completion phase, which follows the drilling phase, would include fugitive PM_{10} and $PM_{2.5}$ emissions from traffic and emissions from diesel haul truck tailpipe.

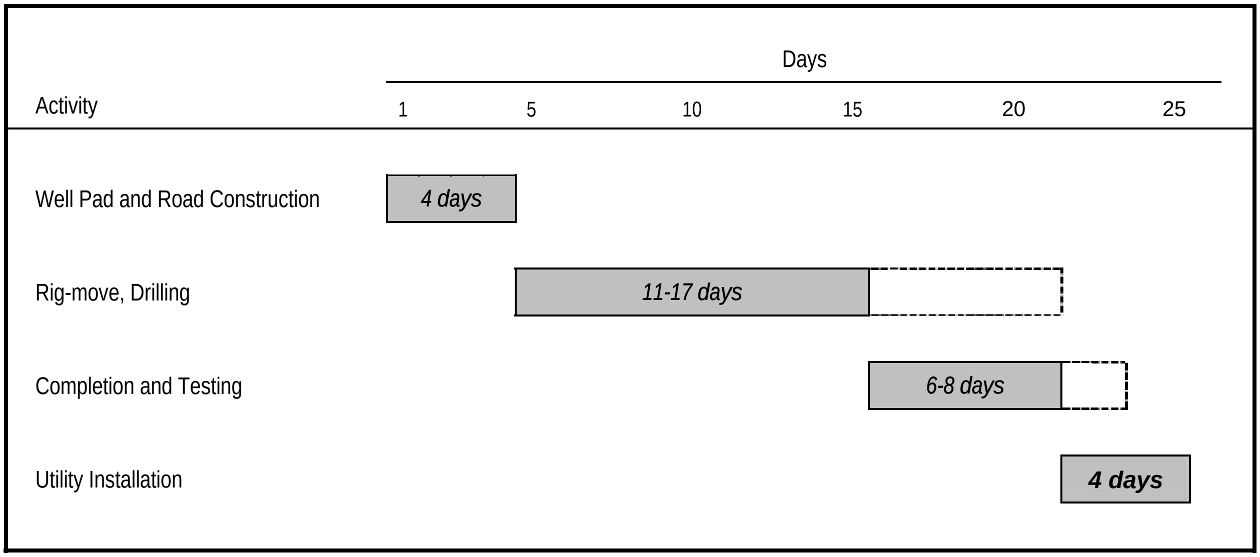


Figure 2.2 Approximate Single Well Development Timeline.

Pollutant emissions would also occur from utility installation activities, including general construction activities, travel on unpaved roads to and from the utility installation site, and diesel combustion from on-site construction equipment.

Fugitive dust (PM_{10} and $PM_{2.5}$) would occur during well pad construction, resource road construction, and utility installation due to wind erosion of disturbed areas. Wind erosion emissions were computed using methods described in EPA handbook AP-42 (EPA 1995). Rawlins 2002 meteorological data was used to quantify potential wind erosion events. Wind erosion emissions only occur for those periods when ambient wind speed exceeds a threshold value of 16.5 m/sec. Wind erosion emissions and output are shown in Appendix B2. See AP-42, Section 13.2.5, for further wind erosion calculation methodology.

A summary of construction emissions for a single wellsite are shown in Table 2.4. Construction emission calculations are provided in detail, showing all emission factors, input parameters, and assumptions, in Appendix B2. Calculations shown in Appendix B2 are available upon request.

2.2.2 Production Emissions

Coalbed methane well field production equipment and operations would be a source of criteria pollutants. Compressor engines would be a source of criteria pollutants and HAPs. All field production emissions were calculated for both the Proposed Action, which assumes that electric power will be supplied to the field in phases as the field is developed, and a nonelectrified scenario, which assumes no electric power will be available in the field over the LOP. Emissions from well equipment and compression equipment vary between these two scenarios.

Pollutant emission sources during field production would include the following:

- travel via collector and resource roads to and from wellsites within the field;
- diesel combustion emissions from haul trucks;
- wind erosion of well pad disturbed area;
- natural gas-fired reciprocating internal combustion compressor engines;
- natural gas-fired downhole pumps installed at each well outside of the field electrification boundary (under the Proposed Action); and
- natural gas-fired downhole pumps installed at each well, which remain for the life of the well (under the nonelectrified alternative).

Fugitive PM_{10} and $PM_{2.5}$ emissions would occur from road travel and wind erosion from well pad disturbances. NO_X, CO, VOC, and $PM_{10}/PM_{2.5}$ emissions would occur from diesel combustion in haul trucks traveling in the field during production.

There are three compressor stations projected to be operational throughout the Project Area. One compressor station is currently permitted under Wyoming Permit Number CT-2833. Emissions for the remaining two compressor stations were assumed to be identical to the permitted compressor station. Each compressor station would have the following equipment: 1) two compressor engines, 1,340 hp CAT Caterpillar 3516 LE or similar engines; and 2) one 20 MMSCFD glycol dehydration unit. Under the Proposed Action, one compressor station's

Table 2.4 Single Well Construction Emissions Summary.

	Well Pad and Access Road Construction		Rig Move and Drilling		Completion and Testing		Pipeline Construction		Total	
Pollutant	lb/hr	tons/well	lb/hr	tons/well	lb/hr	tons/well	lb/hr	tons/well	lb/hr	tons/well
NO_x	4.37	0.041	17.12	3.492	4.59	0.183	4.16	0.031	30.23	3.748
CO	1.20	0.011	2.94	0.600	0.99	0.040	1.55	0.010	6.69	0.661
SO_2	0.47	0.004	1.82	0.371	0.30	0.012	0.41	0.003	3.01	0.391
PM_{10}	29.79	0.592	3.34	0.582	2.24	0.071	7.48	0.145	42.85	1.388
$PM_{2.5}$	6.38	0.123	2.16	0.426	0.61	0.022	2.03	0.036	11.18	0.606
VOC	0.40	0.004	0.49	0.100	0.37	0.015	0.43	0.003	1.70	0.122

engines would be a source of NO_x, CO, VOCs, and formaldehyde, and the remaining two compressor stations would be electrified. The dehydrator would be a source of NO_x and CO. No significant HAPs would be emitted from the dehydrator.

Within the Project Area, the wells would be developed in a ring-like progression. Each year, the majority of the wells would be drilled within that year's development boundary. Under the Proposed Action, these wells would be electrified and would have no emissions from the downhole pumps installed at each well. However, each year there would be a small number of pilot wells drilled outside of the electrification boundary; these wells would not be electrified and would require natural gas-fired downhole pumps. Under the nonelectrified alternative, all wells would require natural gas-fired downhole pumps.

Total production emissions of criteria pollutants and HAPs occurring from a single electrified well and from a single non-electrified well are presented in Table 2.5. Production emission calculations are provided in detail, showing all emission factors, input parameters, and assumptions, in Appendix B2. Calculations shown in Appendix B2 are available upon request.

2.2.3 Total Field Emissions

Annual emissions in the SRPA under the Proposed Action and non-electrification alternative are shown in Table 2.6. Emissions assume construction and production occurring simultaneously in the field and include one year of maximum construction emissions plus one year of production at maximum emission rates. Construction emissions were calculated based on the number of wells constructed per year and the type of well constructed. Production emissions were calculated based the total number of producing wells in the field. Total producing wells were equal to the difference in number of wells proposed and the number of well constructed per year.

Table 2.5 Single Well Production Emissions Summary.

Well Configuration	Pollutant	Traffic Emissions Single Well (tpy)	Production Emissions Single Well (tpy)	Total Emissions Single Well (tpy)
Electrified Well	NO_x	0.0003	--	0.0003
	CO	0.0004	--	0.0004
	SO_2	0.0000	--	0.0000
	PM_{10}	0.2842	--	0.2842
	$PM_{2.5}$	0.0426	--	0.0426
	VOC	0.0003	--	0.0002
	Formaldehyde	--	--	0.0000
	Benzene	--	--	0.0000
	Toluene	--	--	0.0000
	Ethylbenzene	--	--	0.0000
	Xylene	--	--	0.0000
	n-hexane	--	--	0.0000
Non-Electrified Well	NO_x	0.0003	1.0000	1.0003
	CO	0.0004	2.9800	2.9804
	SO_2	0.0000	--	0.0000
	PM_{10}	0.2842	--	0.2842
	$PM_{2.5}$	0.0426	--	0.0426
	VOC	0.0002	1.0000	1.0002
	Formaldehyde	--	0.0500	0.0500
	Benzene	--	--	0.0000
	Toluene	--	--	0.0000
	Ethylbenzene	--	--	0.0000
	Xylene	--	--	0.0000
	n-hexane	--	--	0.0000

Table 2.6 Estimated Seminoe Road Project Annual Emissions Summary - Construction and Production.

Alternative/ Pollutant	Wells Developed	Annual Construction Emissions (tpy)	Total Proposed Wells	Total Producing Wells	Wells Outside Electrification Boundary	Annual Production Emissions[1] (tpy)	Total Annual Emissions (tpy)
Proposed Action[2]							
NO_x	129	309.39	1,240	71,111	9	9.35	318.74
SO_2		42.15				0.0098	42.16
PM_{10}		199.54				315.77	515.31
$PM_{2.5}$		73.75				47.27	121.02
VOC		20.87				9.17	30.05
Non-Electrified Case[3]							
NO_x	129	309.39	1,240	1,111	1,111	1,111.35	1,420.74
SO_2		42.15				0.0098	42.16
PM_{10}		199.54				315.77	515.31
$PM_{2.5}$		73.75				47.27	121.02
VOC		20.87				1,111.17	1,132.05

1 Production emissions are taken from an average of the 3 most active years, 2008-2010.
2 Includes emissions from wells outside electrification boundary in year 2009.
3 Includes down-hole pump emissions at all producing wells.

2.3 REGIONAL EMISSIONS INVENTORY

An emissions inventory of industrial sources within the Atlantic Rim/Seminoe Road cumulative modeling domain was prepared for use in the cumulative air quality analysis. The modeling domain included portions of Wyoming, Colorado, Utah, and Idaho (see Map 1.1). Industrial sources and oil and gas wells permitted within a defined time frame through state air quality regulatory agencies and state oil and gas permitting agencies were first researched. The subset of these sources which had begun operation as of the inventory end-date was classified as State-Permitted Sources, and those not yet in operation were classified as RFFA. Also included in the regional inventory were industrial sources proposed under NEPA in the State of Wyoming. The developed portions of these projects were assumed to be either included in monitored ambient background or included in the state-permitted source inventory. The undeveloped portions of projects proposed under NEPA were classified as RFD. In accordance with definitions agreed upon by BLM, EPA, WDEQ-AQD, and USDA Forest Service for use in EIS projects, RFD was defined as 1) the NEPA-authorized but not yet developed portions of Wyoming NEPA projects, or 2) not-yet-authorized NEPA projects for which air quality analyses were in progress and for which emissions had been quantified.

Figure 2.3 shows the regional inventory area with NEPA project areas, and a summary of the Regional Inventory is shown in Table 2.7. Values presented in Table 2.7 represent the change in emissions between the inventory start date (January 1, 2001) and the inventory end-date (March 31, 2004).

The inventory methodologies used to compile the regional source emissions inventory are provided in Appendix C and include a description of the data collected, the period of record for the data collected, inclusion and exclusion methodology, stack parameter processing methods, and the state-specific methodologies required due to significant differences in the content and completeness of data obtained from each state.

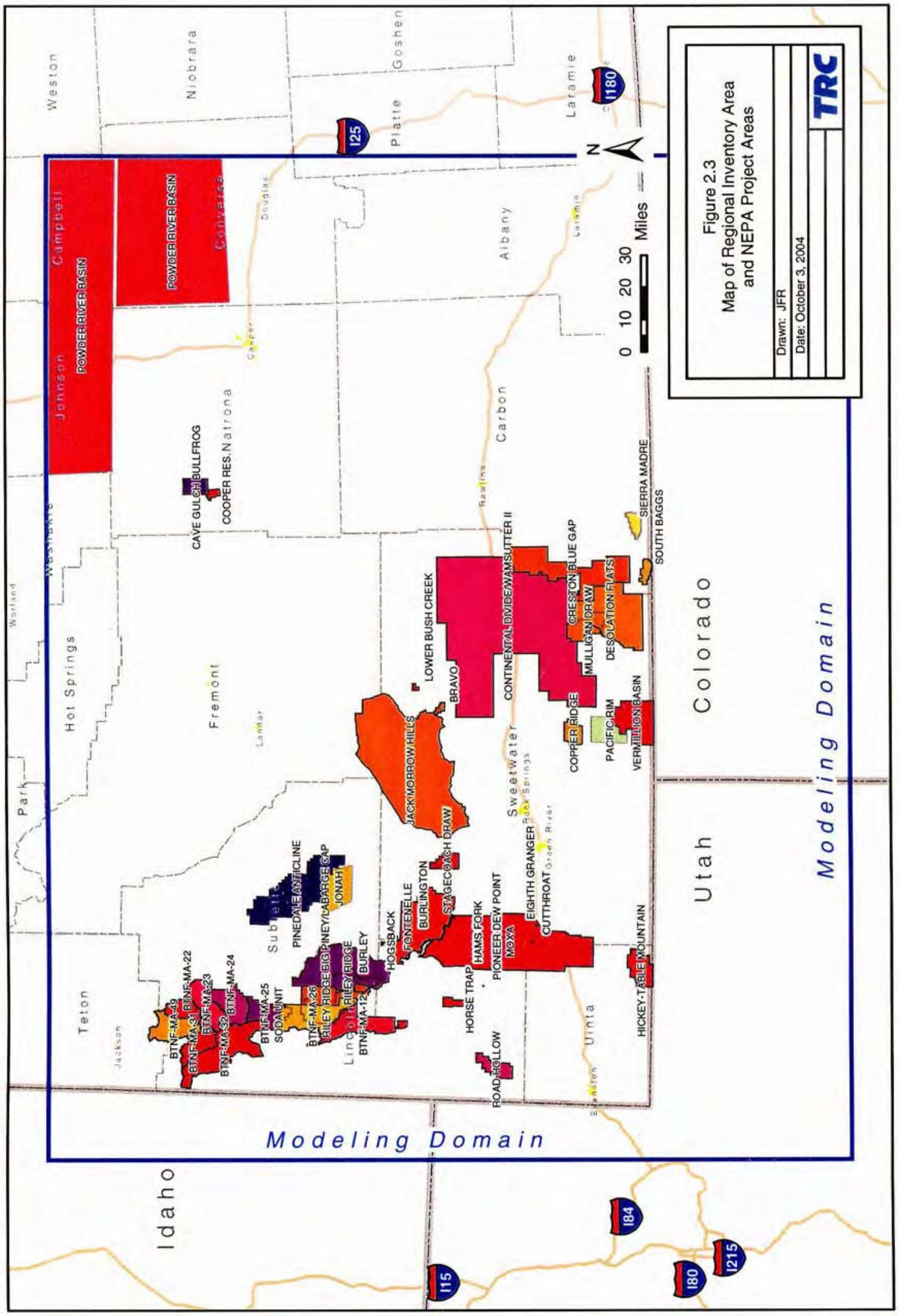


Figure 2.3 Regional Inventory Area and Included NEPA Project Areas.

Table 2.7 Regional Inventory Summary of Emissions Changes from January 1, 2001 to March 31, 2004.

Source/Category	Number of Included Sources	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Colorado					
Excluded	353	--	--	--	--
RFD	0	--	--	--	--
RFFA	0	--	--	--	--
State Permitted	35	495.0	16.1	218.7	116.5
Idaho					
Excluded	53	--	--	--	--
RFD	0	--	--	--	--
RFFA	0	--	--	--	--
State Permitted	3	94.73	93.67	13.62	13.62
Utah					
Excluded	437	--	--	--	--
RFD	0	--	--	--	--
RFFA	0	--	--	--	--
State Permitted[1]	12	257.6	4.8	(283.6)	(283.6)
Wyoming					
Excluded	1369	--	--	--	--
RFD	44	6,224.2	55.5	48.1	48.1
RFFA	164	4,568.8	(1,394.3)	(833.6)	(330.0)
State Permitted[1]	91	2,020.72	3.6	36.6	20.4
Total					
Excluded	2,212	--	--	--	--
RFD	44	6,224.2	55.5	48.1	48.1
RFFA	164	4,568.8	(1,394.3)	(833.6)	(330.0)
State Permitted[1]	141	2,868.0	118.2	(14.8)	(133.1)

3.0 NEAR-FIELD MODELING ANALYSES

3.1 MODELING METHODOLOGY

A near-field ambient air quality impact analysis was performed to quantify the maximum criteria pollutant (PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and ozone [O_3]) and HAP (benzene, toluene, ethylbenzene, xylene, n-hexane, and formaldehyde) impacts that could occur within and near the ARPA and SRPA. These impacts would result from emissions associated with construction and production activities, and are compared to applicable ambient air quality standards, and significance thresholds. All modeling analyses were performed in accordance with the Protocol presented in Appendix A with input from the BLM and members of the air quality stake holders' group, including the EPA, USDA Forest Service, and WDEQ-AQD.

The EPA's proposed guideline dispersion model, AERMOD (version 02222), was used to assess near-field impacts of criteria pollutants PM_{10}, $PM_{2.5}$, CO, NO_2 and SO_2, and to estimate short-term and long-term HAP impacts. This version of AERMOD utilizes the PRIME building downwash algorithms, which are the most current algorithms for modeling applications where aerodynamic building downwash is a concern. One year of Rawlins meteorology data was used with the AERMOD dispersion model to estimate these pollutant impacts. O_3 impacts were estimated from a screening methodology developed by Scheffe (1988) that utilizes NOx and VOC emissions ratios to calculate O_3 concentrations. For each pollutant, the magnitude and duration of emissions from each project phase (i.e., construction or production) emissions activity were examined to determine the maximum emissions scenario modeled.

3.2 METEOROLOGY DATA

One year of surface meteorological data, collected in Rawlins airport for the year of 2002, was used in the analysis. A wind rose for these data is presented in Figure 3.1.

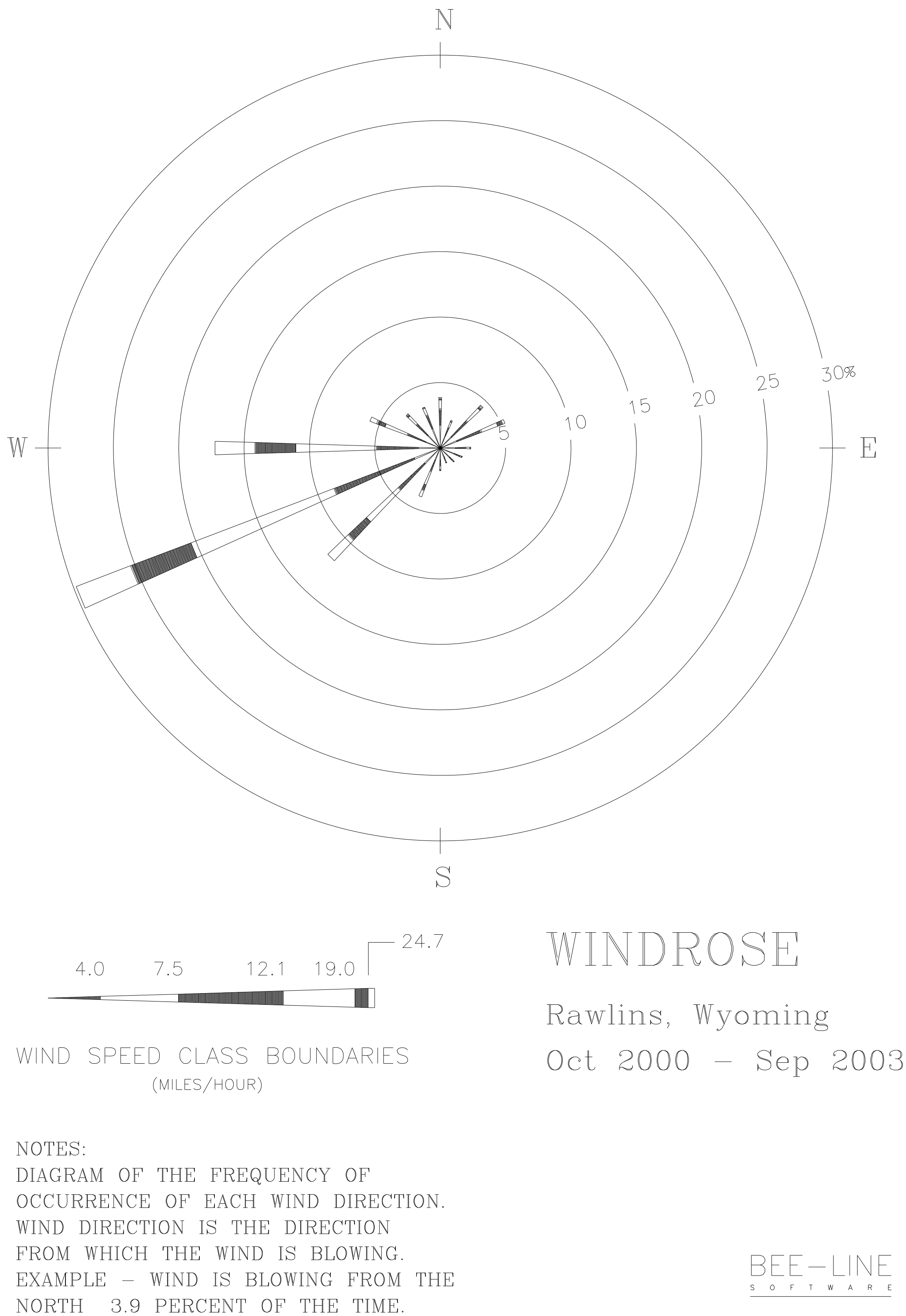


Figure 3.1 Wind Rose, Rawlins, Wyoming, 2000-2003.

The Rawlins surface meteorological data included the standard National Weather Service (NWS) hourly surface measurements of wind speed, wind direction, and temperature. These data were processed using the AERMET preprocessor to produce a dataset compatible with the AERMOD dispersion model. AERMET was used to combine the Rawlins surface measurements with twice daily sounding data from Riverton, Wyoming.

3.3 BACKGROUND POLLUTANT CONCENTRATIONS

Monitored background criteria pollutant concentration data deemed representative of the study area by stakeholders were added to concentrations modeled in the near-field analysis to establish total pollutant concentrations for comparison to ambient air quality standards. The most representative monitored regional background concentrations available for criteria pollutants are shown in Table 3.1.

3.4 ATLANTIC RIM CRITERIA AND HAP POLLUTANT IMPACT ASSESSMENT

The near-field criteria pollutant impact assessment was performed to estimate maximum potential impacts of PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, and O_3 from project emissions sources including wellsite and compressor station emissions. Maximum predicted concentrations in the vicinity of project emissions sources are compared with the WAAQS, NAAQS, and applicable PSD Class II increments shown in Table 3.2. This NEPA analysis compared potential air quality impacts from the proposed alternatives to applicable ambient air quality standards and PSD increments. The comparisons to the PSD Class I and II increments were intended to evaluate a threshold of concern for potential impacts and does not represent a regulatory PSD increment consumption comparison. Such a regulatory analysis is the responsibility of the state air quality agency (under EPA oversight) and would be conducted during permitting process.

In addition, emissions of Hazardous Air Pollutants (HAPs) including benzene, toluene, ethylbenzene, xylene (BTEX), n-hexane, and formaldehyde were also analyzed from project emission sources. The HAPs analysis is further discussed in Section 3.4.6.

Table 3.1 Near-Field Analysis Background Ambient Air Quality Concentrations ($\mu g/m^3$).

Pollutant	Averaging Period	Measured Background Concentration
Carbon monoxide (CO)[1]	1-hour	3,336
	8-hour	1,381
Nitrogen dioxide (NO_2)[2]	Annual	3.4
Ozone (O_3)[3]	1-hour	75.2
	8-hour	75.2
PM_{10}[4]	24-hour	33
	Annual	16
$PM_{2.5}$[4]	24-hour	13
	Annual	5
Sulfur dioxide (SO_2)[5]	3-hour	132
	24-hour	43
	Annual	9

1 Data collected by Amoco at Ryckman Creek for an 8-month period during 1978-1979, summarized in the Riley Ridge EIS (BLM 1983).
2 Data collected at Green River Basin Visibility Study site, Green River, Wyoming, during period January-December 2001 (Air Resource Specialists [ARS] 2002).
3 Data collected at Green River Basin Visibility Study site, Green River, Wyoming, during period June 10, 1998, through December 31, 2001 (ARS 2002).
4 Data collected by WDEQ-AQD at Emerson Building, Cheyenne, Wyoming, Year 2001, second highest concentrations are listed for short-term (24-hour) averages.
5 Data collected at LaBarge Study Area, Northwest Pipeline Craven Creek Site 1982-1983.

Table 3.2 Ambient Air Quality Standards and Class II PSD Increments ($\mu g/m^3$).

Pollutant/ Averaging Time	Ambient Air Quality Standards		
	National	Wyoming	PSD Class II Increment
Carbon monoxide (CO)			
1-hour[1]	40,000	40,000	--
8-hour[1]	10,000	10,000	--
Nitrogen dioxide (NO_2)			
Annual[2]	100	100	25
Ozone (O_3)			
1-hour [1]	235	235	--
8-hour[3]	157	157	--
PM_{10}			
24-hour[1]	150	150	30
Annual[2]	50	50	17
$PM_{2.5}$			
24-hour[1,4]	65	65	NA
Annual [2,4]	15	15	NA
Sulfur dioxide (SO_2)			
3-hour[1]	1,300	1,300	512
24-hour[1]	365	260	91
Annual[2]	80	60	20

1 No more than one exceedance per year.
2 Annual arithmetic mean.
3 Average of annual fourth-highest daily maximum 8-hour average.
4 Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Since $PM_{10}/PM_{2.5}$ emissions are greatest during the resource road/well pad construction phase of field development, construction emissions sources were modeled to determine compliance with the $PM_{10}/PM_{2.5}$ ambient air quality standards. SO_2 emissions are greatest from well drilling operations during construction and that phase development is modeled for SO_2. NO_x and CO emissions are greatest during well production; primarily from compressor stations; therefore, the NO_X and CO analysis was performed for the production phase.

O_3 impacts were estimated using the screening methodology developed by Scheffe (1988) which utilizes NO_x and VOC emissions ratios to calculate O_3 concentrations. NO_x and VOC emissions are greatest during production activities, and these emissions were used to estimate O_3 impacts.

3.4.1 $PM_{10}/PM_{2.5}$

Maximum localized $PM_{10}/PM_{2.5}$ impacts would result from well pad and road construction activities as well as wind erosion. A worst-case modeling scenario consisted of a well pad and a 2.0-mi resource road using the emissions estimates provided in Section 2.1.1. As illustrated in Figure 3.2, model receptors were placed beginning 200-m from the edge of the well pad and road at 50-m intervals along the first row and at 100-m intervals out to 1-km. Flat terrain was assumed. Volume sources were used to represent emissions from well pads and roads. Hourly emission rate adjustment factors were applied to limit construction emissions to daytime hours, and modeling was conducted March 1 through October 31 to reflect 8 months per year of construction operations. AERMOD was used to model each scenario 36 times, once at each of 36 10º wind direction rotations, to ensure that impacts from all directional layout configurations and meteorological conditions were assessed. Wind erosion emissions were modeled for all hours where the wind speed exceeded a threshold velocity. Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D1. Modeling files available upon request.

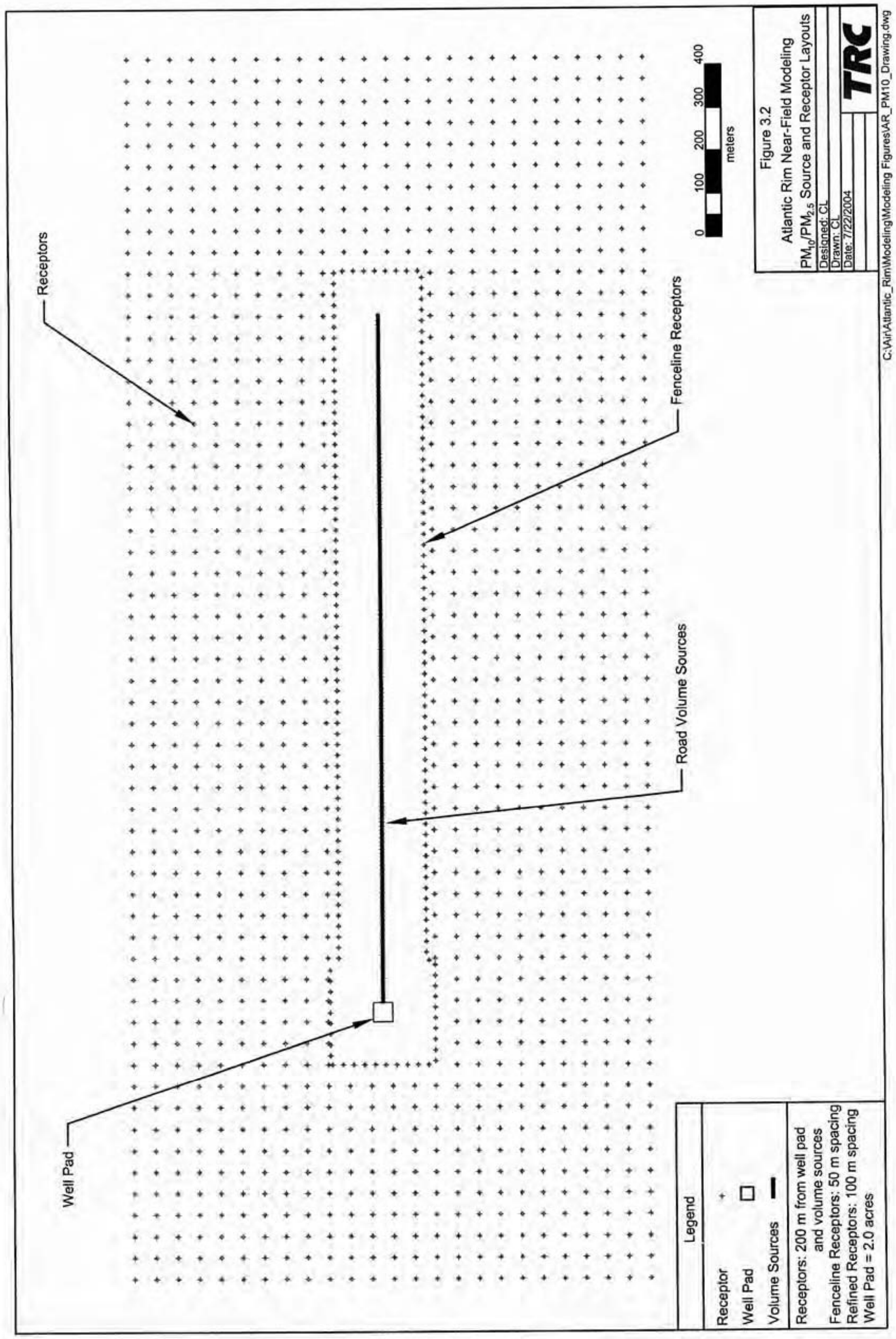


Figure 3.2 Atlantic Rim Near-field $PM_{10}/PM_{2.5}$ Source and Receptor Layouts.

Table 3.3 presents the maximum modeled PM_{10}/$PM_{2.5}$ concentrations for all well pad scenarios. When the maximum modeled concentration was added to representative background concentrations, it is demonstrated that PM_{10} and $PM_{2.5}$ concentrations comply with the WAAQS and NAAQS for PM_{10} and $PM_{2.5}$.

Emissions associated with temporary construction activities do not consume PSD Increment, therefore, impacts from temporary PM_{10} emissions from well pad and road construction are not compared to Class II PSD increments.

3.4.2 SO_2

Emissions from construction drilling operations would result in maximum SO_2 emissions of any development phase and were therefore analyzed in near-field modeling. The modeling scenario developed included a drill rig at the center of a pad, with model receptors beginning 200-m from the well pad at 50-m intervals along the first row and at 100-m intervals out to 1-km. Drill rigs were modeled as point sources. Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D1. Modeling files available upon request. Figure 3.3 illustrates the modeling configuration used for drill rig SO_2 emissions.

Table 3.3 Maximum Modeled PM_{10}/$PM_{2.5}$ Concentrations, Atlantic Rim Project.

Pollutant	Averaging Time	Direct Modeled ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Predicted ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	24-Hour	20.8	33	53.8	150	150
	Period	3.7	16	19.7	50	50
$PM_{2.5}$	24-Hour	7.0	13	20.0	65	65
	Period	1.0	5	6.0	15	15

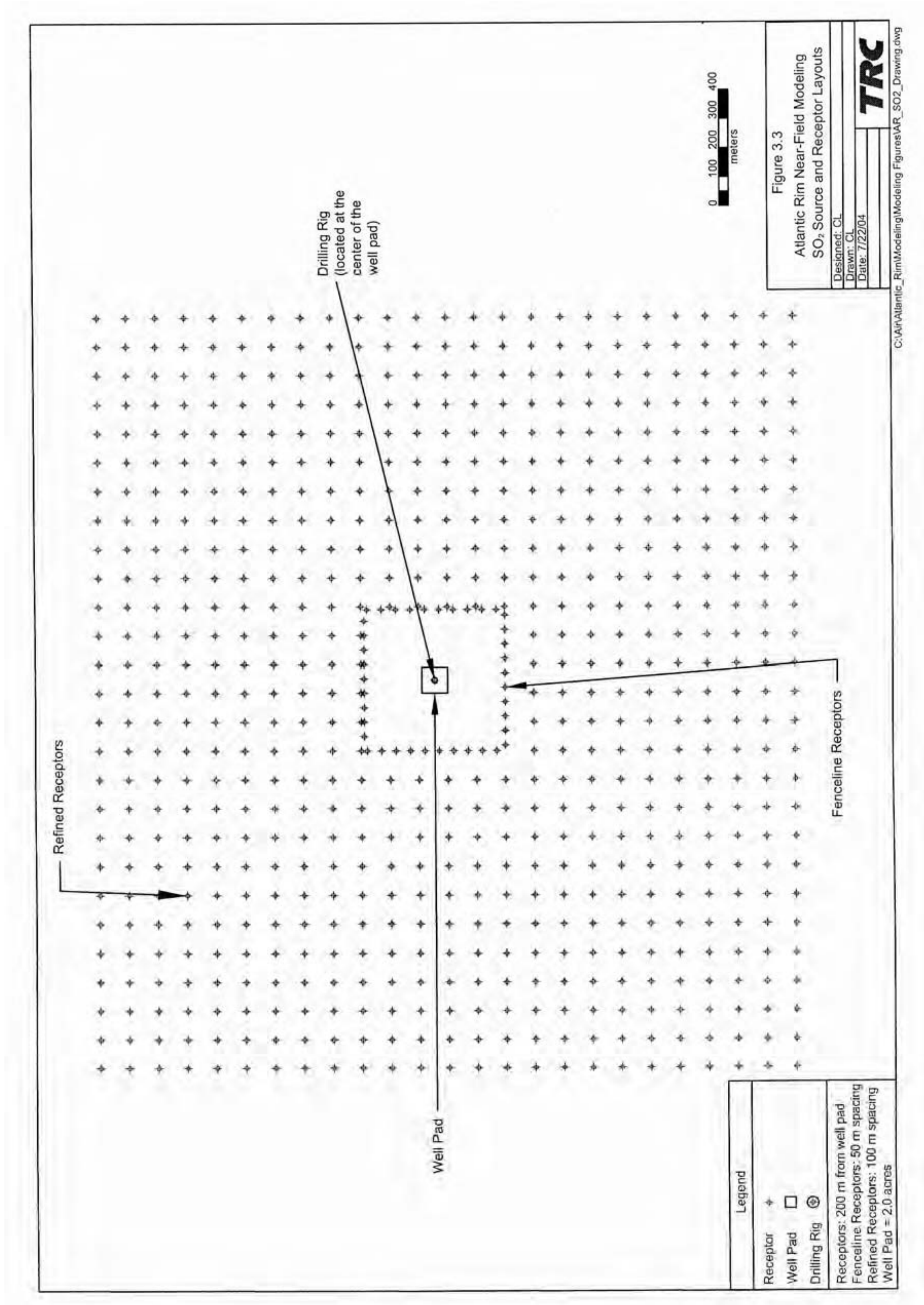


Figure 3.3 Atlantic Rim Near-field SO_2 Source and Receptor Layouts.

AERMOD was used to model drill rig SO_2 emissions. The maximum predicted concentrations are provided in Table 3.4. The modeled SO_2 impacts, when added to representative background concentrations, are below applicable standards.

Emissions associated with temporary construction activities do not consume PSD Increment; therefore, impacts from temporary SO_2 emissions from well drilling are not compared to Class II PSD increments.

3.4.3 NO_2

Production activities (wellsites and compressor stations) would result in maximum NO_X emissions of any development phase. An analysis was performed to quantify the maximum NO_2 impacts that could occur within and nearby the ARPA based on NO_X emissions from the proposed action. Well emissions would include those from haul trucks and from separator heaters at natural gas wells. Also, there are 12 compressor stations included as part of the proposed action and spread throughout the project area, which include Blue Sky, Brown Cow, Cow Creek, Doty Mountain, Jolly Rogers, Muddy Mountain, Red Rim, Sun Dog, and 4 additional planned but unpermitted compressor stations. Each permitted compressor station, with the exception of Cow Creek consists of 2 compressor engines, 2 generators, and 1 dehydrator.

Table 3.4 Maximum Modeled SO_2 Concentrations, Atlantic Rim Project.

Pollutant	Averaging Time	Direct Modeled ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Predicted ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	3-Hour	20.2	132	152.2	1,300	1,300
	24-Hour	9.7	43	52.7	260	365
	Annual	3.2	9	12.2	60	80

Cow Creek consists of 1 compressor engine, 2 generators, and 1 dehydrator. Unpermitted compressor stations were assumed equivalent to the most commonly permitted compressor station configuration.

NO_x emissions provided in Section 2.1.2 for haul trucks and separator heaters at traditional wells were modeled using 12, 1-km^2 area sources centered around each of the 12 compressor stations. Point sources were used for modeling the compressor station emissions and volume sources were used for modeling the dehydrator emissions. Refined receptor grids were placed around each of the 12 area sources, beginning 200-m from the compressor station at 50-m intervals along the fenceline and at 100-m intervals from the fenceline out to 1-km. The entire field was covered by receptors at 1-km intervals, extending to 2-km beyond the field boundary. Figure 3.4 illustrates the modeling configuration used for NO_x production emissions. Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D1. Modeling files available upon request.

AERMAP was used to determine receptor height parameters from 30-m digitized elevation map (DEM) data. Aerodynamic building downwash parameters were considered for each compressor station.

The AERMOD model was used to predict maximum NO_x impacts for the modeled scenario. Maximum modeled concentrations occurred near Jolly Rogers compressor station, near the north end of the ARPA. Maximum modeled NO_2 concentrations were determined by multiplying maximum predicted NO_x concentrations by 0.75, in accordance with EPA's Tier 2 (*Federal Register*, Vol. 60, No. 153, Pg. 40,469, August 4, 1995) NO_x to NO_2 conversion method. Maximum predicted NO_2 concentrations are given in Table 3.5.

As shown in Table 3.5, direct modeled NO_2 concentrations are less than the PSD Class II Increment for NO_2. In addition, when these NO_X emissions are combined with representative background NO_2 concentrations, they are below the applicable WAAQS and NAAQS.

Figure 3.4 Atlantic Rim Near-field NO_x and CO Source and Receptor Layouts.

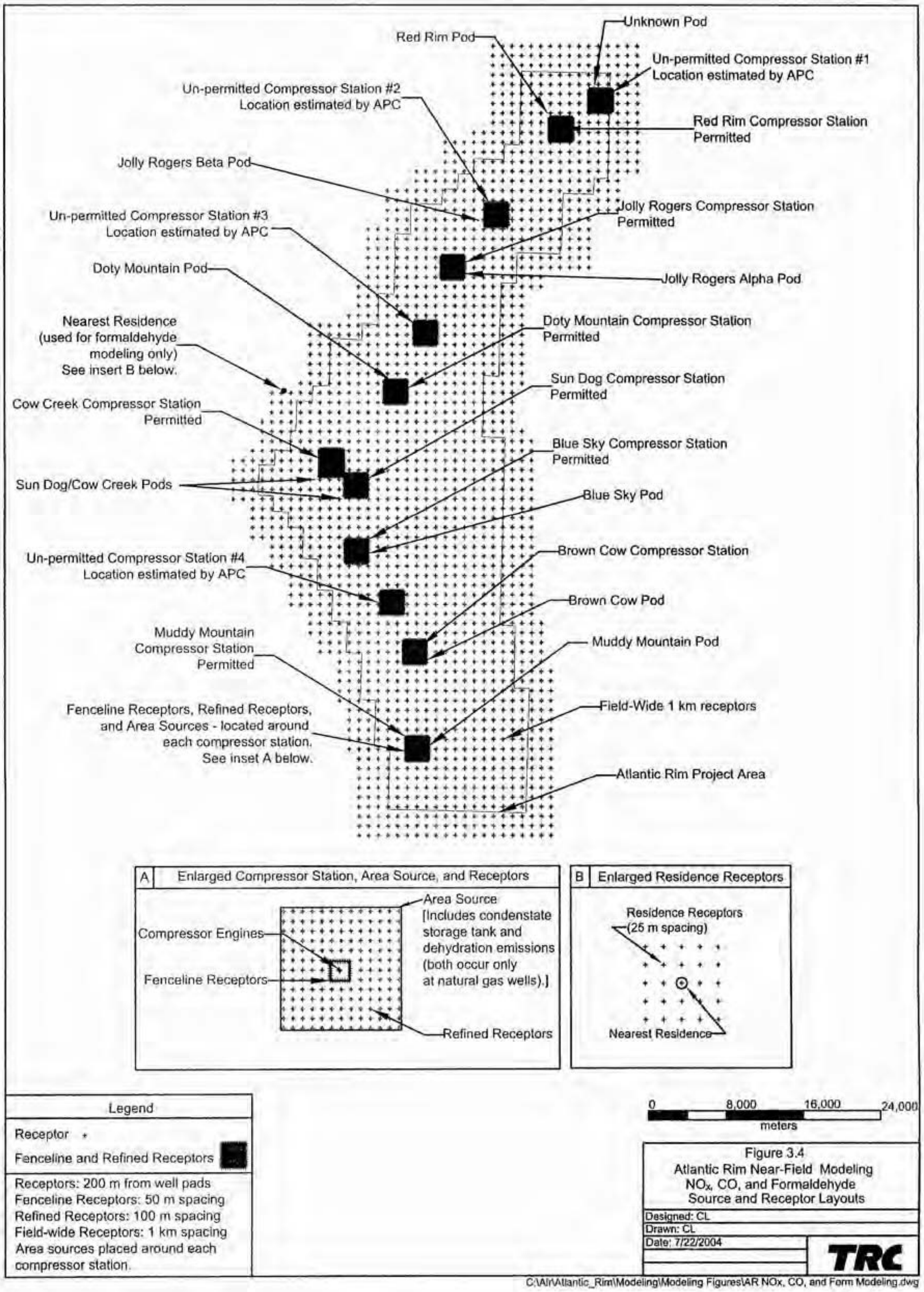


Table 3.5 Maximum Modeled Annual NO_2 Concentrations, Atlantic Rim Project.

Pollutant	Direct Modeled (μg/m^3)	PSD Class II Increment (μg/m^3)	Background (μg/m^3)	Total Predicted μg/m^3)	WAAQS (μg/m^3)	NAAQS (μg/m^3)
NO_2	11.5	25	3.4	14.9	100	100

Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D1.

3.4.4 CO

Maximum CO emissions would occur from the same production activities (wellsites and compressor stations) that result in maximum NO_X emissions. The emission sources and receptors used to model NO_2 impacts were also used to determine maximum CO impacts (see Figure 3.4).

AERMOD was used to predict maximum CO impacts for the modeled scenario. Maximum predicted CO concentrations are given in Table 3.6. As indicated in Table 3.6, maximum CO modeled concentrations, when combined with representative background CO concentrations, are below the applicable WAAQS and NAAQS.

Source emissions and modeling parameters utilized in near-field modeling are provided in Appendix D1. Modeling files are available upon request.

3.4.5 Ozone (O_3)

O_3 is formed in the atmosphere as a result of photochemical reactions involving ambient concentrations of NO_2 and VOC. Because of the complex photochemical reactions necessary to

Table 3.6 Maximum Modeled CO Concentrations, Atlantic Rim Project.

Pollutant	Averaging Time	Direct Modeled ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Predicted $\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1-Hour	222.6	3,336	3,559	40,000	40,000
	8-Hour	85.9	1,381	1,467	10,000	10,000

form O_3, compliance with ambient air quality standards cannot be determined with conventional dispersion models. Instead, a nomograph developed from the Reactive Plume Model (Scheffe 1988) was used to predict maximum O_3 impacts. This screening methodology utilizes NO_x and VOC emissions ratios to estimate O_3 concentrations.

NO_x and VOC emissions are greatest during production activities and these emissions were used to estimate O_3 impacts. Emissions from a production area consisting of 17 conventional natural gas wells and the Jolly Rogers compressor station site were used. This scenario was selected because the Jolly Rogers station is largest compressor station and NO_x source of the 12 stations proposed within the ARPA, and 17 conventional gas wells was selected as representative of conventional wells near a single compressor station assuming conventional wells are equally distributed around each station. Emissions from the Jolly Rogers station were 58.3 tpy NOx and 75.6 tpy VOC, and emissions for 17 conventional gas wells were 0.5 tpy NO_x and 510.0 tpy VOC. The ratio of total VOC emissions to total NO_x emissions is 585.6 / 58.8 or 10.0. At this ratio, the estimated maximum potential 1-hour O_3 concentration is 0.012 parts per million (ppm) or 23.0 $\mu g/m^3$. Using EPA's recommended screening conversion factor of 0.7 to convert 1-hour concentrations to 8-hour values (EPA 1977), the predicted 8-hour O_3 concentration is 16.1 $\mu g/m^3$. Predicted maximum O_3 impacts are summarized in Table 3.7.

The maximum O_3 impacts shown in Table 3.7 represent the amount of O_3 that could potentially form within and nearby the ARPA as a result of the ratio of direct project emissions of NO_x and

Table 3.7 Maximum Modeled Ozone (O_3) Concentrations, Atlantic Rim Project.

Pollutant	Averaging Time	Direct Modeled ($\mu g/m^3$)	GRUBS Average 1-hour Background ($\mu g/m^3$)	Total Predicted ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Ozone (O_3)	1-Hour	23.0	75.2	98.2	235	235
	8-Hour	16.1	75.2	91.3	157	157

VOC. Direct modeled concentrations shown in Table 3.7 were added to average hourly background O_3 conditions monitored as part of the Green River Basin Visibility Study (ARS 2002) during the period June 10, 1998, through December 31, 2001. This value, 75.2 $\mu g/m^3$, is slightly higher than the background O_3 concentration of 62.6 $\mu g/m^3$ inherent in the background O_3 condition used in the RPM model that was used to derive the Scheffe nomograph. The highest, 2nd highest O_3 concentration monitored over the period of record was originally proposed in the protocol. After further consideration, it was determined that pairing a screening modeled concentration with a maximum background concentration monitored over the period of record results in an overestimate of potential O_3 concentrations. O_3 formation is a complex atmospheric chemistry process that varies greatly due to meteorological conditions and the presence of ambient atmospheric concentrations of many chemical species. Adding NO_x and VOC emissions to the ambient air, where some amount of O_3 has already formed, is not necessarily an indication that the potential for O_3 formation has increased. In fact, it could decrease, since the ambient background conditions that caused O_3 formation have changed, and the new mixture of chemical species in the atmosphere may not be conducive to O_3 formation. In addition, the concentrations, shown in Table 3.7 are likely overestimates of the actual O_3 impacts that would occur, since the RPM nomograph used to derive these estimates was developed using meteorological conditions more conducive to forming O_3 than that found in south-western Wyoming.

3.4.6 HAPS

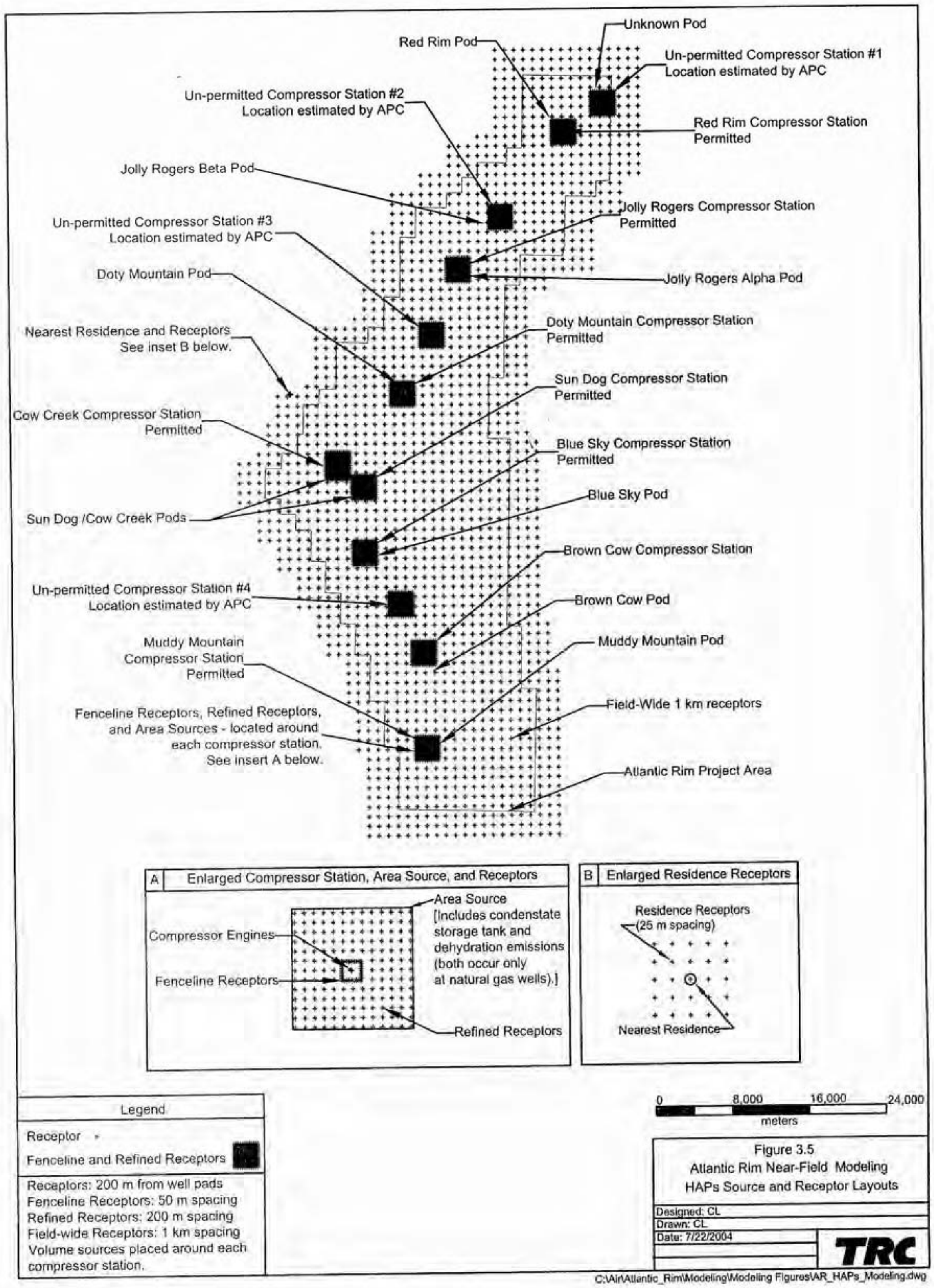
AERMOD was used to determine HAP impacts in the immediate vicinity of the ARPA emission sources for short-term (acute) exposure assessment and at the nearest residence to the ARPA for calculation of long-term risk. Sources of HAPs include gas dehydration and condensate storage tank emissions (benzene, toluene, ethylbenzene, xylene, and n-hexane), located only at the 200 natural gas wells, and formaldehyde emissions from the compressor stations. Because HAPs are emitted predominantly during the production phase, only HAP emissions from production were analyzed.

The modeling scenario developed for modeling short-term (1-hour) HAPs (benzene, toluene, ethylbenzene, xylene, and n-hexane) consisted of 12 volume sources, centered around each compressor station. HAPs emissions from gas dehydration and condensate storage tanks were included in the 12 volume sources. Refined receptors were placed at 50-m intervals on the fenceline and at 200-m intervals out to 1-km. Receptors were placed throughout the field at 1-km intervals, spanning to 2-km outside the field boundary. AERMAP was used to determine receptor height parameters from 30-m digitized elevation map (DEM) data. The source and receptor layouts utilized for the short-term HAP modeling are presented in Figure 3.5.

The long-term (annual) HAP modeling scenario developed was similar to the short-tem modeling scenario with the exception of the 1-km interval receptors. In place of the 1-km receptors, a receptor grid (5 x 5), at 25-m spacing, was placed around the nearest residence just west of the ARPA (see Figure 3.5).

Compressor station formaldehyde emissions were modeled in an analysis similar to what was performed for NO_2 and CO (see Sections 3.4.3 and 3.4.4). Formaldehyde emissions from the 12 proposed compressor stations were modeled. These emissions are provided in Appendix D1. Modeling files available upon request. The modeling parameters and receptor grids developed for the NO_x and CO impacts analyses were utilized for short-term formaldehyde. Long-term

Figure 3.5 Atlantic Rim Near-field HAPs Source and Receptor Layouts.



impacts are reported for the residential receptor locations used in the HAPs modeling. The source and receptor layout for modeling formaldehyde impacts is presented in Figure 3.4.

Reference Exposure Levels (RELs) are defined as concentrations at or below which no adverse health effects are expected. Since no RELs are available for ethylbenzene and n-hexane, the available Immediately Dangerous to Life or Health (IDLH) values were used. These REL and IDLH values are determined by the National Institute for Occupational Safety and Health (NIOSH) and were obtained from EPA's Air Toxics Database (EPA 2002). Modeled short-term HAP concentrations are compared to REL and IDLH values in Table 3.8. As shown in Table 3.8 the maximum predicted short-term HAP impacts within and near the ARPA would be below the REL or IDLH values.

Annual modeled HAP concentrations are compared to Reference Concentrations for Chronic Inhalation (RfCs). A RfC is defined by EPA as the daily inhalation concentration at which no long-term adverse health effects are expected. RfCs exist for both non-carcinogenic and carcinogenic effects on human health (EPA 2002). The maximum predicted annual HAP concentrations at the nearest residential area are compared to the corresponding non-carcinogenic RfC in Table 3.9. As shown in Table 3.9 the maximum predicted long-term HAP impacts at the nearest residence location would be below the RfCs.

Table 3.8 Maximum Modeled 1-Hour HAP Concentrations, Atlantic Rim Project.

HAP	Modeled Concentration ($\mu g/m^3$)	REL or IDLH ($\mu g/m^3$)
Benzene	926.0	1,300
Toluene	1,414.0	37,000
Ethylbenzene	154.0	35,000
Xylene	823.0	22,000
n-Hexane	3,832.0	39,000
Formaldehyde	11.0	94

Table 3.9 Maximum Modeled Annual HAP Concentrations, Atlantic Rim Project.

HAP	Modeled Concentration ($\mu g/m^3$)	Non-Carcinogenic RfC ($\mu g/m^3$)
Benzene	0.019	30
Toluene	0.029	400
Ethylbenzene	0.003	1,000
Xylene	0.017	430
n-Hexane	0.077	200
Formaldehyde	0.003	10

Long-term exposures to emissions of suspected carcinogens (benzene and formaldehyde) were evaluated based on estimates of the increased latent "cancer risk" over a 70-year lifetime. This analysis presents the potential incremental risk from these pollutants, and does not represent a total risk analysis. The cancer risks were calculated using the maximum predicted annual concentrations and EPA's Chronic Inhalation unit risk factors (URF) for carcinogenic constituents (EPA 2002). Estimated cancer risks were evaluated based on the "Superfund" National Oil and Hazardous Substances Pollution Contingency Plan (EPA 1990), where a cancer risk range of 1×10^{-6} to 1×10^{-4} is generally acceptable. Two estimates of cancer risk are presented: 1) a most likely exposure (MLE) scenario; and 2) a maximum exposed individual (MEI) scenario. The estimated cancer risks are adjusted to account for duration of exposure and time spent at home.

The adjustment for the MLE scenario is assumed to be 9 years, which corresponds to the mean duration that a family remains at a residence (EPA 1993). This duration corresponds to an adjustment factor of 9/70 = 0.13. The duration of exposure for the MEI scenario is assumed to be 50 years (i.e., the LOF), corresponding to an adjustment factor of 50/70 = 0.71. A second adjustment is made for time spent at home versus time spent elsewhere. For the MLE scenario, the at-home time fraction is 0.64 (EPA 1993), and it is assumed that during the rest of the day the individual would remain in an area where annual HAP concentrations would be one quarter as large as the maximum annual average concentration. Therefore, the MLE adjustment factor is

(0.13) x [(0.64 x 1.0) + (0.36 x 0.25)] = 0.0949. The MEI scenario assumes that the individual is at home 100% of the time, for a final adjustment factor of (0.71 x 1.0) = 0.71.

For each constituent, the cancer risk is computed by multiplying the maximum predicted annual concentration by the URF and by the overall exposure adjustment factor. The cancer risks for both constituents are then summed to provide an estimate of the total inhalation cancer risk.

The modeled long-term risk from benzene and formaldehyde are shown in Table 3.10.

Under the MLE scenario, the estimated cancer risk associated with the long-term exposure to benzene and formaldehyde is below 1 x 10^{-6}. Under the MEI analyses, the incremental risk for formaldehyde is less than 1 x 10^{-6}, and both the incremental risk for benzene and the combined incremental risk fall on the lower end of the cancer risk range of 1 x 10^{-6} to 1 x 10^{-4}. Total combined risk may not be appropriate.

Table 3.10 Long-term MLE and MEI Cancer Risk Analyses, Atlantic Rim Project.

Analysis	HAP Constituent	Modeled Concentration (µg/m^3)	Unit Risk Factor 1/ (µg/m^3)	Exposure Adjustment Factor	Cancer Risk
MLE	Benzene	0.019	7.8 x 10^{-6}	0.0949	1.39E-08
	Formaldehyde	0.0030	1.3 x 10^{-5}	0.0949	3.66E-09
Total Combined Risk					1.8 x 10^{-8}
MEI	Benzene	0.019	7.8 x 10^{-6}	0.71	1.04E-07
	Formaldehyde	0.0030	1.3 x 10^{-5}	0.71	2.74E-08
Total Combined Risk					1.3 x 10^{-7}

3.5 SEMINOE ROAD CRITERIA AND HAP POLLUTANT IMPACT ASSESSMENT

The near-field criteria pollutant impact assessment was performed to estimate maximum potential impacts of PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, and O_3 from project emissions sources including wellsite and compressor station emissions. Maximum predicted concentrations in the vicinity of project emissions sources are compared with the WAAQS, NAAQS, and applicable PSD Class II increments shown in Table 3.11. This NEPA analysis compared potential air quality impacts from the proposed alternatives to applicable ambient air quality standards and PSD increments. The comparisons to the PSD Class I and II increments were intended to evaluate a threshold of concern for potential impacts and does not represent a regulatory PSD increment consumption comparison. Such a regulatory analysis is the responsibility of the state air quality agency (under EPA oversight) and would be conducted during permitting process.

In addition, the emission the HAP formaldehyde was also analyzed from project emission sources. Due to the constituents that make up coalbed methane gas, no other HAPs were emitted from the project. The HAP analysis is further discussed in Section 3.5.6.

Since PM_{10}/$PM_{2.5}$ emissions are greatest during the resource road/well pad construction phase of field development, construction emissions sources were modeled to determine compliance with the PM_{10}/$PM_{2.5}$ ambient air quality standards. Similarly, SO_2 emissions are greatest from well drilling operations during construction and that phase of development is modeled. NO_x and CO emissions are greatest during well production; primarily from compressor stations; therefore, the NO_X and CO analysis was performed for the production phase.

O_3 impacts were estimated using the screening methodology developed by Scheffe (1988) which utilizes NO_x and VOC emissions ratios to calculate O_3 concentrations. NO_x and VOC emissions are greatest during production activities, and these emissions were used to estimate O_3 impacts.

Table 3.11 Ambient Air Quality Standards and Class II PSD Increments for Comparison to Near-Field Analysis Results (µg/m^3).

	Ambient Air Quality Standards		
Pollutant/Averaging Time	National	Wyoming	PSD Class II Increment
Carbon monoxide (CO)			
1-hour[1]	40,000	40,000	--
8-hour[1]	10,000	10,000	--
Nitrogen dioxide (NO_2)			
Annual[2]	100	100	25
Ozone (O_3)			
1-hour [1]	235	235	--
8-hour[3]	157	157	--
PM_{10}			
24-hour[1]	150	150	30
Annual[2]	50	50	17
$PM_{2.5}$			
24-hour[1,4]	65	65	NA
Annual [2,4]	15	15	NA
Sulfur dioxide (SO_2)			
3-hour[1]	1,300	1,300	512
24-hour[1]	365	260	91
Annual[2]	80	60	20

1 No more than one exceedance per year.
2 Annual arithmetic mean.
3 Average of annual fourth-highest daily maximum 8-hour average.
4 Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

3.5.1 $PM_{10}/PM_{2.5}$

Maximum localized $PM_{10}/PM_{2.5}$ impacts would result from well pad and road construction activities as well as wind erosion. A worst-case modeling scenario consisted of a well pad and a 2.0-mi resource road using the emissions estimates provided in Section 2.2.1. As illustrated in Figure 3.6 model receptors were placed beginning 200-m from the edge of the well pad and road at 50-m intervals along the first row and at 100-m intervals out to 1-km. Flat terrain was assumed. Volume sources were used to represent emissions from well pads and roads. Hourly emission rate adjustment factors were applied to limit construction emissions to daytime hours, and modeling was conducted March 1 through October 31 to reflect 8 months per year of construction operations. AERMOD was used to model each scenario 36 times, once at each of 36 10º wind direction rotations, to ensure that impacts from all directional layout configurations and meteorological conditions were assessed. Wind erosion emissions were modeled for all hours where the wind speed exceeded a threshold velocity. Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D2. Modeling files available upon request.

Table 3.12 presents the maximum modeled $PM_{10}/PM_{2.5}$ concentrations, for all well pad scenarios. When the maximum modeled concentration was added to representative background concentrations, it is demonstrated that PM_{10} and $PM_{2.5}$ concentrations comply with the WAAQS and NAAQS for PM_{10} and $PM_{2.5}$.

Emissions associated with temporary construction activities do not consume PSD Increment, therefore, impacts for temporary PM_{10} emissions from well pad and road construction are not compared to Class II PSD increments excluded from increments.

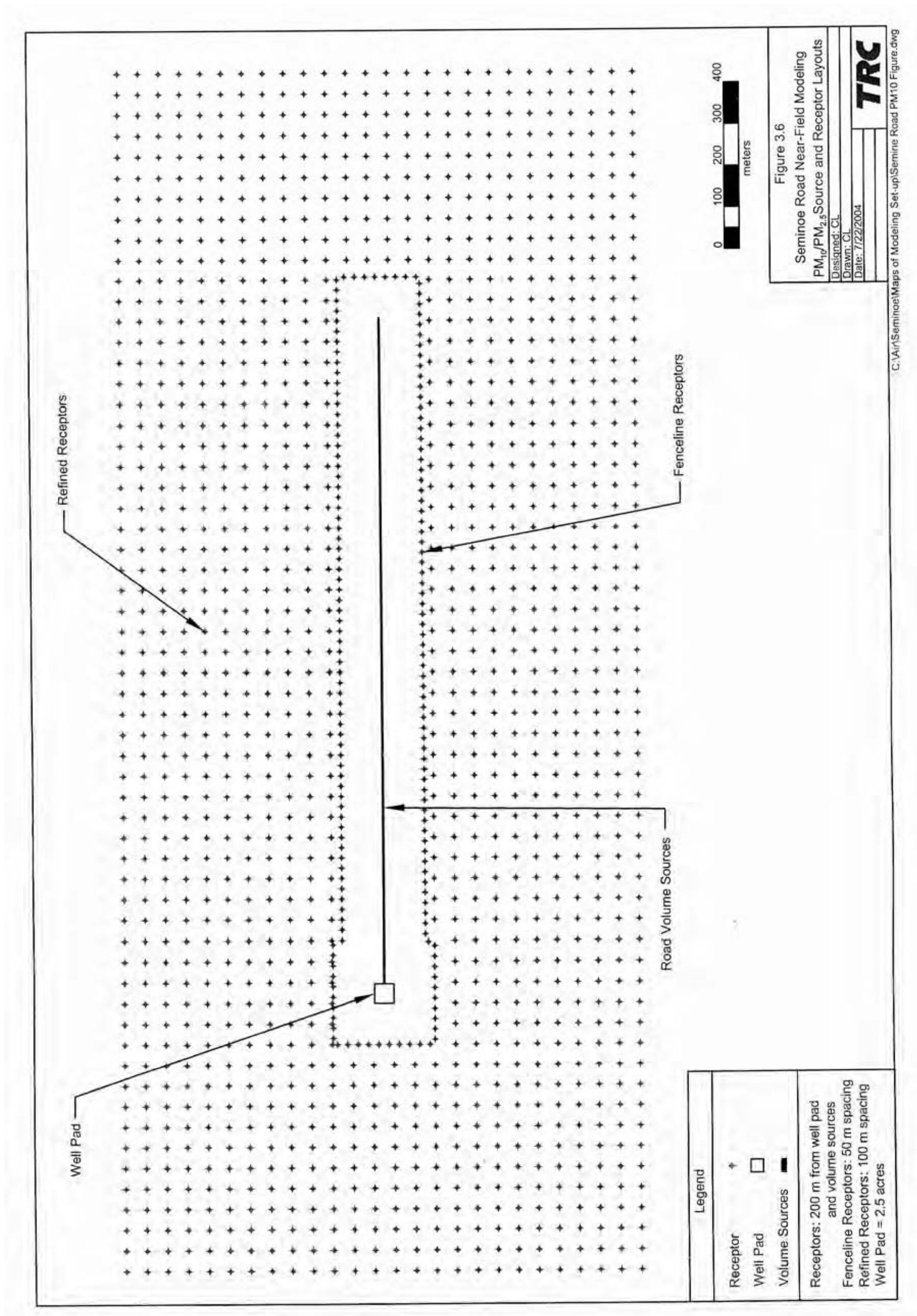


Figure 3.6 Seminoe Road Near-field $PM_{10}/PM_{2.5}$ Source and Receptor Layouts.

Table 3.12 Maximum Modeled PM_{10}/$PM_{2.5}$ Concentrations, Seminoe Road Project.

Pollutant	Averaging Time	Direct Modeled (μg/m^3)	Background (μg/m^3)	Total Predicted (μg/m^3)	WAAQS (μg/m^3)	NAAQS (μg/m^3)
PM_{10}	24-Hour	20.4	33	53.4	150	150
	Annual	3.5	16	19.5	50	50
$PM_{2.5}$	24-Hour	7.1	13	20.1	65	65
	Annual	1.0	5	6.0	15	15

3.5.2 SO_2

Emissions from construction drilling operations would result in maximum SO_2 emissions of any development phase and were therefore analyzed in near-field modeling. The modeling scenario developed included a drill rig at the center of a pad, with model receptors beginning 200-m from the well pad at 50-m intervals along the first row and at 100-m intervals out to 1-km. Drill rigs were modeled as point sources. Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D2. Modeling files available upon request. Figure 3.7 illustrates the modeling configuration used for drill rig SO_2 emissions.

AERMOD was used to model drill rig SO_2 emissions. The maximum predicted concentrations are provided in Table 3.13. The modeled SO_2 impacts, when added to representative background concentrations, below the applicable standards.

Emissions associated with temporary construction activities do not consume PSD Increment, therefore, impacts for temporary SO_2 emissions from well pad and road construction are not compared to Class II PSD increments excluded from increments.

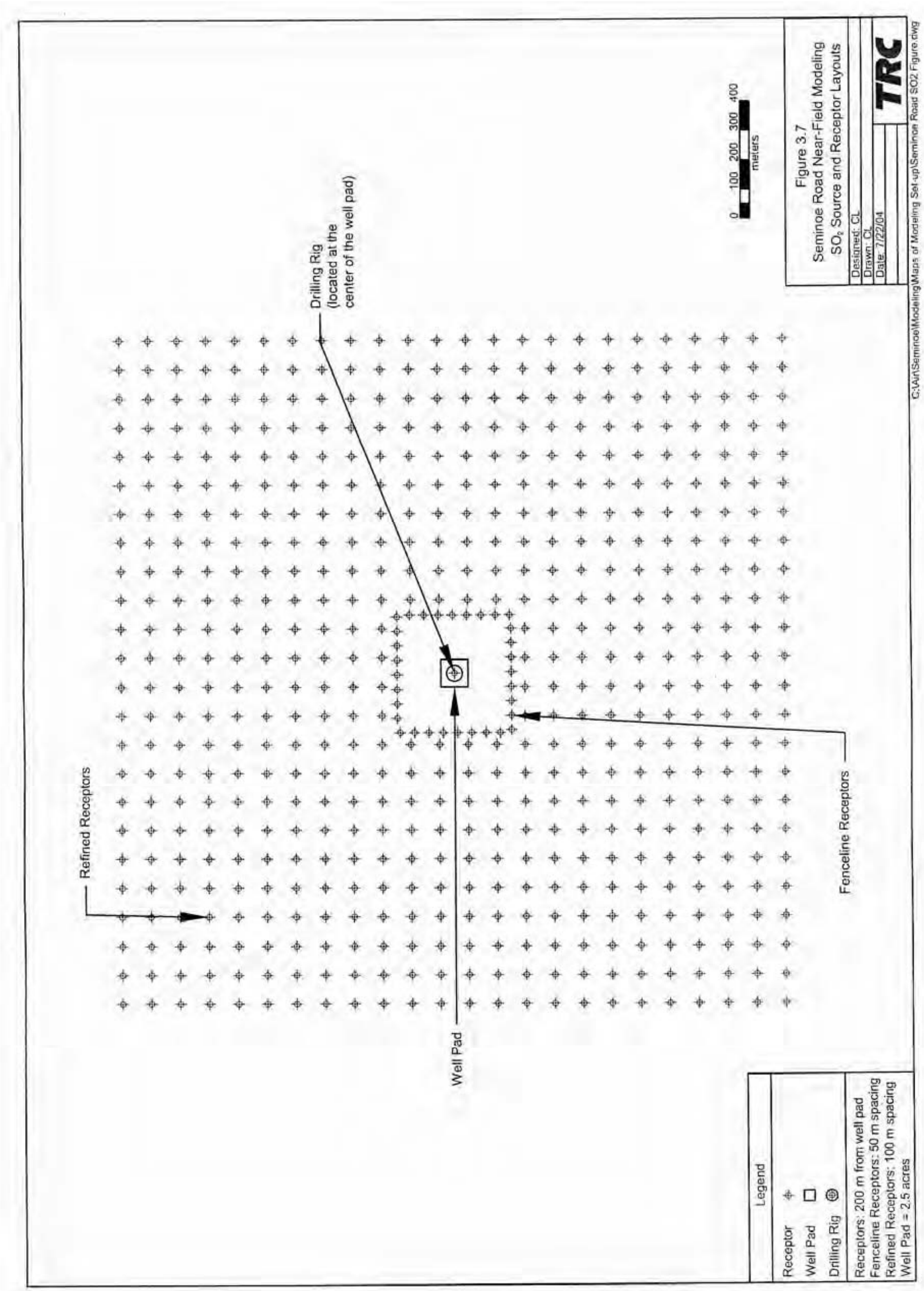


Figure 3.7 Seminoe Road Near-field SO_2 Source and Receptor Layouts.

Table 3.13 Maximum Modeled SO_2 Concentrations, Seminoe Road Project.

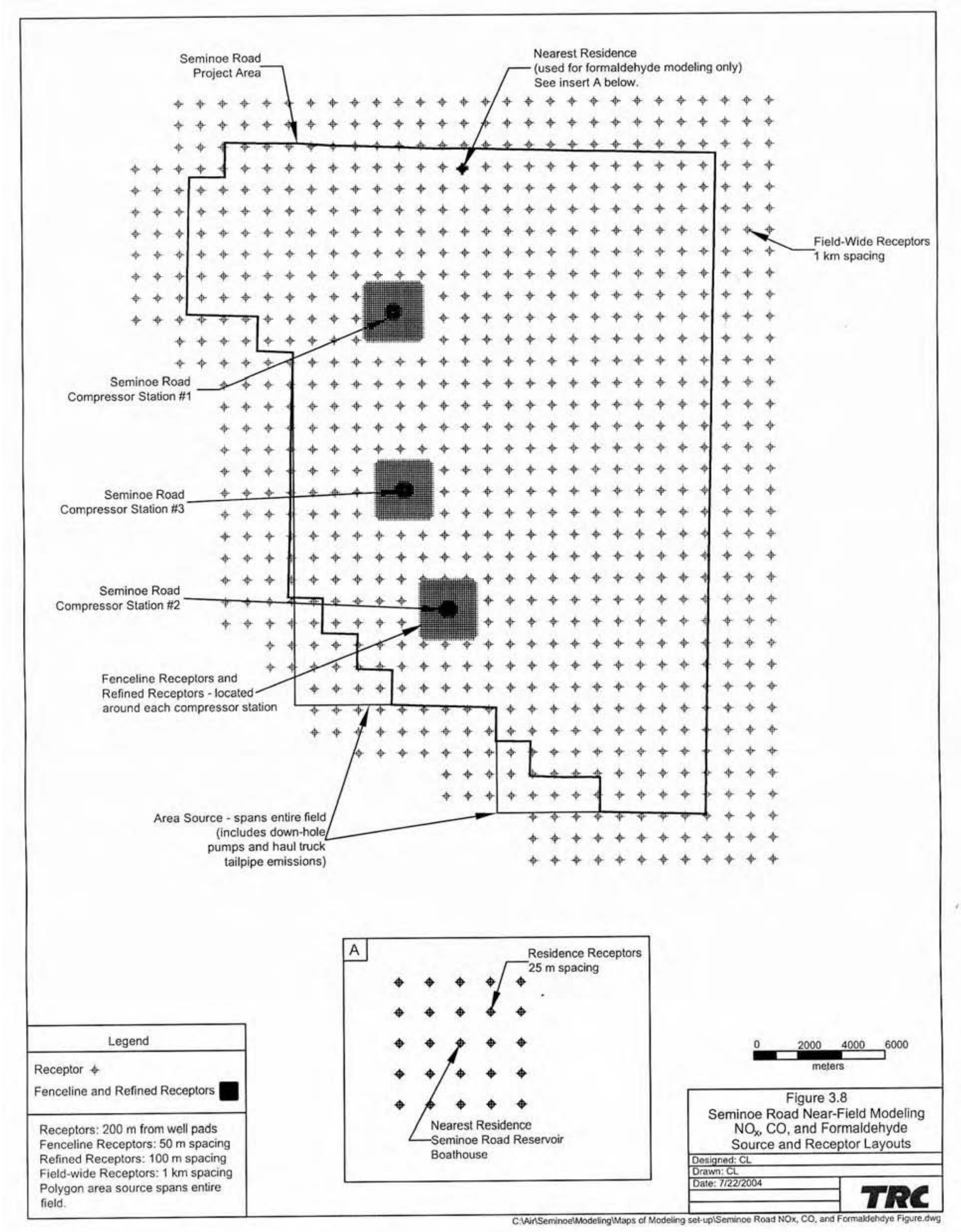
Pollutant	Averaging Time	Direct Modeled (μg/m^3)	Background (μg/m^3)	Total Predicted (μg/m^3)	WAAQS (μg/m^3)	NAAQS (μg/m^3)
SO_2	3-Hour	15.4	132	147.4	1,300	1,300
	24-Hour	7.6	43	50.6	260	365
	Annual	2.8	9	11.8	60	80

3.5.3 NO_2

Non-electrified production activities (wellsites and compressor stations) would result in maximum NO_X emissions of any development phase. An analysis was performed to quantify the maximum NO_2 impacts that could occur within and nearby the SRPA based on NO_X non-electrified scenario. The non-electrified alternative was considered worst-case on a near-field basis because all wellsite pumps and all compressors would be gas-fired and was the only alternative analyzed in the near-field NO_X and CO modeling. Well emissions would include those from down-hole pumps and haul trucks. Also, there are 3 compressor stations included and spread throughout the project area, with each compressor station consisting of 2 compressor engines.

NO_x emissions provided in Section 2.2.2 for down-hole pumps and haul trucks were modeled using 1 area source polygon which spans the SRPA. Receptors were placed throughout the entire field at 1-km intervals, extending 2-km beyond the field boundary. Compressor station emissions were modeled as point sources. Refined receptor grids were placed around each of the 3 compressor stations, beginning 200-m from the compressor station at 50-m intervals along the fenceline and at 100-m intervals from the fenceline out to 1-km. Figure 3.8 illustrates the modeling configuration used for NO_x production emissions. Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D2. Modeling files available upon request.

Figure 3.8 Seminoe Road Near-field NO_x, CO, and Formaldehyde Model Configuration.



AERMAP was used to determine receptor height parameters from 30-m digitized elevation map (DEM) data. Aerodynamic building downwash parameters were considered for each compressor station.

The AERMOD model was used to predict maximum NO_x impacts for the modeled scenario. Maximum modeled concentrations occurred near Seminoe Road Compressor Station #3, near the middle of the SRPA. Maximum modeled NO_2 concentrations were determined by multiplying maximum predicted NO_x concentrations by 0.75, in accordance with EPA's Tier 2 (*Federal Register* Vol. 60, No. 153, Pg. 40,469, Aug. 9, 1995) NO_x to NO_2 conversion method. Maximum predicted NO_2 concentrations are given in Table 3.14.

As shown in Table 3.14, direct modeled NO_2 concentrations are less than the PSD Class II Increment for NO_2. In addition, when these NO_2 impacts are combined with representative background NO_2 concentrations, they are below the applicable WAAQS and NAAQS.

3.5.4 CO

Maximum CO emissions would occur from the same production activities (wellsites and compressor stations) that result in maximum NO_X emissions. The emission sources and receptors used to model NO_2 impacts were also used to determine maximum CO impacts (see Figure 3.8).

AERMOD was used to predict maximum CO impacts for the modeled scenario. Maximum predicted CO concentrations are given in Table 3.15. As indicated in Table 3.15, maximum CO modeled concentrations, when combined with representative background CO concentrations, are below the applicable WAAQS and NAAQS.

Source emissions and modeling parameters utilized in near-field modeling are provided Appendix D2. Modeling files available upon request.

Table 3.14 Maximum Modeled Annual NO_2 Concentrations, Seminoe Road Project.

Pollutant	Direct Modeled ($\mu g/m^3$)	PSD Class II Increment ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Predicted ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	11.1	25	3.4	14.5	100	100

Table 3.15 Maximum Modeled CO Concentrations, Seminoe Road Project.

Pollutant	Averaging Time	Direct Modeled ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Predicted $\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1-Hour	101.7	3,336	3,438	40,000	40,000
	8-Hour	46.6	1,381	1,428	10,000	10,000

3.5.5 Ozone (O_3)

O_3 is formed in the atmosphere as a result of photochemical reactions involving ambient concentrations of NO_2 and VOC. Because of the complex photochemical reactions necessary to form O_3, compliance with ambient air quality standards cannot be determined with conventional dispersion models. Instead, a nomograph developed from the Reactive Plume Model (Scheffe 1988) was used to predict maximum O_3 impacts. This screening methodology utilizes NO_x and VOC emissions ratios to estimate O_3 concentrations.

NO_x and VOC emissions are greatest during production activities and these emissions were used to estimate O_3 impacts. Emissions from a patch consisting of 26 CBM gas wells and a compressor station site were used. This scenario was selected since it represents the maximum emissions from CBM wells anticipated outside of the electrification boundary combined with the emissions from a compressor station. The emissions from the compressor station were 38.6 tpy NO_x and 26.2 tpy VOC, and emissions for the 26 CBM wells were 26.0 tpy NO_x and 26.0 tpy VOC. The ratio of total VOC emissions to total NO_x emissions is 52.0 / 64.6 or 0.8. At this ratio, the estimated maximum potential 1-hour O_3 concentration is 0.011 parts per million (ppm) or 21.0 μg/m^3. Using EPA's recommended screening conversion factor of 0.7 to convert 1-hour concentrations to 8-hour values (EPA 1977), the predicted 8-hour O_3 concentration is 14.7 μg/m^3. Predicted maximum O_3 impacts are summarized in Table 3.16.

The maximum O_3 impacts shown in Table 3.16 represent the amount of O_3 that could potentially form within and nearby the SRPA, as a result of the ratio of direct project emissions of NO_x and VOC. Direct modeled concentrations shown in Table 3.16 were added to average hourly background O_3 during the period June 10, 1998, through December 31, 2001. This value, 75.2 μg/m^3, is slightly higher than the background O_3 concentration of 62.6 μg/m^3 inherent in the background O_3 condition used in the RPM model that was used to derive the Scheffe nomograph. The highest, 2nd highest O_3 concentration monitored over the period of record was originally proposed in the protocol. After further consideration, it was determined that pairing a screening model concentration with a maximum background concentration monitored over the period of record results in an overestimate of the potential O_3 concentrations. O_3 formation is a complex atmospheric chemistry process that varies greatly due to meteorological conditions and the presence of ambient atmospheric concentrations of many chemical species. Adding NO_x and VOC emissions to the ambient air, where some amount of O_3 has already formed, is not necessarily an indication that the potential for O_3 formation has increased. In fact, it could decrease, since the ambient background conditions that caused O_3 formation have changed, and the new mixture of chemical species in the atmosphere may not be conducive to O_3 formation. Direct modeled concentrations, shown in Table 3.16 were added to background O_3 conditions that were used in the Reactive Plume Model to derive the nomographs. In addition, the concentrations, shown in Table 3.16 are likely overestimates of the actual O_3 impacts that would occur, since the nomograph used to derive these estimates was developed using meteorological conditions more conducive to forming O_3 than that found in south-western Wyoming.

Table 3.16 Maximum Modeled Ozone (O_3) Concentrations, Seminoe Road Project.

Pollutant	Averaging Time	Direct Modeled (μg/m^3)	GRUBS Average 1-Hour Background (μg/m^3)	Total Predicted (μg/m^3)	WAAQS (μg/m^3)	NAAQS (μg/m^3)
Ozone (O_3)	1-Hour	21.0	75.2	98.2	235	235
	8-Hour	14.7	75.2	91.3	157	157

3.5.6 HAPS

AERMOD was used to determine HAP impacts in the immediate vicinity of the SRPA emission sources for short-term (acute) exposure assessment and at the nearest residence to the SRPA for calculation of long-term risk. Due to the constituents that make up coal bed methane gas, formaldehyde is the only HAP emitted. Sources of formaldehyde emissions include down-hole pumps, haul trucks, and compressor stations. Because formaldehyde is emitted predominantly from combustion equipment operating during the production phase, only formaldehyde emissions from production were analyzed.

Compressor station formaldehyde emissions were modeled in an analysis similar to what was performed for NO_2 and CO (see Sections 3.5.3 and 3.5.4). Formaldehyde emissions from the down-hole pumps, haul trucks, and 3 proposed compressor stations were modeled. These emissions are provided in Appendix D2. Modeling files available upon request. The modeling parameters and receptor grids developed for the NO_x and CO impacts analyses were utilized for short-term (1-hour) formaldehyde. A 5 x 5 receptor grid at 25-m spacing was placed around the nearest residential location, located just inside the northern boundary of the SRPA for modeling formaldehyde long-term (annual) impacts. The source and receptor layouts for modeling formaldehyde impacts are presented in Figure 3.8.

Reference Exposure Levels (RELs) are defined as concentrations at or below which no adverse health effects are expected. The REL values are determined by the National Institute for Occupational Safety and Health (NIOSH) and were obtained from EPA's Air Toxics Database (EPA 2002). The modeled short-term formaldehyde concentration is compared to the REL value in Table 3.17. As shown in Table 3.17 the maximum predicted short-term formaldehyde impact within and near the SRPA would be below the REL.

The annual modeled formaldehyde concentration is compared to the Reference Concentration for Chronic Inhalation (RfC). A RfC is defined by EPA as the daily inhalation concentration at which no long-term adverse health effects are expected. RfCs exist for both non-carcinogenic and carcinogenic effects on human health (EPA 2002). The maximum predicted annual formaldehyde concentration at the nearest residential area is compared to the corresponding non-carcinogenic RfC in Table 3.18. As shown in Table 3.18 the maximum predicted long-term formaldehyde impact at the nearest residence location would be below the RfC.

Long-term exposures to emissions of suspected carcinogen (formaldehyde) were evaluated based on estimates of the increased latent “cancer risk” over a 70-year lifetime. This analysis presents the potential incremental risk from this pollutant, and does not represent a total risk analysis. The cancer risk was calculated using the maximum predicted annual concentrations and EPA’s Chronic Inhalation unit risk factor (URF) for carcinogenic constituents (EPA 2002). Estimated cancer risks were evaluated based on the “Superfund” National Oil and Hazardous Substances Pollution Contingency Plan (EPA 1990), where a cancer risk range of 1×10^{-6} to 1×10^{-4} is generally acceptable. Two estimates of cancer risk are presented: 1) a most likely exposure (MLE) scenario; and 2) a maximum exposed individual (MEI) scenario. The estimated cancer risks are adjusted to account for duration of exposure and time spent at home.

Table 3.17 Maximum Modeled 1-Hour HAP Concentrations, Seminoe Road Project.

HAP	Modeled Concentration ($\mu g/m^3$)	REL or IDLH ($\mu g/m^3$)
Formaldehyde	4.07	94

Table 3.18 Maximum Modeled Annual HAP Concentrations, Seminoe Road Project.

HAP	Modeled Concentration ($\mu g/m^3$)	Non-Carcinogenic RfC ($\mu g/m^3$)
Formaldehyde	0.027	9.8

The adjustment for the MLE scenario is assumed to be 9 years, which corresponds to the mean duration that a family remains at a residence (EPA 1993). This duration corresponds to an adjustment factor of 9/70 = 0.13. The duration of exposure for the MEI scenario is assumed to be 50 years (i.e., the LOF), corresponding to an adjustment factor of 50/70 = 0.71. A second adjustment is made for time spent at home versus time spent elsewhere. For the MLE scenario, the at-home time fraction is 0.64 (EPA 1993), and it is assumed that during the rest of the day the individual would remain in an area where annual HAP concentrations would be one quarter as large as the maximum annual average concentration. Therefore, the MLE adjustment factor is (0.13) x [(0.64 x 1.0) + (0.36 x 0.25)] = 0.0949. The MEI scenario assumes that the individual is at home 100% of the time, for a final adjustment factor of (0.71 x 1.0) = 0.71.

For each constituent, the cancer risk is computed by multiplying the maximum predicted annual concentration by the URF and by the overall exposure adjustment factor. The cancer risks for both constituents are then summed to provide an estimate of the total inhalation cancer risk.
The modeled long-term risk of formaldehyde is shown in Table 3.19.

Under the MLE scenario, the estimated cancer risk associated with the long-term exposure to formaldehyde is below 1×10^{-6}. Under the MEI analyses, the incremental risk for formaldehyde is less than 1 x 10^{-6}, and both the incremental risk and the combined incremental risk fall on the lower end of the cancer risk range of 1 x 10^{-6} to 1 x 10^{-4}.

Table 3.19 Long-term MLE and MEI Cancer Risk Analyses, Seminoe Road Project.

Analysis	HAP Constituent	Modeled Concentration ($\mu g/m^3$)	Unit Risk Factor $1/(\mu g/m^3)$	Exposure Adjustment Factor	Cancer Risk
MLE	Formaldehyde	0.027	1.3 x 10^{-5}	0.0949	3.31E-08
MEI	Formaldehyde	0.027	1.3 x 10^{-5}	0.71	2.48E-07

4.0 FAR-FIELD ANALYSES

The purpose of the far-field analyses was to quantify potential air quality impacts on Class I and Class II areas from air pollutant emissions of NO_x, SO_2, PM_{10}, and $PM_{2.5}$ expected to result from the development of the Atlantic Rim and Seminoe Road projects. The analyses were performed using the EPA CALMET/CALPUFF modeling system to predict air quality impacts from Project and regional sources at far-field PSD Class I and sensitive Class II areas. The PSD Class I areas and sensitive Class II areas analyzed are shown on Map 1.2 and include:

- the Bridger Wilderness Area (Class I);
- the Fitzpatrick Wilderness Area (Class I);
- the Popo Agie Wilderness Area (Class II);
- the Wind River Roadless Area (Class II);
- the Mount Zirkel Wilderness Area (Class I);
- the Rawah Wilderness Area (Class I);
- the Savage Run Wilderness Area (Federal Class II, Wyoming Class I);
- Rocky Mountain National Park (Class I); and
- Dinosaur National Monument (Federal Class II, Colorado Class I).

Predicted pollutant concentrations at these sensitive areas were compared to applicable ambient air quality standards and PSD Class I and Class II increments, and were used to assess potential impacts to Air Quality Related Values (AQRVs)--visibility (regional haze) and acid deposition. In addition, analyses were performed for 14 lakes designated as acid sensitive located within the sensitive PSD Class I and Class II Wilderness Areas to assess potential lake acidification from acid deposition impacts (see Map 1.2). These lakes include:

- Deep Lake in the Bridger Wilderness Area;
- Black Joe Lake in the Bridger Wilderness Area;
- Hobbs Lake in the Bridger Wilderness Area;
- Upper Frozen Lake in the Bridger Wilderness Area;
- Lazy Boy Lake in the Bridger Wilderness Area;
- Ross Lake in the Fitzpatrick Wilderness Area;

- Lower Saddlebag Lake in the Popo Agie Wilderness Area;
- West Glacier Lake in the Glacier Lakes Ecosystem Experiments Site (GLEES);
- Lake Elbert in the Mount Zirkel Wilderness Area;
- Seven Lakes in the Mount Zirkel Wilderness Area;
- Summit Lake in the Mount Zirkel Wilderness Area;
- Island Lake in the Rawah Wilderness Area;
- Kelly Lake in the Rawah Wilderness Area; and
- Rawah Lake #4 in the Rawah Wilderness Area.

The far-field analysis was also used to estimate the cumulative impacts from direct project and regional source impacts at locations within each Project Area. Predicted pollutant impacts at in-field locations were compared to applicable ambient air quality standards. This analysis was performed to further support the compliance demonstrations provided in Section 3.4 for maximum near-field impacts

4.1 MODELING METHODOLOGY

The EPA-approved CALMET/CALPUFF modeling system (CALMET Version 5.53, Level 030709, and CALPUFF Version 5.711, Level 030625) was used for the modeling analyses. The CALMET meteorological model was used to develop wind fields for a year of meteorological data (1995) and the CALPUFF dispersion model combined these wind fields with Project-specific and regional emissions inventories of SO_2, NO_x, PM_{10}, and $PM_{2.5}$ to estimate ambient concentrations and AQRV impacts at in-field and far-field receptor locations. The study area is shown in Map 1.2.

The CALMET and CALPUFF models were utilized in this analysis generally following the methods described in the Impact Assessment Protocol (Appendix A) and the following guidance sources:

- *Guideline on Air Quality Models*, 40 *Code of Federal Regulations* (C.F.R.), Part 51, Appendix W;

- *Interagency Work Group on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts*, EPA-454/R-98-019, Office of Air Quality Planning and Standards, December 1998 (IWAQM 1998); and
- *Federal Land Managers - Air Quality Related Values Workgroup (FLAG), Phase I Report*, December 2000 (FLAG 2000).

The CALMET wind fields developed for this analysis follow the CALMET methodologies established as part of the Southwest Wyoming Technical Air Forum (SWWYTAF) for southwest Wyoming, and were further enhanced through the use of additional meteorological datasets and an updated version of the CALMET model code.

4.2 PROJECT MODELING SCENARIOS

Atlantic Rim modeling scenario was developed for the Proposed Action, which includes a proposal for 2,000 new wells in the ARPA; of which up to 10 percent are conventional natural gas wells and the remainder are coalbed methane wells. Maximum field-wide emissions were determined and reflect the last year of field development, and include 1,700 wells in production and 300 wells under construction. The maximum emissions scenario conservatively assumes that both production emissions (producing wellsites and operational ancillary equipment including compressor stations) and construction emissions (drill rigs and associated traffic) occur simultaneously throughout the year. Compression was assumed to operate at 90% of fully permitted capacity, which Operators indicated was a reasonable assumption based on field operation expectations. The scenario analyzed assumes 10 drill rigs and 1 completion flare operating continuously throughout the year. Completion flaring operations (pit flares) were considered since up to 200 conventional natural gas wells are included as part of the Proposed Action and flaring may occur as part of the development of these wells. The maximum field-wide emissions scenarios for the Atlantic Rim Project are summarized in Table 4.1. The emissions used to develop these field-wide scenarios are described in Chapter 2.0.

Table 4.1 Maximum Emissions Scenario, Atlantic Rim Project

Project Phase/Constituent	Emissions (tons per year)
Production Wells[1]	
NO_x	4.6
SO_2	0.0
PM_{10}	0.2
$PM_{2.5}$	0.2
Production Traffic[2]	
NO_x	0.5
SO_2	0.01
PM_{10}	431.8
$PM_{2.5}$	64.8
Compression[3]	
NO_x	589.4
SO_2	0.0
PM_{10}	0.0
$PM_{2.5}$	0.0
Construction[4]	
NO_x	684.0
SO_2	58.2
PM_{10}	348.4
$PM_{2.5}$	105.6
Total	
NO_x	1278.5
SO_2	58.2
PM_{10}	780.4
$PM_{2.5}$	170.6

1 Includes emissions from 170 conventional gas well separator heaters.
2 Includes emissions from all traffic associated with 1700 wells in production.
3 Includes emissions from 12 compressor stations.
4 Includes emissions associated with 10 drill rigs; 4 under construction (rig-up/rig-down), 6 operating continuously; and 1 completion flare operating continuously.

Seminoe Road modeling scenarios were developed for the Proposed Action and the non-electrification scenario; both include the proposal for the development of up to 1,240 coalbed methane wells in the SRPA. The Proposed Action includes electrification of the SRPA. Within the Project Area, wells would be developed in a ring-like progression. Each year, the majority of the wells would be drilled within that year's development boundary. These wells would be electrified and would have no emissions from the downhole pumps installed at each well. There would be a small number of pilot wells drilled each year outside of the electrification boundary. These wells would not be electrified and would have emissions from the natural gas-fired downhole pumps. The Proposed Action scenario modeled includes 26 wells outside the electrification boundary and one non-electrified compressor station. The non-electrification scenario modeled assumes no wells or compressor stations would be electrified. For both the Proposed Action and non-electrification modeling scenarios, maximum field-wide emissions were determined and reflect the last year of field development, and include 1,040 wells in production and 200 wells under construction. The maximum emissions scenario conservatively assumes that both production emissions (producing wellsites and operational ancillary equipment including compressor stations) and construction emissions (drill rigs and associated traffic) occur simultaneously throughout the year. Compression was assumed to operate at 90% of fully permitted capacity, which Operators indicated was a reasonable assumption based on field operation expectations. The scenario analyzed assumes 6 drill rigs operating continuously. The maximum field-wide emissions for the Proposed Action and the non-electrification scenario are summarized in Table 4.2. The emissions used to develop these field-wide scenarios are described in Chapter 2.0.

4.3 METEOROLOGICAL MODEL INPUT AND OPTIONS

CALMET was used to develop wind fields for the study area shown in Map 1.2. Model domain extent was selected based on available refined mesoscale meteorological model (MM5) data from the SWWYTAF study and the locations of the PSD Class I and sensitive Class II Wilderness areas that were selected for air quality analyses.

Table 4.2 Maximum Emission Scenarios (tpy), Seminoe Road Project

Project Phase/Constituent	Proposed Action	Non-electrification Scenario
Production Well[1]		
NO_x	5.1	205.9
SO_2	0.0	0.0
PM_{10}	0.0	0.0
$PM_{2.5}$	0.0	0.0
Production Traffic[2]		
NO_x	0.3	0.3
SO_2	0.01	0.01
PM_{10}	295.6	295.6
$PM_{2.5}$	44.2	44.2
Compression[3]		
NO_x	34.7	104.2
SO_2	0.0	0.0
PM_{10}	0.0	0.0
$PM_{2.5}$	0.0	0.0
Construction[4]		
NO_x	300.1	300.1
SO_2	31.9	31.9
PM_{10}	70.7	70.7
$PM_{2.5}$	39.7	39.7
Total		
NO_x	340.2	610.5
SO_2	31.9	31.9
PM_{10}	366.3	366.3
$PM_{2.5}$	83.9	83.9

1 Includes emissions from wellsite down-hole water pump engines.
2 Includes emissions from all traffic associated with 1040 wells in production.
3 Includes emissions from the proposed compressor stations.
4 Includes emissions associated with 6 drill rigs; 2 under construction (rig-up/rig-down), 4 operating continuously.

The modeling domain was processed to a uniform horizontal grid using 4-km resolution, based on a Lambert Conformal Projection defined with a central longitude/latitude at (-108.55°/42.55°) and first and second latitude parallels at 30° and 60°. The modeling grid consisted of 125 x 100, 4-km grid cells, and covers the project area and all analyzed Class I and sensitive Class II areas. The total area of the modeling domain is 500 x 400 km. Ten vertical layers were used, with heights of 20, 40, 100, 140, 320, 580, 1,020, 1,480, 2,220, and 2,980 meters.

The CALMET analysis utilized the MM5 data, (which was processed at a 20-km horizontal grid spacing), data from 51 surface meteorological stations and 134 precipitation stations, and four upper air meteorological stations to supplement MM5 upper air estimates. USGS 1:250,000-Scale Land Use and Land Cover (LULC) data, and USGS 1-degree DEM data were used for land use and terrain data in the development of the CALMET wind fields. Listings of the surface and upper air meteorological stations, and the precipitation stations that were used in this analysis are provided in Appendix E. The CALMET model was run following control switch settings that were developed as part of SWWYTAF to develop the one-year (1995) wind field data set.

The modeling domain extended as far south and east as possible given the available refined MM5 data. The IWAQM guidance for CALMET/CALPUFF recommends that the horizontal domain of the model grid extend 50 to 80 km beyond the receptors and sources being modeled, for modeling potential recirculation wind flow effects. Because the southern and eastern portions of Rocky Mountain National Park are less than 50 km from the modeling grid boundary, the recirculation wind patterns may not be completely resolved by CALMET in those areas. However, because the direct wind flow patterns that could transport potential Project and regional source emissions to these areas are properly characterized in the modeling domain, the potential impacts from Project and regional sources in these areas would also be properly characterized.

4.4 DISPERSION MODEL INPUT AND OPTIONS

The CALPUFF model was used to model Project-specific and regional emissions of NO_x, SO_2, PM_{10}, and $PM_{2.5}$. CALPUFF was run using the IWAQM-recommended default control file switch settings for all parameters. Chemical transformations were modeled based on the MESOPUFF II chemistry mechanism for conversion of SO_2 to sulfate (SO_4) and NO_x to nitric acid (HNO_3) and nitrate (NO_3). Each of these pollutant species was included in the CALPUFF model runs. NO_x, HNO_3, and SO_2 were modeled with gaseous deposition, and SO_4, NO_3, PM_{10}, and $PM_{2.5}$ were modeled using particle deposition. The PM10 emissions input to CALPUFF included only the PM_{10} emissions greater than the $PM_{2.5}$ (i.e., modeled PM_{10} = PM_{10} emission rate – $PM_{2.5}$ emission rate). Total PM_{10} impacts were determined in the post-processing of modeled impacts, as discussed in Section 4.5.

4.4.1 Chemical Species

The CALPUFF chemistry algorithms require hourly estimates of background O_3 and ammonia concentrations for the conversion of SO_2 and NO/NO_2 to sulfates and nitrates, respectively. Background O_3 data, for the meteorology 1995 modeling year, were available for six stations within the modeling domain:

- Pinedale, Wyoming,
- Centennial, Wyoming,
- Yellowstone National Park, Wyoming,
- Craters of the Moon National Park, Idaho,
- Highland, Utah, and
- Mount Zirkel Visibility Study, Hayden, Colorado.

Hourly O_3 data from these stations was used in the CALPUFF modeling, with a default value of 44.7 parts per billion (ppb) (7 a.m.-7 p.m. mean) used for missing hours. A background ammonia concentration of 1.0 ppb was used as suggested in the IWAQM guidance for arid lands.

4.4.2 Model Receptors

CALPUFF model receptors, at which the concentration, deposition, and AQRV impacts were calculated, were placed along the boundaries of all Class I and other sensitive areas at 2-km spacing, and within the boundaries of these areas on a 4-km Cartesian grid. Discrete receptors were placed on a Cartesian grid at 4-km spacing within each Project Area. Individual receptor points were determined for each of the 14 acid-sensitive lakes. Receptor elevations for all sensitive Class I and Class II areas were determined from 1:250,000 scale USGS DEM data. Elevations for the sensitive lake receptors were derived from 7.5-minute USGS topographical maps. All model receptors utilized in the far-field analyses are shown in Figure 4.1.

4.4.3 Source Parameters

CALPUFF source parameters were determined for all Project and regional source emissions of NO_x, SO_2, PM_{10}, and $PM_{2.5}$. Project sources were input to CALPUFF using point sources to idealize compressor stations, drill rigs, pit flares, and down-hole well pump engines. Additionally, 4-km^2 area sources at 4-km spacing were placed throughout each Project Area to idealize vehicle traffic and wind erosion emissions, and for wellsite heaters (AR) and down-hole well pump emissions (SR). Compressor station emissions and modeled parameters are provided in Appendix D. The source and receptor layouts are shown in Figure 4.2 for Altantic Rim and in Figure 4.3 for Seminoe Road. Parameters used in modeling the drill rigs, pit flares, and wind erosion are given in Appendix B. Field-wide emissions scenarios for each analyzed Project alternative are summarized in Section 4.2.

Non-project regional emissions were input to CALPUFF using area sources to idealize non-compression RFD sources and county-wide wellsites, and point sources to idealize state-permitted sources, RFD compression sources, and RFFA. The source parameters used in modeling all state-permitted and RFFA sources are provided in Appendix C. Non-compression RFD emissions were modeled using area sources developed for each proposed field development

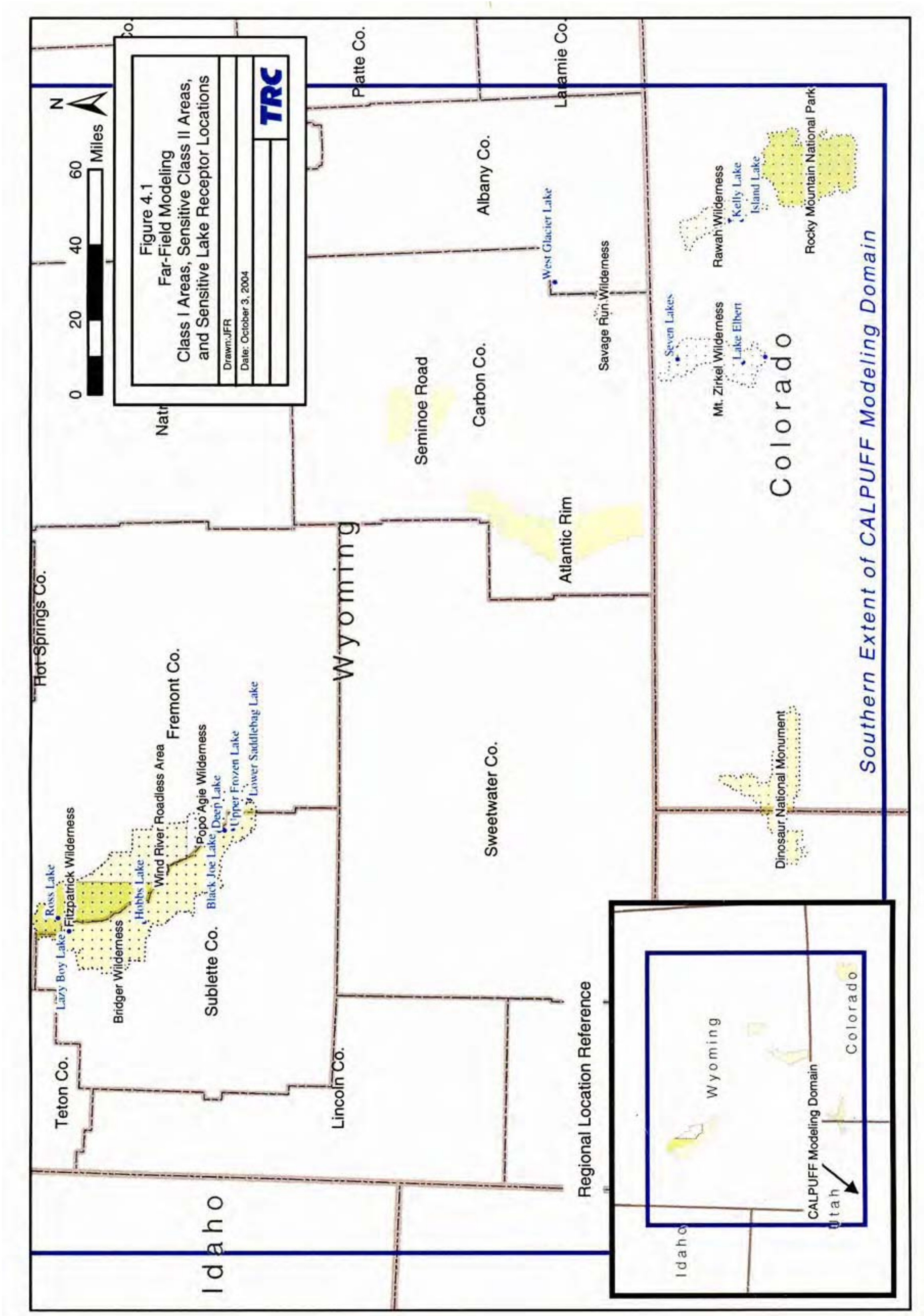


Figure 4.1 Far-field Modeling – Class I Areas, Sensitive Class II Areas and Sensitive Lake Receptor Locations.

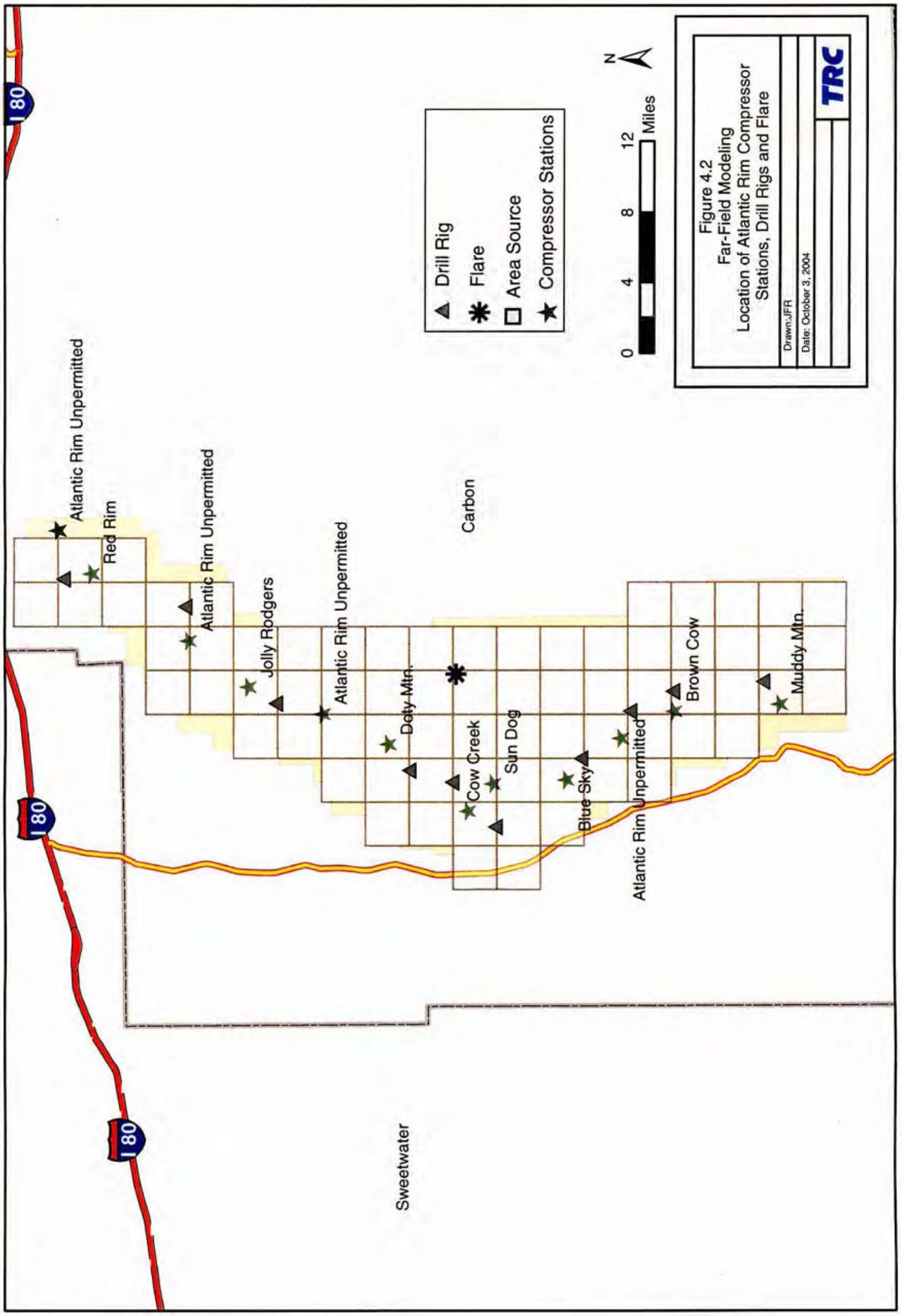


Figure 4.2 Far-field Modeling - Location of Atlantic Rim Compressor Stations, Drill Rigs and Flare.

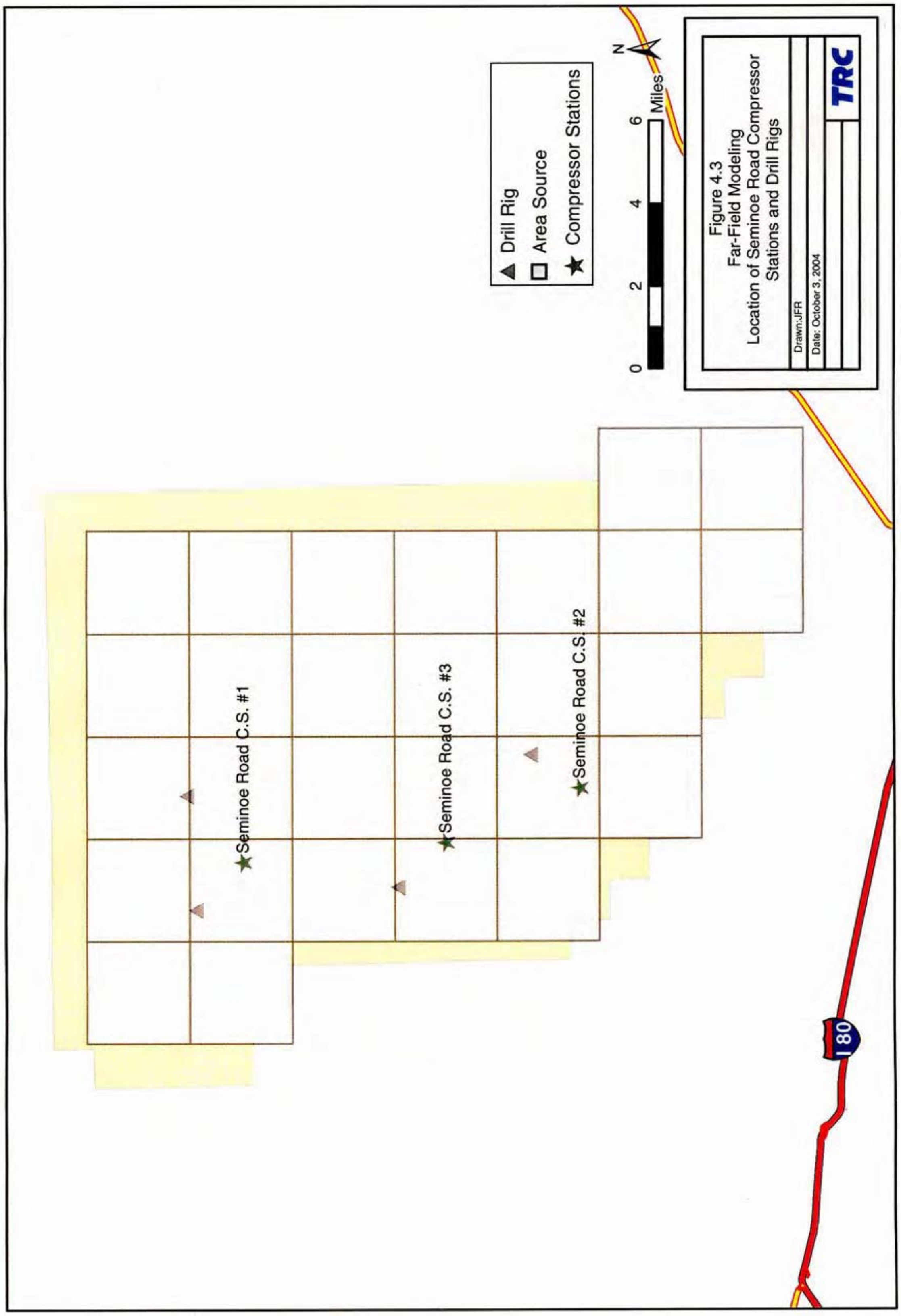


Figure 4.3 Far-field Modeling - Location of Seminoe Road Compressor Stations and Drill Rigs.

as a “best fit” to the respective project area. The area sources developed for each RFD project are shown in Figure 4.4. County-wide well emissions were modeled using area sources that “best fit” the respective county area. The area sources used to model county-wide wellsite emissions are shown in Figure 4.5. Where applicable, seasonal emission-rate adjustment factors were applied to emissions from wellsite heaters to account for seasonal variations in heater use. Source elevations for all RFD and county-wide area sources were determined from 1:250,000 scale USGS DEM data.

4.5 BACKGROUND DATA

4.5.1 Criteria Pollutants

Ambient air concentration data collected at monitoring sites in the region provide a measure of the background conditions during the most recent available time period. Regional monitoring-based background values for criteria pollutants (PM_{10}, $PM_{2.5}$, NO_2, and SO_2) were collected at monitoring sites in Wyoming and northwestern Colorado, and are summarized in Table 4.3. These ambient air background concentrations are added to modeled pollutant concentrations (expressed in micrograms per cubic meter [$\mu g/m^3$]) to arrive at total ambient air quality impacts for comparison to the NAAQS and applicable WAAQS or CAAQS.

4.5.2 Visibility

Background visibility data representative of the study area are from IMPROVE monitoring sites located at the Bridger Wilderness and Mount Zirkel Wilderness Areas and at Rocky Mountain National Park (Table 4.4). Background visibility data are used in combination with modeled pollutant impacts to estimate change in visibility conditions (measured as change in light extinction). The IMPROVE background visibility data are provided as reconstructed aerosol total extinction data, based on the quarterly mean of the 20% cleanest days measured at each site for the historical monitoring period of record through December 2002.

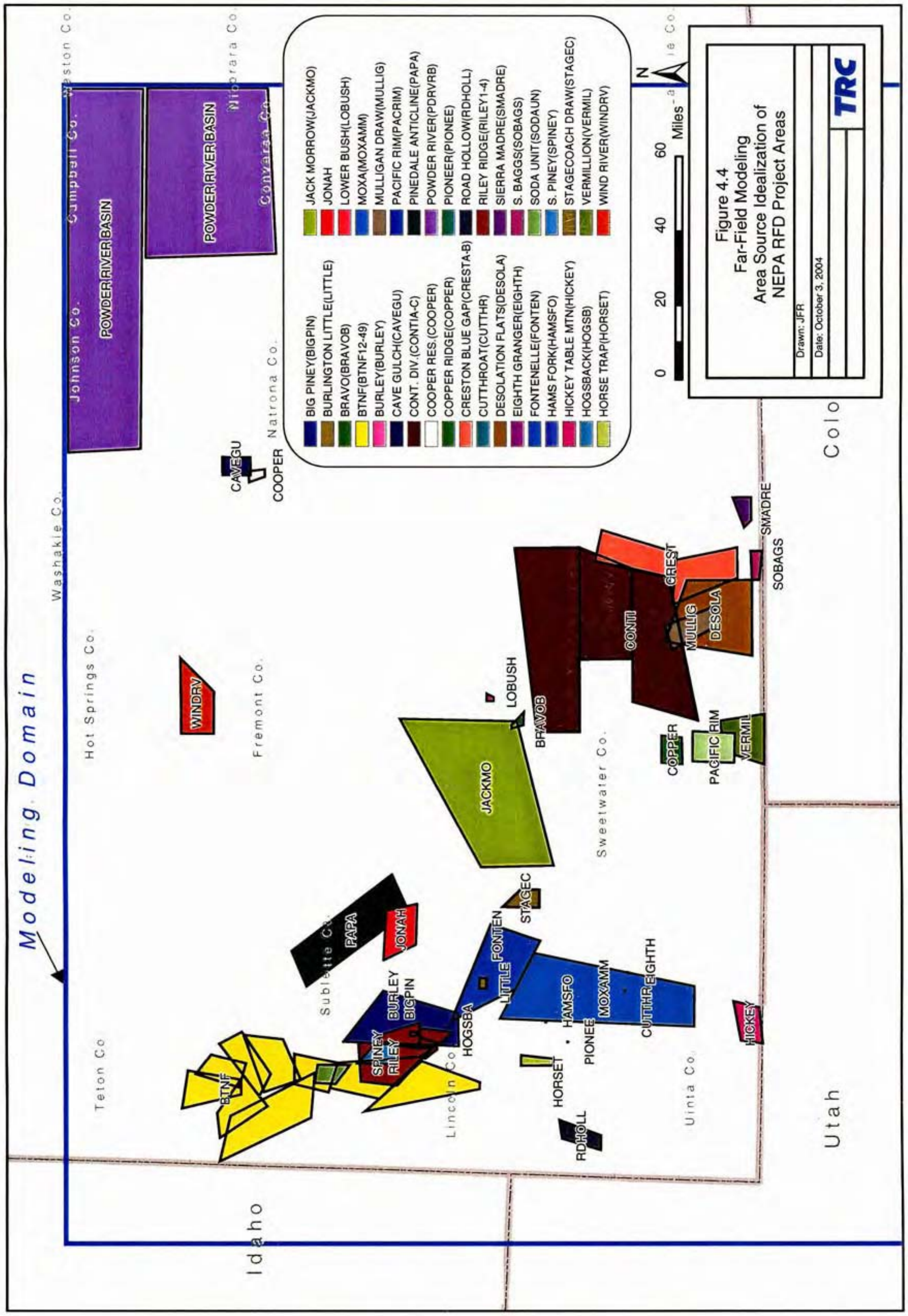


Figure 4.4 Far-field Modeling – Area Source Idealization of NEPA RFD Project Areas.

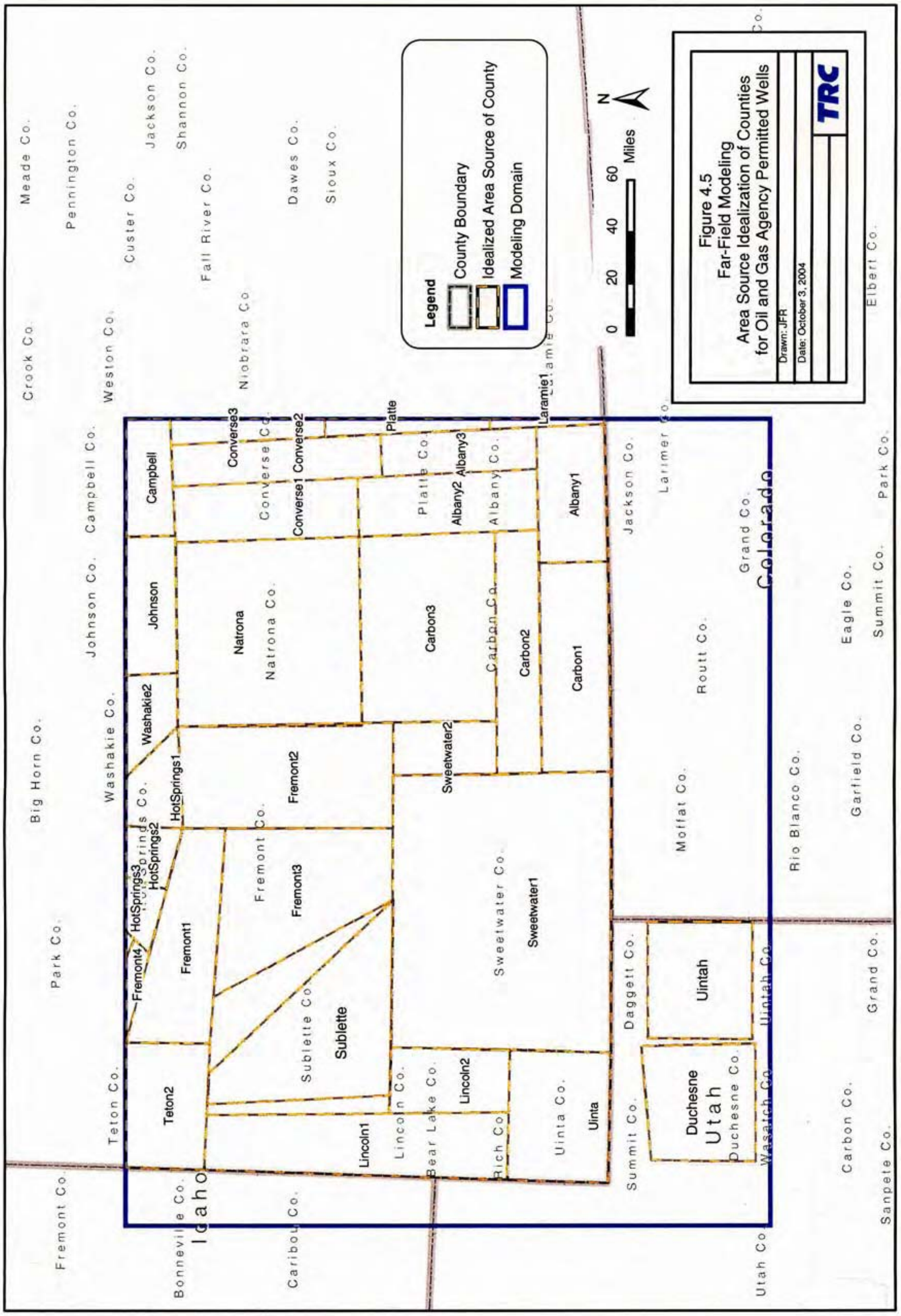


Figure 4.5 Far-field Modeling – Area Source Idealization of Counties for Oil and Gas Agency Permitted Wells.

Table 4.3 Far-field Analysis Background Ambient Air Quality Concentrations (µg/m^3).

Pollutant	Averaging Period	Measured Background Concentration
NO_2[1]	Annual	3.4
PM_{10}[2]	24-hour	33
	Annual	16
$PM_{2.5}$[2]	24-hour	13
	Annual	5
SO_2[3]	3-hour	132
	24-hour	43
	Annual	9

1 Data collected at Green River Basin Visibility Study site, Green River, Wyoming during period January-December 2001 (ARS 2002).
2 Data collected by WDEQ-AQD at Emerson Building, Cheyenne, Wyoming, Year 2001.
3 Data collected at LaBarge Study Area at the Northwest Pipeline Craven Creek Site 1982-1983.

Table 4.4 IMPROVE Background Aerosol Extinction Values.

IMPROVE Site	Quarter	Hygroscopic (Mm^{-1})	Non-Hygroscopic (Mm^{-1})	Monitoring Period
Bridger Wilderness Area	1	0.845	1.666	1989-2002
	2	1.730	3.800	1988-2002
	3	1.902	5.637	1988-2002
	4	0.915	2.035	1988-2002
Mount Zirkel Wilderness Area	1	1.269	2.591	1995-2002
	2	2.028	4.163	1995-2002
	3	2.358	5.151	1994-2002
	4	0.961	2.262	1994-2002
Rocky Mountain National Park	1	0.986	2.117	1991-2002
	2	2.457	5.261	1991-2002
	3	2.651	6.709	1991-2002
	4	0.790	2.720	1990-2002

4.5.3 Deposition

Background total sulfur (S) and nitrogen (N) deposition data (expressed in kilograms per hectare per year [kg/ha-yr]) collected at National Acid Deposition Program (NADP) National Trends Network (NTN) and Clean Air Status and Trends Netwok (CASTNET) stations monitoring locations near Pinedale and Centennial/Brooklyn Lake, Wyoming are provided in Table 4.5. These background S and N deposition data are added to modeled cumulative (Project alternative and regional sources) deposition impacts to estimate total S and N deposition impacts.

Table 4.5 Background N and S Deposition Values (kg/ha-yr).

Site Location	Nitrogen Deposition	Sulfur Deposition	Year of Monitoring
Pinedale	1.4	0.65	2003
Centennial/Brooklyn Lake	2.7	0.84	2002

4.5.4 Lake Chemistry

The most recent lake chemistry background ANC data were obtained for each sensitive lake included in the analysis. The 10th percentile lowest ANC values were calculated for each lake following procedures provided by the USDA Forest Service. These ANC values and the number of samples used in the calculation of the 10^{th} percentile lowest ANC values are provided in Table 4.6.

Table 4.6 Background ANC Values for Acid Sensitive Lakes.

Wilderness Area	Lake	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	10th Percentile Lowest ANC Value (µeq/l)	Number of Samples	Monitoring Period
Bridger	Black Joe	42º44'22"	109º10'16"	67.0	61	1984-2003
Bridger	Deep	42º43'10"	109º10'15"	59.9	58	1984-2003
Bridger	Hobbs	43º02'08"	109º40'20"	69.9	65	1984-2003
Bridger	Lazy Boy	43º19'57"	109º43'47"	18.8	1	1997
Bridger	Upper Frozen	42º41'13"	109º09'39"	5.0	6	1997-2003
Fitzpatrick	Ross	43º22'41"	109º39'30"	53.5	44	1988-2003
GLEES[1]	West Glacier Lake	41º22'38"	106º15'31"	35.2	14	1988-1996
Mount Zirkel	Lake Elbert	40º38'3"	106º42'25"	51.9	55	1985-2003
Mount Zirkel	Seven Lakes	40º53'45"	106º40'55"	36.2	55	1985-2003
Mount Zirkel	Summit Lake	40º32'43"	106º40'55"	47.3	95	1985-2003
Popo Agie	Lower Saddlebag	42º37'24"	108º59'38"	55.5	43	1989-2003
Rawah	Island Lake	40º37'38"	105º56'26"	68.7	15	1996-2002
Rawah	Kelly Lake	40º37'32"	105º57'34"	181.1	13	1995-2002
Rawah	Rawah Lake #4	4040'16"	105º57'28"	41.2	13	1996-2002

1 GLEES (Glacier Lakes Ecosystem Experiments Site) – Medicine Bow National Forest, Snowy Range, WY.

4.6 IMPACT ASSESSMENT

CALPUFF modeling was performed to compute direct Project impacts for both the Atlantic Rim and Seminoe Road Projects and for estimating cumulative impacts from Project and regional sources. The analyzed alternatives, as described in Section 4.2, represent maximum emissions scenarios that included the last year of field development, at the maximum annual construction activity rate, combined with nearly full-field production. Regional emissions inventories of existing state-permitted RFD and RFFA sources, as described in Chapter 2.0, were modeled in combination with each Project alone to estimate cumulative impacts for the No Action Alternative. Specifically, the No Action Alternative scenario computed for the Atlantic Rim Project included impacts from the Seminoe Road Project and the No Action scenario computed for the Seminoe Road Project included impacts from the Atlantic Rim Project. These regional inventories were modeled in combination with Project alternatives to provide cumulative impact estimates for each Project.

For each far-field sensitive area, CALPUFF-modeled concentration impacts were post-processed with POSTUTIL and CALPOST to derive: 1) concentrations for comparison to ambient standards (WAAQS and NAAQS), PSD Class I significance thresholds, and PSD Class I and II Increments; 2) deposition rates for comparison to S and N deposition thresholds and to calculate changes to acid neutralizing capacity (ANC) at sensitive lakes; and 3) light extinction changes for comparison to visibility impact thresholds. For in-field locations, CALPUFF concentrations were post-processed to compute maximum concentration impacts for comparison to WAAQS and NAAQS.

4.6.1 Concentration

The CALPOST and POSTUTIL post-processors were used to summarize concentration impacts of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ at PSD Class I and sensitive PSD Class II areas, and at in-field locations. Predicted impacts are compared to applicable ambient air quality standards, PSD Class I and Class II increments, and significance levels as shown in Table 4.7.

PM_{10} concentrations were computed by adding predicted CALPUFF concentrations of PM_{10} (fraction of PM greater than $PM_{2.5}$), $PM_{2.5}$, SO_4, and NO_3. $PM_{2.5}$ concentrations were calculated as the sum of modeled $PM_{2.5}$, SO_4, and NO_3 concentrations. In post-processing the PM_{10} impacts at all far-field receptor locations, the PM_{10} impacts from Project alternative traffic emissions (production and construction) were not included in the total estimated impacts, only the $PM_{2.5}$ impacts were considered. This assumption was based on supporting documentation from the Western Regional Air Partnership (WRAP) analyses of mechanically generated fugitive dust emissions that suggest that particles larger than $PM_{2.5}$ tend to deposit out rapidly near the emissions source and do not transport over long distances (Countess et al. 2001). This phenomenon is not modeled adequately in CALPUFF; therefore, to avoid overestimates of PM_{10} impacts at far-field locations, these sources were not considered in the total modeled impacts. However, the total PM_{10} impacts from traffic emissions were included in all in-field concentration estimates.

Far-Field Results

The maximum predicted concentrations of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ at each of the analyzed PSD Class I and sensitive Class II areas, for each modeled Project alternative and cumulative source scenarios, are provided in Appendix F. Predicted direct impacts are compared to

Table 4.7 Ambient Standards, PSD Class I and Class II Increments, and Significance Levels for Comparison to Far-Field Analysis Results (µg/m³).

Pollutant/Averaging Time	NAAQS	WAAQS	PSD Class I Increment	PSD Class II Increment	PSD Class I Significant Impact Level[1]	PSD Class II Significance Level
Nitrogen dioxide (NO_2)						
Annual[2]	100	100	2.5	25	0.1	1.0
Sulfur dioxide (SO_2)						
3-hour[3]	1,300	1,300	25	512	1.0	25
24-hour[3]	365	260	5	91	0.2	5
Annual[2]	80	60	2	20	0.1	1
PM_{10}						
24-hour[3]	150	150	8	30	0.3	5
Annual[2]	50	50	4	17	0.2	1
$PM_{2.5}$						
24-hour[4]	65	65	--	--	--	--
Annual [4]	15	15	--	--	--	--

1 Proposed Class I significant impact levels, *Federal Register*/Vol. 61, No. 142, pg. 38292, July 23, 1996.
2 Annual arithmetic mean.
3 No more than one exceedance per year.
4 Proposed.

applicable PSD Class I and Class II increments and significance levels, and applicable NAAQS, WAAQS, and CAAQS when representative background pollutant concentrations, shown in Table 4.3, are added. Cumulative impacts from all analyzed alternatives are compared directly to applicable PSD Class I and Class II increments, and to the NAAQS, WAAQS, and CAAQS when background pollutant concentrations are added. Tables F1.1.1 – F1.1.3 provide the maximum modeled NO_2 concentrations at each of the sensitive areas for the Atlantic Rim Project. Tables F2.1.1 – F2.1.5 provide the maximum modeled NO_2 concentrations at each of the sensitive areas for the Seminoe Road Project scenarios. The maximum modeled SO_2 concentrations are provided in Tables F1.2.1 – F1.2.3 (AR) and Tables F2.2.1 – F2.2.5 (SR). The maximum modeled PM_{10} impacts are provided in Tables F1.3.1 – F1.3.3 (AR), and Tables F2.3.1 – F2.3.5 (SR), and the maximum modeled $PM_{2.5}$ impacts are provided in Tables F1.4.1 – F1.4.3 (AR), and Tables F2.4.1 – F2.4.5 (SR).

The modeling results indicate that, for both the Atlantic Rim and Seminoe Road Projects, neither direct Project impacts nor cumulative source impacts would exceed any air quality standards (WAAQS, CAAQS, and NAAQS) or PSD increment. In addition direct Project impacts are below the proposed PSD Class I significant impact levels. The PSD demonstrations are for informational purposes only and do not constitute a regulatory PSD increment consumption analysis.

<u>In-Field Results</u>

The maximum predicted concentrations of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ within and nearby each Project Area, for each of the modeled direct Project and cumulative scenarios are provided in Appendix F. The maximum in-field concentrations predicted for the Atlantic Rim Project are shown in Tables F1.5.1 – F.5.3, and in Tables F2.5.1 – F2.5.5 for the Seminoe Road Project. Predicted direct Project and cumulative impacts are added to representative background pollutant concentrations and are compared to applicable NAAQS and WAAQS. As shown in these tables there would be no exceedances of the NAAQS or WAAQS within and nearby the ARPA and

SRPA from field-wide Project sources and cumulative sources. This analysis further supports the compliance demonstrations shown in Section 3.4 for maximum near-field impacts.

4.6.2 Deposition

Maximum predicted sulfur (S) and nitrogen (N) deposition impacts were estimated for each analyzed Project alternative and cumulative source scenarios. The POSTUTIL utility was used to estimate total S and N fluxes from CALPUFF predicted wet and dry fluxes of SO_2, SO_4, NO_x, NO_3, and HNO_3. CALPOST was then used to summarize the annual S and N deposition values from the POSTUTIL program. Predicted direct Project impacts were compared to the NPS deposition analysis thresholds (DATs) for total N and S deposition in the western U.S., which are defined as 0.005 kg/ha-yr for both N and S. Total deposition impacts from Project alternative and regional sources and background values were compared to USDA Forest Service levels of concern, defined as 5 kg/ha-yr for S and 3 kg/ha-yr for N (Fox et al. 1989). It is understood that the USDA Forest Service no longer considers these levels to be protective; however, in the absence of alternative FLM-approved values, comparisons with these values were made. The maximum predicted N and S deposition impacts are provided in Appendix F, Tables F1.6.1 and F1.6.2 for the Atlantic Rim Project and in Tables F2.6.1 and F2.6.2 for Seminoe Road. Total deposition impacts include background values measured at Pinedale for the Bridger Fitzpatrick, and Popo Agie Wilderness Areas, Dinosaur National Monument and Wind River Roadless Area, and at Centennial for the Rawah, Savage Run and Mount Zirkel Wilderness Areas, and Rocky Mountain National Park. Modeling results for both projects indicate that there would be no direct project N or S deposition impacts above the DAT, and that all total N and S deposition impacts would be below the levels of concern.

4.6.3 Sensitive Lakes

The CALPUFF-predicted annual deposition fluxes of S and N at sensitive lake receptors listed in Section 4.2.3 were used to estimate the change in ANC. The change in ANC was calculated following the January 2000, USDA Forest Service Rocky Mountain Region's *Screening*

Methodology for Calculating ANC Change to High Elevation Lakes, User's Guide (USDA Forest Service 2000). The predicted changes in ANC are compared with the USDA Forest Service's Level of Acceptable Change (LAC) thresholds of 10% for lakes with ANC values greater than 25 microequivalents per liter (μeq/l) and 1 μeq/l for lakes with background ANC values of 25 μeq/l or less. Of the 14 lakes listed in Table 4.6 and identified by the USDA Forest Service as acid sensitive, Upper Frozen and Lazy Boy lakes are considered extremely acid sensitive.

ANC calculations were performed for each of the analyzed Project alternative and cumulative source scenarios, with the results presented in Appendix F, Tables F1.7.1 – F1.7.3 (AR) and Tables F2.7.1 – F2.7.5 (SR). The modeling results indicate that, for either Project, deposition impacts from direct Project and cumulative emissions would not contribute significantly to an increase in acidification at any of the sensitive lakes.

4.6.4 Visibility

The CALPUFF model-predicted concentration impacts at far-field PSD Class I and sensitive Class II areas were post-processed with CALPOST to estimate potential impacts to visibility (regional haze) for each analyzed alternative and cumulative source scenario for comparison to visibility impact thresholds. CALPOST estimated visibility impacts from predicted concentrations of PM_{10}, $PM_{2.5}$, SO_4, and NO_3. Similar to what was done for post-processing far-field PM_{10} concentration impacts (see Section 4.6.1), PM_{10} impacts from Project traffic emissions were not included in the total estimated impacts, only the $PM_{2.5}$ impacts were considered.

Visibility impairment calculations were performed using estimated natural background visibility conditions obtained from FLAG (2000) (FLAG method) and measured background visibility conditions from the Bridger and Mount Zirkel Wilderness Areas and Rocky Mountain National Park IMPROVE sites (IMPROVE method). IMPROVE-method data are based on the quarterly mean of the 20% cleanest days as shown in Table 4.4. The IMPROVE background visibility data are provided as reconstructed aerosol total extinction data, based on the quarterly mean of the 20% cleanest days measured at each site for the historical monitoring period of record through December 2002.

For the FLAG method, estimated natural background visibility values as provided in Appendix 2.B of FLAG (2000), and monthly relative humidity factors as provided in the *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule* (EPA 2003) were used. The natural background visibility data used with the FLAG visibility analysis are shown in Table 4.8. The values are the same for each of the PSD Class I and sensitive PSD Class II areas analyzed.

The IMPROVE method used the measured background conditions at the Bridger and Mount Zirkel Wilderness Areas and at the Rocky Mountain National Park site, and the monthly relative humidity factors as provided in EPA (2003). Visibility data from the Bridger Wilderness Area IMPROVE site were used for the Bridger, Fitzpatrick, and Popo Agie Wilderness Areas and for the Wind River Roadless Area, and visibility data from the Mount Zirkel Wilderness Area IMPROVE site were used for the Rawah and Savage Run Wilderness Areas and for Dinosaur National Monument.

Table 4.8 FLAG Report Background Extinction Values.[1]

Season	Hygroscopic (Mm^{-1})	Non-hygroscopic (Mm^{-1})
Winter	0.6	4.5
Spring	0.6	4.5
Summer	0.6	4.5
Fall	0.6	4.5

[1] FLAG (2000).

As recommended in EPA (2003), monthly relative humidity factors determined from the Bridger IMPROVE site were used for the Bridger and Fitzpatrick Wilderness Areas; Mount Zirkel IMPROVE data were used for the Mount Zirkel and Rawah Wilderness Areas, and Rocky Mountain National Park IMPROVE data were used for Rocky Mountain National Park. Relative humidity data for the Bridger site were also used for the Popo Agie Wilderness Area and for the Wind River Roadless Area and data for Mount Zirkel were also used for the Savage Run Wilderness Area and for Dinosaur National Monument. Table 4.9 provides the relative humidity factors that were used in the analyses.

Change in atmospheric light extinction relative to background conditions is used to measure regional haze. Analysis thresholds for atmospheric light extinction are set forth in FLAG (2000), with the results reported in percent change in light extinction and change in deciview (dv). The thresholds are defined as 5% and 10% of the reference background visibility or 0.5 and 1.0 dv for projects sources alone and cumulative source impacts, respectively. The BLM considers a 1.0 dv change as a significant adverse impact; however, there are no applicable local, state, tribal, or federal regulatory visibility standards.

Table 4.9 Monthly Relative Humidity Factors Based on Representative IMPROVE Sites.

IMPROVE Site	Quarter	Months	f(RH) Values
Bridger Wilderness Area[1]	1	Jan, Feb, Mar	2.5, 2.3, 2.3
	2	Apr, May, Jun	2.1, 2.1, 1.8
	3	Jul, Aug, Sep	1.5, 1.5, 1.8
	4	Oct, Nov, Dec	2.0, 2.5, 2.4
Mount Zirkel Wilderness Area[2]	1	Jan, Feb, Mar	2.2, 2.2, 2.0
	2	Apr, May, Jun	2.1, 2.2, 1.8
	3	Jul, Aug, Sep	1.7, 1.8, 2.0
	4	Oct, Nov, Dec	1.9, 2.1, 2.1
Rocky Mountain National Park	1	Jan, Feb, Mar	1.9, 2.0, 2.0
	2	Apr, May, Jun	2.1, 2.3, 2.0
	3	Jul, Aug, Sep	1.9, 1.9, 2.0
	4	Oct, Nov, Dec	1.8, 2.0, 1.9

[1] Also used for Fitzpatrick and Popo Agie Wilderness Areas, and Wind River Roadless Area.
[2] Also used for Rawah and Savage Run Wilderness Areas, and Dinosaur National Monument.

Far-Field Results

The maximum predicted far-field visibility impacts for the analyzed Atlantic Rim and Seminoe Road Project alternatives are provided in Appendix F, Tables F1.8.1 – F1.8.3, for Atlantic Rim and Tables F2.8.1 – F2.8.5 for Seminoe Road. Predicted impacts are shown using both the FLAG and IMPROVE background visibility data. For each Class I and sensitive Class II area the maximum predicted change in deciview and the estimated number of days per year that could potentially exceed 0.5 and 1.0 dv thresholds are provided.

For both the Atlantic Rim and Seminoe Road projects direct visibility impacts from Project sources were predicted to be below the 0.5-dv threshold for all areas using both the FLAG and IMPROVE background visibility data.

Cumulative visibility impacts from each Project and regional sources were predicted to be above the 1.0-dv threshold at the Bridger and Popo Agie Wilderness Areas, and at the Wind River Roadless Area. For both the Atlantic Rim and Seminoe Road projects the highest frequency of predicted cumulative visibility impacts occurred at the Bridger Wilderness where there were 4 days per year (IMPROVE) and 1 day per year (FLAG) when visibility impacts were predicted to be above the 1.0-dv threshold. For both Projects the maximum deciview change at the Bridger Wilderness Area was estimated as 2.1 dv (IMPROVE) and 1.8 dv (FLAG).

As defined in the FLAG report, a 0.4 percent change in extinction (0.04 dv) is considered a Project specific significance level for cumulative visibility analyses. If the direct Project's contribution to a cumulative visibility impact of 1.0 dv or greater is less than 0.04 dv, the project is regarding as having an insignificant contribution to the cumulative visibility impact.

For all days and sensitive receptor areas where the estimated cumulative visibility impacts were predicted to be at or above the 1.0-dv threshold, and the direct Project impacts were predicted to be 0.04 dv or greater, an analysis was performed to determine whether or not each Project's contribution to the total impact was significant. The results indicate that for all days where the cumulative visibility impacts were estimated to be 1.0 dv or greater, both the Atlantic Rim and Seminoe Road project specific impacts were below the 0.04 dv visibility significance threshold. The results of this analysis are provided in Appendix F, Table F1.8.4 (AR) and Table F2.8.6 (SR).

5.0 REFERENCES

Air Resource Specialists. 2002. Green River Basin Visibility Study. Monitored Air Quality Data. Air Resource Specialists, Fort Collins, Colorado.

Bureau of Land Management. 1983. Riley Ridge Natural Gas Project Air Resources Technical Report. U.S. Department of Interior, Bureau of Land Management, Kemmerer Field Office, Kemmerer, Wyoming, in cooperation with Environmental Research and Technology Inc.

______. 1988. Pinedale Resource Management Plan Record of Decision. U.S. Department of Interior, Bureau of Land Management, Pinedale Resource Area, Rock Springs District, Rock Springs, Wyoming.

______. 1990. Record of Decision and Approved Resource Management Plan for the Great Divide Resource Area. U.S. Department of Interior, Bureau of Land Management, Great Divide Resource Area, Rawlins District. Rawlins, Wyoming.

______. 1997. Record of Decision and Green River Resource Management Plan. U.S. Department of Interior Bureau of Land Management, Green River Resource Area, Rock Springs District, Rock Springs, Wyoming.

______. 1999a. Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement-Technical Report. U.S. Department of Interior, Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming, in cooperation with U.S. Forest Service, U.S. Army Corps of Engineers, and State of Wyoming.

______. 1999b. Continental Divide/Wamsutter II and South Baggs Natural Gas Development Projects, Environmental Impact Statement, Air Quality Impact Assessment, Technical Support Document, Volume II, Far-Field Analysis. U.S. Department of Interior, Bureau of Land Management, Rock Springs Field Office, Rock Springs, Wyoming, in cooperation with Earth Tech, Inc., Concord, Massachusetts.

______. 2003. Desolation Flats Natural Gas Exploration and Development Project - Technical Support Documents for the Ambient Air Quality Impact Analysis. U.S. Department of Interior Bureau of Land Management in cooperation with Buys & Associates, Inc.

______. Countess, R.J., W.R. Barnard, C.S. Claiborn, D.A. Gillette, D.A. Latimer, T.G. Pace, J.G. Watson. 2001. Methodology for Estimating Fugitive Windblown and Mechanically Resuspended Road Dust Emissions Applicable for Regional Scale Air Quality Modeling. Report No. 30203-9. Western Regional Air Partnership, Denver, Colorado.

Earth Tech. 2001. The Southwest Wyoming Regional CALPUFF Air Quality Modeling Study Final Report. Earth Tech, Inc., Concord, Massachusetts. February 2001.

______. 2003. CALMET/CALPUFF Air Quality Modeling System. Earth Tech, Inc., Concord, Massachusetts.

Environmental Protection Agency. 1977. Guideline for Air Quality Maintenance and Planning and Analysis, Vol. 10, (Revised). Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. EPA-450/4-77-001.

______. 1993. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure. Preliminary Review Draft.

______. 1995. Compilation of Air Pollutant Emission Factors (AP-42), Vol. 1, Stationary Point and Area Sources, Fifth Edition. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

______. 2002. Air Toxics Database. Dose-Response Assessment for Assessing Health Risks Associated With Exposure to Hazardous Air Pollutants, Table 2. Office of Air Quality Planning and Standards (OAQPS). Technology Transfer Network Air Toxics Website. <http://www.epa.gov/ttn/atw/toxsource/summary.html>. Data accessed June 20, 2003.

______. 2003. Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

Federal Land Managers' Air Quality Related Values Workgroup. 2000. Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report. U.S. Forest Service-Air Quality Program, National Park Service-Air Resources Division, U.S. Fish and Wildlife Service-Air Quality Branch. December 2000.

Fox, Douglas, Ann M. Bartuska, James G. Byrne, Ellis Cowling, Rich Fisher, Gene E. Likens, Steven E. Lindberg, Rick A. Linthurst, Jay Messer, and Dale S. Nichols. 1989. A Screening Procedure to Evaluate Air Pollution Effects on Class I Wilderness Areas. General Technical Report RM-168. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 36 pp.

Gas Research Institute. 1999. GRI-HAPCalc® Version 3.01. Gas Research Institute. Des Plaines, Illinois.

Interagency Workgroup on Air Quality Modeling. 1998. Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts. EPA-454/R-98-019. Office of Quality Planning and Standards. U.S. EPA, Research Triangle Park, North Carolina. December 1998.

National Park Service. 2001. Guidance on Nitrogen and Sulfur Deposition Analysis Thresholds. National Park Service and U.S. Fish and Wildlife Service. National Park Service Air Resources Division. <http://www.aqd.nps.gov/ard/flagfree/2001>, Data accessed July 2003.

Scheffe, Richard D. 1988. VOC/NO_x Point Source Screening Tables. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. August 1988.

USDA Forest Service. 2000. Screening Methodology for Calculating ANC Change to High Elevation Lakes, User's Guide. U.S. Department of Agriculture (USDA) Forest Service, Rocky Mountain Region. January 2000.

Wyoming Department of Environmental Quality. 2001. Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, Wyoming Department of Environmental Quality-Air Quality Division. June 1997 with revisions through August 2001.

______. 2003. Wyoming's Long Term Strategy for Visibility Protection, 2003 Review Report. Appendix E, Visibility Monitoring Data Assessment. Wyoming Department of Environmental Quality-Air Quality Division (WDEQ-AQD).

APPENDIX A:

AIR QUALITY IMPACT ASSESSMENT PROTOCOL

FINAL
AIR QUALITY IMPACT ASSESSMENT PROTOCOL, ATLANTIC RIM NATURAL GAS PROJECT AND SEMINOE ROAD GAS DEVELOPMENT PROJECT, CARBON COUNTY, WYOMING

Prepared for

Bureau of Land Management
Rawlins Field Office
1300 N. Third Street
Rawlins, Wyoming 82301

and

Bureau of Land Management
Wyoming State Office
5353 Yellowstone Road
Cheyenne, Wyoming 82009

By

James Zapert
Susan Connell

TRC Environmental Corporation
605 Skyline Road
Laramie, Wyoming 82070

TRC Project 28822

June 2004

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

ANC	Acid neutralizing capacity
AQD	Air Quality Division
AQRV	Air Quality Related Value
ARS	Air Resource Specialists
Atlantic Rim Operators	Anadarko E&P Company LP, Petroleum Development Corporation, Double Eagle Petroleum, Julander Energy, Merit Energy
BACT	Best Available Control Technology
BLM	Bureau of Land Management
C.F.R.	*Code of Federal Regulations*
CAAQS	Colorado Ambient Air Quality Standards
CDPHE/APCD	Colorado Department of Public Health and Environment/Air Pollution Control Division
CD/WII	Continental Divide/Wamsutter II
CO	Carbon monoxide
COGCC	Colorado Oil and Gas Conservation Commission
dv	Deciview
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FLAG	Federal Land Managers' Air Quality Related Values Workgroup
FLM	Federal Land Managers
GRI	Gas Research Institute
HAP	Hazardous air pollutant
HNO_3	Nitric acid
IAAQS	Idaho Ambient Air Quality Standards
IDEQ	Idaho Division of Environment Quality
IDLH	Immediately Dangerous to Life or Health
IOGCC	Idaho Oil and Gas Conservation Commission
IWAQM	Interagency Workgroup on Air Quality Modeling
kg/ha/yr	Kilograms per hectare per year
LAC	Level of Acceptable Change
LOP	Life of Project
MEI	Maximally Exposed Individual
MLE	Most Likely Exposure
N	Nitrogen
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act*
NIOSH	National Institute for Occupational Safety and Health
NO_2	Nitrogen dioxide
NO_3	Nitrate
NO_x	Oxides of nitrogen
NPS	National Park Service
NSR	New Source Review
NWS	National Weather Service

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

O_3	Ozone
Operators	Anadarko E&P Company LP, Dudley & Associates, LLC, and other oil and gas companies
RFO	Rawlins Field Office
PM_{10}	Particulate matter less than or equal to 10 microns in size
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in size
ppb	Parts per billion
Protocol	Air Quality Impact Assessment Protocol
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance/Quality Control
REL	Reference exposure level
RfC	Reference Concentrations for Chronic Inhalation
RFD	Reasonably foreseeable development
RFFA	Reasonably foreseeable future actions
RMP	Resource Management Plan
ROD	Record of Decision
S	Sulfur
SO_2	Sulfur dioxide
SO_4	Sulfate
SWWYTAF	Southwest Wyoming Technical Air Forum
TRC	TRC Environmental Corporation
UAAQS	Utah Ambient Air Quality Standards
UDEQ-AQD	Utah Department of Environmental Quality-Air Quality Division
UDNR-DOGM	Utah Department of Natural Resources-Division of Oil, Gas, and Mining
URF	Unit risk factor
VOC	Volatile organic compound
WAAQS	Wyoming Ambient Air Quality Standards
WAQSR	Wyoming Air Quality Standards and Regulations
WDEQ	Wyoming Department of Environmental Quality
WOGCC	Wyoming Oil and Gas Conservation Commission
WYDOT	Wyoming Department of Transportation
μeq/l	Microequivalents per liter
$\mu g/m^3$	Micrograms per cubic meter

1.0 INTRODUCTION

TRC Environmental Corporation (TRC) has prepared this Air Quality Impact Assessment Protocol (Protocol) to identify the methodologies for quantifying potential air quality impacts from the proposed Atlantic Rim Natural Gas Project (Atlantic Rim Project) and the proposed Seminoe Road Gas Development Project (Seminoe Road Project). These methodologies are being provided prior to study initiation to ensure that the approach, input data, and computation methods are acceptable to the Bureau of Land Management (BLM) and that other interested parties have the opportunity to review the Protocol and to provide input before the study is initiated. The results of the air quality analysis performed in accordance with this Protocol will be disclosed separately in the Environmental Impact Statement (EIS) for each project.

1.1 ANALYSIS APPROACH

The Atlantic Rim Project and Seminoe Road Project are separate development projects for which all other components of the respective EISs will be performed separately. The locations of these projects are shown in Figure 1.1. Because of the proximity of these projects to one another, and due to nature of air pollutant transport and the potential for long-range cumulative impacts, a single air quality impact assessment is proposed for these projects. Two separate air quality analyses will be conducted to assess localized impacts within each development area (near-field analysis). The far-field analysis for these projects will be a combined effort, utilizing the same model input and regional inventory data. This approach will result in the most representative assessment of cumulative impacts from these projects combined. Far-field impacts will be reported from each project separately (far-field project impacts) and from both projects in combination with other regional data (far-field cumulative impacts). A single Technical Support Document (TSD) will be prepared that includes both projects, describing the air quality analyses performed in technical detail and presenting the results of the analyses.

Due to the projects' locations in south-central Wyoming, cumulative impacts will be assessed from air emissions sources located in portions of Wyoming, northwestern Colorado, northeastern Utah, and southeastern Idaho within the proposed cumulative study area shown on Figure 1.1.

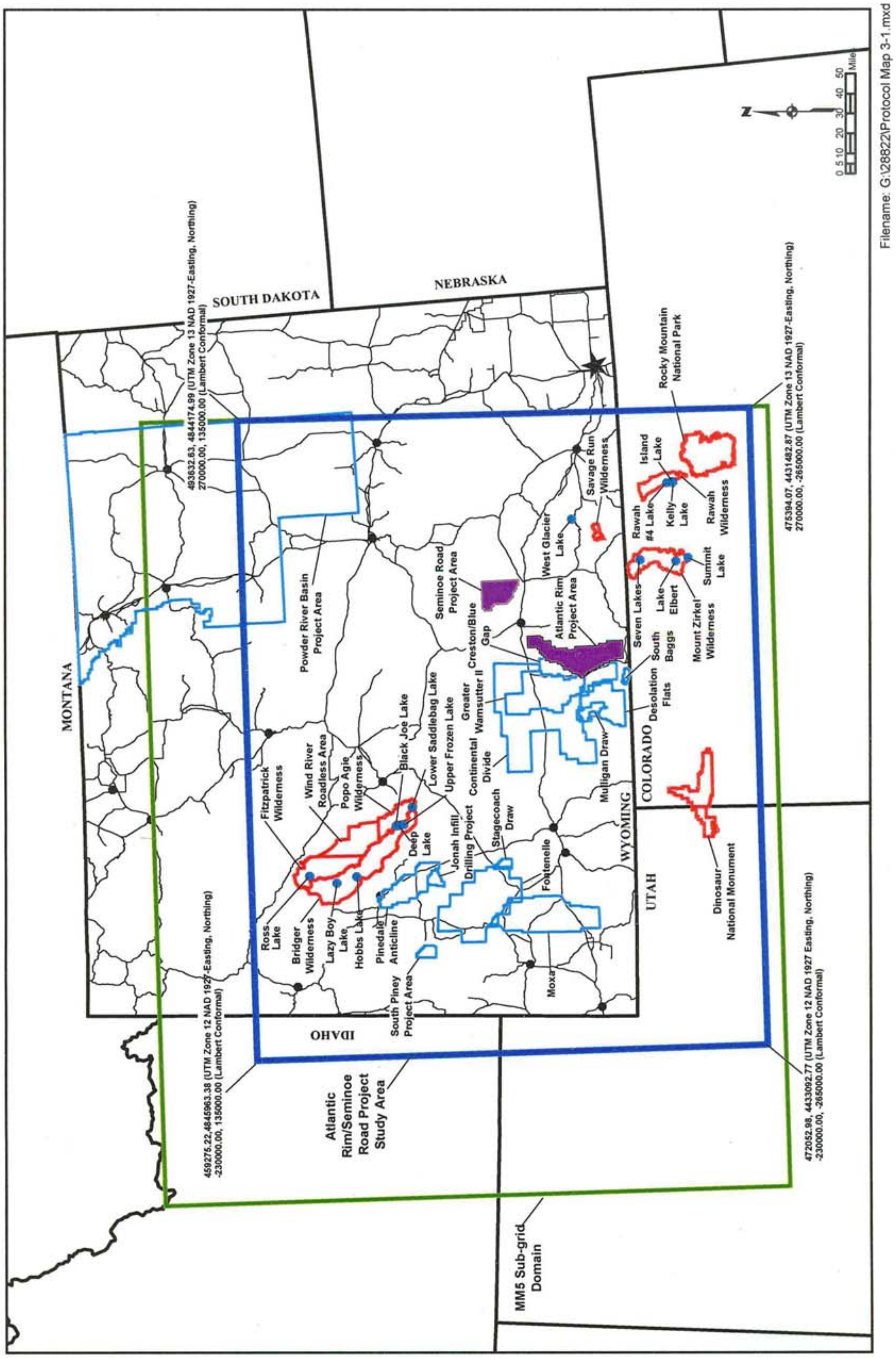


Figure 1.1 Atlantic Rim CBM and Seminoe Road Gas Development Project Areas and Cumulative Impact Area.

cumulative analyses proposed are similar to analyses performed for previous natural gas development projects in Wyoming but are tailored to ensure an accurate assessment of these projects. Specifically, the approach presented in this Protocol differs from previous regional cumulative analyses in two primary aspects. First, the analysis updates visibility and NO_x background data to the most recent data available to more accurately reflect current conditions in the region. This change will advance the emissions inventory period to reflect this more recent background data. Second, the proposed Class I modeling approach will be performed with consideration for recent federal guidance for performing regional Class I analyses (FLAG, 2000; IWAQM, 1998) and will comply with current Wyoming Department of Environmental Quality-Air Quality Division (WDEQ-AQD) recommendations.

1.2 RELATIONSHIPS TO EXISTING PLANS AND DOCUMENTS

The BLM Great Divide Resource Management Plan (RMP)/Record of Decision (ROD) (BLM 1990) directs the management of BLM-administered lands within the project areas. Management of oil and gas resources, as stated in the RMP, provides for leasing, exploration, and development of oil and gas while protecting other resource values. According to the RMP, all public lands in the project areas are suitable for oil and gas leasing and development, subject to certain stipulations. The BLM Rawlins Field Office is currently revising the Great Divide RMP, and this revision is scheduled for completion in 2004. Draft and final RMP documents will be reviewed as they become available to ensure that the analysis proposed in this document remains consistent with the RMP.

The study area for this impact analysis (CALMET/CALPUFF modeling domain) will be similar to the domain used for the Continental Divide/Greater Wamsutter II EIS (Earth Tech 1999) and the Desolation Flats EIS (BLM 2003). These two study areas included portions of southwest Wyoming, southeast Idaho, northeast Utah, and northwest/north-central Colorado and utilized the CALMET/CALPUFF modeling system to estimate regional air quality impacts. The use of this domain for the current project is appropriate due to the generally central location of the ARPA and SRPA within the domain, and due to the location of the domain with respect to the

Class I and sensitive areas to be analyzed. Furthermore, the MM5 data to be used in this analysis, developed for the Continental Divide/Greater Wamsutter II study and subsequently used in the SWWYTAF study and in several regional EIS analyses, represent the most refined MM5 windfield data currently available for southwest Wyoming.

1.2.1 Atlantic Rim Existing Documents

An interim drilling policy approved in 2001 authorized development in the ARPA concurrent with EIS preparation for the Atlantic Rim Project. A maximum of 200 wells in nine proposed pods and a maximum of 24 wells in each pod were approved within the ARPA in advance of EIS development. Each pod to be developed is required to obtain authorization from the BLM through submittal of an EA following interim drilling policy guidelines. Since approval of the interim drilling plan, four pod Environmental Assessments (EAs) have been submitted for authorization: the Cow Creek Pod EA, Red Rim Pod EA, Blue Sky Pod EA, and Sun Dog Pod EA. The Decision Records (DRs) for these EAs authorize a total of 52 wells within the ARPA, of which 46 have been drilled. Six existing coalbed methane wells originally permitted by North Finn LLC within the ARPA will not count toward the allowed well number as long as they are not included as part of any proposed pod, nor will any injection or monitoring wells required as part of the Atlantic Rim Proposed Action.

1.2.2 Seminoe Road Existing Documents

An EA was completed for a pilot project within the Seminoe Road Project Area, the Seminoe Road Coalbed Methane Pilot Project (WY-030-EA00-288), which proposed drilling, casing, completing and producing 19 gas wells. Eight wells were proposed on federal land and 11 were proposed on private land. Three miles of existing undeveloped road was proposed to be upgraded and approximately 7 miles of new road was proposed to be built. The EA was submitted to the BLM Rawlins Field Office in April, 2001, and a DR for the project was issued in July 2001. The wells are constructed and operating.

A second EA was prepared for a 20.3-mile 16-inch pipeline proposed from the pilot project location to Walcott Junction (WY-030-EA2-229). The EA was released for comment in August 2002, and a DR was issued in September 2002. This pipeline has not yet been constructed.

1.3 PROPOSED WORK TASKS

The air quality analysis will address the impacts on ambient air quality and Air Quality Related Values (AQRVs) resulting from 1) air emissions from construction and production activities at 2,000 new wells proposed within the ARPA, 2) air emissions from construction and production activities at 1,240 new wells proposed in the SRPA, and 3) air emissions from other documented regional emissions sources within the study area. Ambient air quality impacts will be quantified and compared to applicable state and federal standards, and AQRV impacts (impacts on visibility [regional haze] and acid deposition) will be quantified and compared to applicable thresholds as defined in the Federal Land Managers' (FLMs') Air Quality Related Values Workgroup (FLAG), Interagency Workgroup on Air Quality Modeling (IWAQM) guidance documents (FLAG 2000; IWAQM 1998) and other state and federal agency guidance. Impact assessment criteria are discussed in further detail in Section 6.0 of this Protocol.

The assessment of impacts will include the completion of the following five tasks.

- Develop project construction and production emissions inventories for Atlantic Rim and Seminoe Road projects (see Section 3.1).
- Compile cumulative emissions inventory within the study area, including new sources permitted through March 31, 2004, reasonably foreseeable development (RFD), and reasonably foreseeable future actions (RFFA) (see Section 3.2).
- Assess near-field ambient impacts from Atlantic Rim and Seminoe Road project emissions sources (see Sections 4.0 and 6.1).
- Assess far-field ambient impacts (pollutant concentration, visibility, and acid deposition impacts) within the modeling domain and at Class I and other sensitive areas from *project emissions sources* (see Sections 5.0 and 6.2).

- Assess far-field ambient impacts (pollutant concentration, visibility, and acid deposition impacts) within the modeling domain and at Class I and other sensitive areas from all *emissions sources documented in the cumulative emissions inventory* (see Sections 5.0 and 6.2).

2.0 PROJECT DESCRIPTIONS

This section provides an overview of the Atlantic Rim Project and the Seminoe Road Project. These project descriptions are provided here to assist the reader in developing a general understanding the projects to be analyzed and may be subject to revision prior to the Draft or Final EIS document.

2.1 ATLANTIC RIM NATURAL GAS PROJECT

2.1.1 Project Overview

Anadarko E&P Company LP and other oil and gas companies (including Warren E&P, Inc., Double Eagle Petroleum, Julander Energy, and Merit Energy Company), collectively referred to as the Atlantic Rim Operators, propose to continue development of coalbed methane and natural gas resources located within the ARPA (Figure 1.1). The proposed project area is generally located in Townships 13 through 20 North, and Ranges 89 through 92 West, Carbon County, Wyoming. The total project area encompasses approximately 310,335 acres, of which 199,558 acres are federal surface, 16,156 acres are State of Wyoming surface/mineral estate, and 94,621 acres are private surface. The Proposed Action for this project involves the development of 2,000 new wells, including 1,800 coalbed methane wells and 200 natural gas wells, on 1,800 new surface locations. No alternatives besides the No Action Alternative are planned to be proposed at this time.

2.1.2 Well Development

Drilling operations are expected to last from approximately 6 to 10 years, with a life-of-project (LOP) of 20-30 years. Each drill site location would be approximately 200 feet by 200 feet in size, with surface disturbance at each well site approximately 1 acre. Temporary mud pits 15 feet by 35 feet would be constructed and reclaimed following completion operations. Drilling of the natural gas and coalbed methane wells, or water injection wells to be used in support of coalbed methane production operations, would utilize either a conventional or truck-mounted drilling rig. Additional equipment and materials needed for drilling operations would be trucked to the well site. Each producing coalbed methane well would be drilled to a depth of 2,700 feet to 3,800 feet or deeper, depending upon the depth of the coal seam. Approximately 26 days would be required to develop each gas well (4 days to construct the well pad and access road, 2 days for rig-up, 10 days for drilling, 2-5 days for completion, 2 days for rig-down, and 3 days for pipeline construction). Methane gas may be flared or vented during the testing period at natural gas wells; no gas would be flared or vented at coalbed methane wells.

Drilling water injection wells would utilize gas well drilling equipment and personnel. The injection well depth is expected to range from 3,200 to 4,000 feet, and injection well drilling and completion is expected to require 7-14 days plus an additional 14 days to install surface equipment.

Non-productive gas wells would be reclaimed to the approximate landform existing prior to construction using techniques specified in the Master Surface Use Plan (MSUP). The ARPA is currently accessed by existing developed roads, and access to drill locations from the existing road network would be provided by new and upgraded roads when necessary. If drilling is productive, access roads to the well site would remain in place, and partial reclamation would be completed on segments of the well pad and access road right-of-way (ROW) no longer needed.

Gas-gathering pipeline systems (low pressure, from wellhead to central compressor station), produced water-gathering pipeline systems (low pressure, from wellhead to centralized conditioning facilities or injection facilities), and gas-delivery pipelines (high pressure, from compressor station to existing transmission pipelines) would be constructed in the ARPA. Reclamation of pipeline corridors would occur as soon as practical after pipeline construction was complete.

2.1.3 Well Operation

Coalbed methane wells would utilize electricity to power pumps required during well development and required to initiate and maintain production. Either natural gas- or propane-fired engines would be used to run generators on a temporary basis to power pumps at individual wells until electric distribution lines were installed. Atlantic Rim Operators may elect to use centrally located generation equipment at area compressor stations and an underground distribution system to provide necessary power to well sites.

Natural gas wells would utilize natural gas-fired equipment at each well site. Several gas-fired heaters would operate intermittently to eliminate the freezing of separated liquids. A burner would also operate with the dehydrator to heat glycol solution. No electricity would be required at natural gas well locations. No well site compression would be utilized at natural gas wells.

2.1.4 Ancillary Facilities

Twelve compressor stations are planned for the ARPA. Each compressor station facility is expected to be constructed within a site area covering approximately 300 feet by 300 feet. About one-half of the compressor station site area will be affected by the construction, maintenance, and operation of the facility. The compressor station facility will be of all-weather construction, having a thick layer of gravel surfacing over the pad site. Topsoil will be removed and conserved for later reclamation activities. The compressor station would consist of an insulated header building containing a separator or a separator and allocation meters for each well. Additional equipment at each compressor station would include a tri-ethylene glycol (TEG) dehydration system, which would dry the gas to meet pipeline-quality specifications of the market pipeline. The water removed in the dehydration system will be pumped from the header building to an approved injection well.

Each compressor station will be sited to allow for the installation of one compressor initially, with the addition of up to two more compressors later in the life of the field. Each compressor would be driven by a natural gas engine that would be designed to meet all specifications established by the WDEQ-AQD.

2.2 SEMINOE ROAD GAS DEVELOPMENT PROJECT

2.2.1 Project Overview

Dudley & Associates, LLC (the project Proponent) notified the BLM in September 2002 of its desire to continue to drill and develop coalbed methane natural gas wells and associated facilities at the Seminoe Road Pilot Plant Project site. The project site is located in Carbon County, Wyoming just north of the Town of Sinclair in Townships 21, 22, 23, and 24 North, Ranges 84, 85, and 86 West, in Carbon County, Wyoming. The site is accessed via County Road 351, also known as the Seminoe Road. The SRPA is approximately 137,000 acres in size and involves a "checkerboard" mixture of mostly federal (49%) and private (49%) land, with some state land (1%). The BLM Rawlins Field Office manages the federal surface lands and the federal mineral estate. Dudley owns or controls oil and gas leasehold interests comprising approximately 80% of the ARPA.

The proposal includes drilling and developing up to 1,240 wells, on up to 785 well pad sites spaced at approximately 1 well pad site every 160 acres. Associated facilities include roads, gas and water collection pipelines, compressor stations, water disposal systems, and a power supply system. The total development, operation, and reclamation of the project is anticipated to occur over a period of between 30 and 40 years. The site will be developed in about 11 phases, with each phase requiring a separate EA.

2.2.2 Well Construction

The three main construction activities on the site that will cause disturbance include the following:

- access roads,
- drill pads, and
- compressor sites.

Access will be needed to all drill sites and compressor sites. An effort will be made to utilize existing roads on site; however, these roads will also require upgrading. Approximately 2,195 acres will be disturbed by access roads. Initially, 2.2 acres will be disturbed for each drill pad. Once wells are completed, about 1.2 acres on each site will be reclaimed. There will be three compressor sites for the project, with each disturbing about 5 acres. Most water, gas, and utility lines will be buried within the access road disturbance corridor.

2.2.3 Well Development

Drilling will be conducted using conventional rotary drill rigs drilling vertical holes. Drilling and spacing unit of 160 acres (i.e., maximum of four well sites per 640-acre section) is anticipated for the project area. The shallower Medicine Bow and Fox Hill coalbed methane extraction zones will be produced from separate wellbores; however, they will share a common well-site with their Mesaverde counterparts. With Medicine Bow and Fox Hill wellbores sharing a common well pad site with their Mesaverde counterparts, no additional land surface is planned to be disturbed in the course of the Medicine Bow and Fox Hill developments. It is estimated that 25% of the original total surface disturbance may be reclaimed as soon as practicable following drilling and well completion operations.

2.2.4 Ancillary Facilities

The initial analysis of gas produced from the pilot project wells in the Mesaverde coals indicates no need for nitrogen or CO_2 extraction facilities. Plans for construction of a compressor facility and a 20-mile long high-pressure pipeline were recently approved by the BLM (WY-030-EA2-229) to connect the pilot project wells to a sales transmission pipeline near Walcott, Wyoming. It is anticipated that two more compressor facilities/sites will be needed over the life of the project. In the event of field electrification, ROWs for utility lines will also be required.

2.2.5 Power Requirements

It is anticipated that the lighting, pumps, and compressors will utilize electricity from the existing power line that runs through the project site. However, Dudley is currently evaluating other power sources for the project.

2.2.6 Reclamation

At the time of final reclamation, the following steps will occur as approved by the APDs for the project:

- decommissioning of facilities,
- removal of structures, facilities and roads,
- well abandonment and sealing,
- recontouring and regrading,
- soil replacement,
- mulching,
- permanent revegetation, and
- reclamation management and monitoring.

3.0 EMISSIONS INVENTORY

3.1 PROJECT EMISSIONS

The Atlantic Rim and Seminoe Road projects will generate air emissions during well, pipeline, and ancillary facility construction during well production, and during operation of ancillary facilities in the project areas. Emissions inventories for oxides of nitrogen (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter less than or equal to 10 microns in size (PM_{10}), particulate matter less than or equal to 2.5 microns in size ($PM_{2.5}$), volatile organic compounds (VOC), and hazardous air pollutants (HAPs) (formaldehyde from natural gas combustion; benzene, toluene, ethyl benzene, xylene, and n-hexane from natural gas well operation) will be developed for both construction and production activities and for ancillary facilities. Lead emissions will be considered negligible and will not be calculated in the inventory. The emissions inventory will be developed based on the Proposed Actions with assistance from the Operators, using the most likely operating scenarios identified for each activity. The inventory will be developed using manufacturer's emissions data, the Environmental Protection Agency's (EPA's) AP-42 (EPA 1995), Gas Research Institute (GRI) emission factors, and other accepted engineering methods as described in greater detail below.

3.1.1 Construction Emissions

Emissions-generating construction activities may include wellpad and access road construction, drilling engine operation, completion flaring, vehicle travel during the drilling and completion phase, and construction activities and vehicle travel during pipeline installation. Drilling engine and flaring emissions will be calculated using AP-42 or other acceptable engineering methods. Flaring emissions would occur only at natural gas wells within the ARPA, and flaring emissions calculations and assumptions will be provided to WDEQ-AQD for review during development of the inventory, as requested. Fugitive particulate emissions from vehicle travel and construction activities, wind erosion emissions from areas disturbed during construction, and combustion source emissions will be calculated using AP-42 emission factors or other accepted engineering methods. Fugitive dust may be controlled using water or dust suppressants as defined by each proponent.

3.1.2 Production Emissions

Coal bed methane wells in both the ARPA and SRPA would emit the criteria pollutants NO_x, CO, VOC, PM_{10}, and $PM_{2.5}$. Sources of criteria pollutant emissions at coalbed methane wellsites during the production phase would include combustion emissions from generators powering well-site pumps (NO_x, CO, VOC, and formaldehyde) and fugitive particulate emissions from unpaved road travel and from wind erosion of disturbed areas such as the unreclaimed portions of well pads (PM_{10} and $PM_{2.5}$). Combustion emissions from well site pumps would not occur in either field if/when electricity becomes available.

Traditional natural gas production within the ARPA would emit the criteria pollutants NO_x, CO, VOC, PM_{10}, and $PM_{2.5}$ and the HAPs benzene, toluene, ethylbenzene, xylene, and n-hexane. Sources of criteria pollutant emissions at natural gas wellsites during the production phase would include combustion emissions from natural gas-fired burners operating in the well-site separators (NO_x, CO, and VOC). Primary sources of well site VOC and HAPs would be well-site liquids storage tanks and fugitive leaks. Smokeless flare controls on certain liquids storage tanks are required to reduce VOC and total HAPs by 98% by weight. Fugitive particulate emissions from unpaved road travel and from wind erosion of disturbed areas such as the unreclaimed portions of well pads would also occur (PM_{10} and $PM_{2.5}$).

Compressor and generator engines centrally located within the ARPA and SRPA fields would also be sources of criteria pollutant and HAPs emissions (NO_x, CO, VOC, and the HAP formaldehyde). Centralized compressor stations within the ARPA would also include gas dehydration facilities, with VOC and HAPs (benzene, toluene, ethylbenzene, xylene, and n-hexane) emissions occurring from flashing from the dehydrator reboiler.

Pollutant emission rates for all emission sources will be calculated using AP-42, manufacturer's, GRI emission factors, or other engineering methods in accordance with WDEQ-AQD oil and gas permitting guidance (WDEQ 2001) where applicable guidance exists. Fugitive VOC and HAPs emissions from natural gas wells will be calculated using representative constituent analyses of natural gas and stored liquids. Fugitive dust from unpaved roads and wind erosion emissions from disturbed areas will be calculated using AP-42 emission factors. Compressor engine emissions will be based on emission factors from existing WDEQ-AQD construction permits issued for facilities in each Project Area, which include recent WDEQ-AQD Best Achievable Control Technology (BACT) determinations for similar engines. A discussion of BACT applicability and requirements will be included for applicable emissions sources, following WDEQ-AQD oil and gas permitting guidance (WDEQ 2001).

3.2 REGIONAL EMISSIONS INVENTORY

A regional emissions inventory of existing and proposed emissions sources within the study area has been developed for use in the BLM's Rawlins and Pinedale RMP revision air quality analyses, the Jonah Infill Drilling Project air quality analysis, and this analysis. The inventory includes the identification of permitted sources, oil and gas wells, RFD, and RFFA as described later in this section, and was developed using data obtained from WDEQ-AQD, Wyoming Oil and Gas Conservation Commission (WOGCC), Colorado Department of Public Health and Environment/Air Pollution Control Division (CDPHE/APCD), Colorado Oil and Gas Conservation Commission (COGCC), Utah Department of Environmental Quality-Air Quality Division (UDEQ-AQD), Utah Department of Natural Resources-Division of Oil, Gas, and Mining (UDNR-DOGM), Idaho Division of Environment Quality (IDEQ), Idaho Oil and Gas Conservation Commission (IOGCC), BLM, and other agencies as required.

The time period of emissions data included in this regional inventory differs from that of previous regional studies in its use of more current visibility and NO_x background data in the cumulative analysis. Furthermore, the updated background values more accurately reflect current background conditions, and the reduction in years of emission sources modeled helps to simplify the analysis. These data are described in greater detail in Section 5.2.4 of this Protocol. The original inventory period selected was January 1, 2001 through June 30, 2003. That period has been updated through March 31, 2004, to better characterize current permitted emissions. The inventory start-date remains January 1, 2001. Some overlap between emission sources that began operating in 2001 and background data monitored during 2001 will exist; however, this overlap does provide additional conservatism to the analysis.

Sources of PM_{10}, $PM_{2.5}$, NO_X, and SO_2 emissions within the study area (the CALPUFF/ CALMET modeling domain) will be inventoried. The study area is shown in Figure 3.1.

3.2.1 Existing Inventories

Three cumulative inventories have been completed as part of NEPA projects in southwest Wyoming, and each included a portion of the study area proposed for this analysis. The first was completed as part of the Continental Divide/Wamsutter II (CD/WII) EIS (BLM 1999b) and the second was performed for the Pinedale Anticline EIS (BLM 1999a). A third cumulative inventory in the region has been prepared for the Desolation Flats EIS (BLM 2003). The Desolation Flats EIS study utilized the CD/WII EIS study area and built upon the previous studies listed above, and it included emissions sources permitted through December 31, 2000. The data contained in these inventories precede the start-date of the regional inventory proposed for this analysis.

3.2.2 Permitted Sources

The regional emissions inventory will include emission sources that:

- are located within the study area;
- emit NO_x, SO_2, or $PM_{10}/PM_{2.5}$;
- began operation on or after January 1, 2001;
- began operation or were permitted before March 31, 2004; and
- were permitted within 18 months of January 1, 2001, but are not yet operating (will be inventoried and included as RFFA [see Section 3.2.4]).

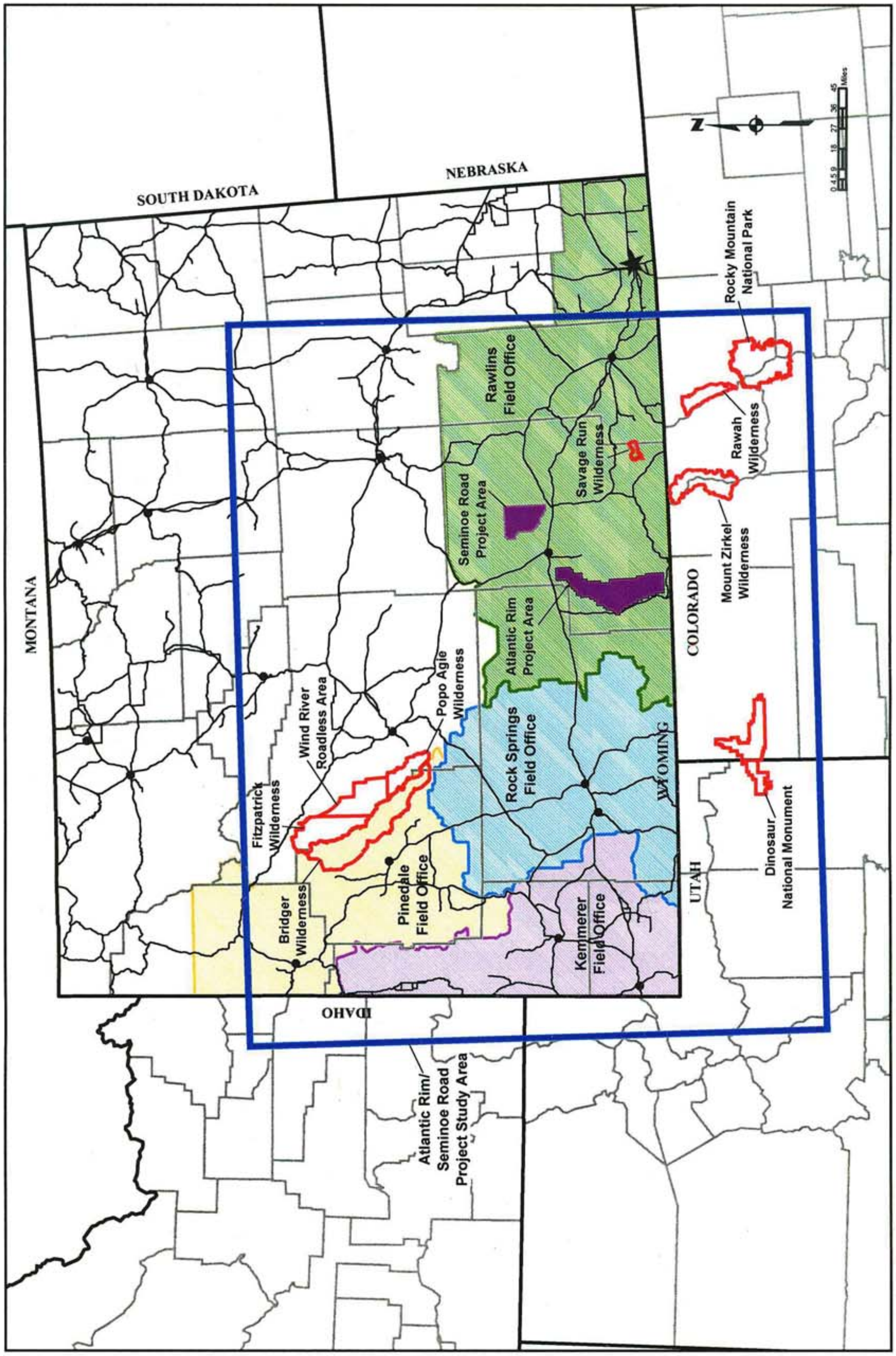


Figure 3.1 Cumulative Study Area/Modeling Domain and Sensitive Areas.

To illustrate the inventory cut-off date, an emissions source that was permitted *and* began operation in late 2000 would not be included in the inventory. However, an emissions source that was permitted in late 2000 but began operation in early 2001 would be included in the inventory. An emissions source permitted in late 2000 (and therefore within 18 months prior to January 1, 2001) but not yet operating would be included as RFFA. An emission source that begins operation in April 2004, after the inventory cut-off date, would be included only if it was permitted on or before March 31, 2004.

The time frame proposed for this inventory was developed based on several criteria. First, the inventory time period begins on January 1 of the same year for which updated NO_x background data are available. This ensures that impacts from cumulative sources will be conservative, since sources permitted throughout 2001 and beyond are combined with background data that includes measurements taken through 2001. Second, the inclusion of emissions sources permitted 18 months prior to the inventory start-date, but not yet operating, is based on the minimum amount of time, of all states inventoried, that a permit could remain in effect if construction had not yet commenced. This assumes that facilities permitted prior to 18 months before the inventory start-date are operational and allows a review of start-up dates for those within the 18-month window, ensuring a more accurate depiction of permitted sources vs. RFFA.

Potential-to-emit (maximum permitted) emission rates will be used because work on the regional emissions inventory has indicated that actual emissions are not readily available for most state-permitted sources. Emissions decreases will be included only if the decrease occurs at a major source and if the decrease is verifiable by WDEQ-AQD. Sources operating under Wyoming permit waivers will not be inventoried, an approach consistent with previous EIS air quality studies in southwest Wyoming. However, a discussion of total Wyoming waivers during the inventory time period will be presented in the TSD. WDEQ-AQD issues waivers on a case-by-case basis using no specific emissions thresholds and does not electronically track emissions from sources issued waivers; therefore, data on average emissions per waiver are unavailable. Mobile source emissions not directly resulting from the Proposed Action, biogenic sources, urban sources, and other non-industrial emission sources are assumed to be included in monitored background concentrations and are not included in this analysis.

3.2.3 WOGCC/COGCC/UDNR-DOGM/IOGCC Sources

A list of well drilling permits issued between January 1, 2001, and March 31, 2004, have been compiled using permit data obtained from WOGCC, COGCC, UDNR-DOGM, and IOGCC. Information regarding well type and equipment, and historic and current field production will be compiled, and representative emission factors will be developed to calculate emissions by county for both gas wells and crude oil wells.

3.2.4 RFD and RFFA

An inventory of RFD and RFFA sources will be performed for inclusion in the cumulative dispersion modeling. For the purposes of this analysis, RFFA is defined as a source which possesses an unexpired air permit issued on or after July 1, 1999 (18 months prior to January 1, 2001) but the source is not yet operating. The primary source of RFFA information is state permit records obtained through a file data search.

RFD is defined as 1) air emissions from the undeveloped portions of authorized NEPA projects, and 2) air emissions from not-yet-authorized NEPA projects that have been quantified and that are available at the time modeling for this analysis commences. RFD information has been obtained from final NEPA documents that have been submitted to BLM for planned project development and from BLM's ongoing list of projects under development. Undeveloped portions of authorized projects will be obtained by tracking state-permitted project development to determine total wells or other equipment yet undeveloped. For instance, for an authorized gas field development area for which 2,000 wells and 10,000 hp compression were projected and analyzed but only 250 wells have been permitted through WOGCC and 3,000 hp compression have been permitted through WDEQ-AQD as of the inventory end-date of this study, 250 wells and 3,000 hp compression would be RFFA (if permitted within the inventory timeframe), and the remaining 1,750 wells and 7,000 compression would be considered RFD. RFD information from not-yet-authorized projects currently under development will be obtained from contractors working air quality analyses for those NEPA projects.

Full development of proposed projects inventoried as RFD may or may not coincide with full Atlantic Rim or Seminoe Road project development. As a result, the inclusion of RFD in the cumulative analysis may result in overly conservative impact estimates. To ensure reasonable but conservative analysis results for all stages of project development, the cumulative modeling analysis discussed later in this Protocol will be performed both with and without RFD sources. A preliminary listing of potential RFD projects to be examined in this study, as defined in the paragraph above, is presented in Table 3.1. All development areas will be reviewed for inclusion, and those projects with significant pollutant emissions during production activities will

Table 3.1 Potential RFD in the Study Area.

Big Piney-LaBarge	Lower Brush Creek (Kennedy Oil)
BTA Bravo	Moxa Arch
Burley	Mulligan Draw
Burlington Little Monument	Pacific Rim Shallow Gas
Cave Gulch	Pinedale Anticline
Continental Divide/Wamsutter II	Pioneer Gas Plant
Cooper Reservoir	Powder River Basin (portion within study area)
Copper Ridge Shallow Gas	Riley Ridge
Creston-Blue Gap	Road Hollow
Cutthroat Gas Processing	Sierra Madre
Desolation Flats	Soda Unit
Eighth Granger Gas Plant	South Baggs
Fontenelle Natural Gas Infill	South Piney
Hams Fork Pipeline	Stagecoach
Hickey-Table Mountain	Vermillion Basin
Horse Trap	Wind River
Jack Morrow Hills	9 Lease Management Areas (Bridger-Teton NF)
Jonah Infill Project	

be included as RFD. During completion of this analysis, more detailed development and operations data will be compiled for all RFD and presented in the TSD. To ensure a timely and complete modeling analysis, only development authorized through the inventory end-date of March 31, 2004, or not yet authorized but quantified as of the beginning of the modeling analysis will be included in this analysis. For RFD quantified after the inventory end-date, a qualitative discussion will be presented describing the proposed development(s). Similarly, a qualitative discussion will be presented for development currently proposed in the Powder River Basin Coalbed Methane Development Project, located predominantly outside of the Atlantic Rim/Seminoe Road study domain in northeast Wyoming's Powder River Basin.

4.0 CRITERIA POLLUTANT NEAR-FIELD MODELING

4.1 MODELING METHODOLOGY

The near-field ambient air quality impact assessment will be performed to quantify maximum pollutant impacts in the vicinity of the project area resulting from construction and production emissions. EPA's proposed guideline model, AERMOD (version 02222), will be used to assess these near-field impacts, and EPA's BPIP PRIME will be used to calculate building downwash parameters for input to AERMOD.

The most recent one year of complete meteorological data collected at the Rawlins, Wyoming airport, 2003, will be used in this analysis. Continuous meteorological measurements have been collected at the Rawlins airport since October 2000, and a windrose for the period of record (through December, 2003) is provided in Figure 4.1. These data reflect the most current and representative data measurements in the area.

The AERMOD preprocessor AERMET will be used to process Rawlins meteorological data into formats compatible with AERMOD. In addition to the data collected at the Rawlins surface station, AERMET requires upper air, twice daily sounding, meteorological data. Twice daily sounding data collected at Riverton, Wyoming will be used for this analysis. The AERMAP terrain processor will be used to develop terrain data for receptors used in the analyses.

4.2 BACKGROUND DATA

Background concentration data collected for criteria pollutants at regional monitoring sites will be added to concentrations modeled in the near-field analysis to establish total pollutant concentrations for comparison to ambient air quality standards. The most representative monitored regional background concentrations available for criteria pollutants are shown in

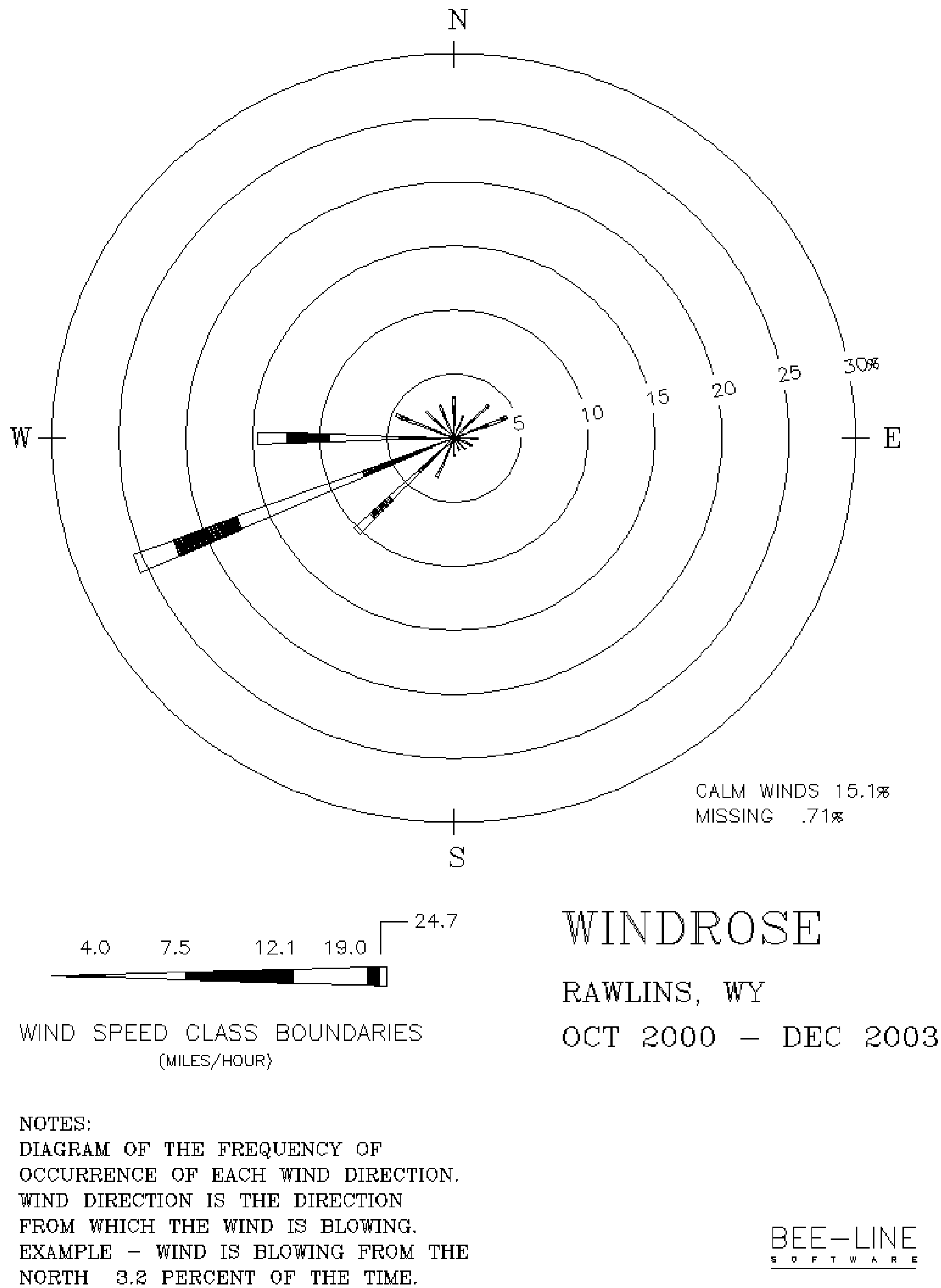


Figure 4.1 Wind Rose, Rawlins, WY 2001-2002.

Table 4.1. Background concentrations of HAPs are not available and are assumed to be minimal; furthermore, comparison thresholds are based on incremental exposure rather than total exposure, as discussed in Section 6.0 of this Protocol.

4.3 CRITERIA POLLUTANT IMPACT ASSESSMENT

Criteria pollutants PM_{10}, $PM_{2.5}$, NO_x, SO_2, and CO will be modeled with AERMOD. Ozone (O_3) formation and impacts will not be modeled using AERMOD; rather, ozone impacts will be estimated from NO_x and VOC emissions using a screening methodology developed by Scheffe (1988). For all other pollutants, emissions of each pollutant will be examined to determine the development phase (i.e., construction or production) during which emissions will be greatest, and it will be this development-phase/emission-rate combination that will be modeled to determine near-field project impacts. Based on previous analyses, it is expected that construction activities will generate the greatest PM_{10}, $PM_{2.5}$, and SO_2 emissions and that production activities will generate the greatest NO_x and CO emissions.

For construction activities, a representative well pad and resource/access road will be developed for each development project that represents a reasonable well pad/road layout. Hourly emission rate adjustment factors will be applied to sources emitting only during specific diurnal/seasonal periods. For PM_{10} and $PM_{2.5}$, this layout will be modeled using the meteorological data described above 36 times, once at each of 36 10° rotations, to ensure that impacts from all directional layout configurations and meteorological conditions are assessed. In accordance with averaging periods for which ambient standards exist, PM_{10} and $PM_{2.5}$ concentrations will be calculated for 24-hour and annual averaging periods, and SO_2 concentrations will be calculated for 3-hour, 24-hour, and annual averaging periods.

NO_x and CO impacts from production activities will be analyzed for each development project. Because the approximate layout is known for the proposed wells and because production emission release characteristics are likely to result in combined impacts of these pollutants, the entire field will be modeled for each project.

Table 4.1 Near-Field Analysis Background Ambient Air Quality Concentrations (µg/m^3).

Pollutant	Averaging Period	Measured Background Concentration
Carbon monoxide (CO)[1]	1-hour	3,336
	8-hour	1,381
Nitrogen dioxide (NO_2)[2]	Annual	3.4
Ozone (O_3)[3]	1-hour	169
	8-hour	147
PM_{10}[4]	24-hour	33
	Annual	16
$PM_{2.5}$[4]	24-hour	13
	Annual	5
Sulfur dioxide (SO_2)[5]	3-hour	132
	24-hour	43
	Annual	9

[1] Data collected by Amoco at Ryckman Creek for an 8-month period during 1978-1979, summarized in the Riley Ridge EIS (BLM 1983).

[2] Data collected at Green River Basin Visibility Study site, Green River, Wyoming, during period January-December 2001 (Air Resource Specialists [ARS] 2002).

[3] Data collected at Green River Basin Visibility Study site, Green River, Wyoming, during period June 10, 1998, through December 31, 2001 (ARS 2002).

[4] Data collected by WDEQ-AQD at Emerson Building, Cheyenne, Wyoming, Year 2001.

[5] Data collected at LaBarge Study Area, Northwest Pipeline Craven Creek Site, 1982-1983.

Point sources will be used for modeling NO_x and CO emissions from compressors and well-site combustion equipment and for modeling SO_2 emissions from drilling rigs during construction activities. Volume sources will be used for modeling PM_{10} and $PM_{2.5}$ emissions from road travel and wind erosion during construction activities.

Model receptors will be located a minimum of 200 m from construction emission sources at 100-m grid spacing. Following WDEQ-AQD compressor modeling guidance, model receptors will be placed at 50-m intervals along anticipated compressor facility fencelines. Receptors beyond the compressor facility fenceline will be placed at 100-m intervals. Compressor stack heights will be set at actual or proposed heights but no greater than 1.5 times compressor building heights. Compressor stations will be based on currently permitted compressor stations within each project area and building downwash data will be input to the model as developed for existing permitting efforts.

4.4 HAP IMPACT ASSESSMENT

Near-field HAP concentrations will be calculated for assessing impacts both in the immediate vicinity of project area emission sources for short-term (acute) exposure assessment and at greater distances for calculation of long-term risk. Because HAPs will be emitted predominantly during the production phase, only HAP emissions from production will be analyzed.

Negligible HAPs would be emitted from coal bed methane wells aside from formaldehyde emitted from combustion equipment. Formaldehyde emissions would occur from any combustion equipment located at coalbed methane wells and at compressor stations located within the ARPA and SRPA. Formaldehyde, benzene, toluene, ethylbenzene, xylene, and n-hexane would occur from well combustion, gas dehydration, fugitive leaks, and condensate liquids storage at traditional natural gas wells within the ARPA. All of these HAPs will be analyzed.

The modeling methodology for the short-term and long-term HAP impact assessments is nearly identical to the methodology outlined in Section 4.1. Volume or area sources will be used for modeling any well-site fugitive HAP emissions or field-wide generation, and point sources will be used to represent compressor station engine emissions.

Field-wide emissions sources will be modeled. Receptors will be placed a minimum of 100 m from production wells and at 100-m spacing beyond. Receptors will be placed at 50-m intervals along compressor fence lines and at 100-m spacing beyond. The short-term HAP assessment will consist of modeling formaldehyde emissions from a representative natural gas-fired compressor station and downhole pump generators at each well in the field-wide configuration developed for the NOx and CO modeling as described in Section 4.3. For the long-term assessment, field-wide emissions will be modeled with receptors placed at the location of the nearest residence to any production operation.

Short-term (1-hour) HAP concentrations will be compared to acute Reference Exposure Levels (RELs), shown in Table 4.2. RELs are defined as concentrations at or below which no adverse health effects are expected. No RELs are available for ethylbenzene and n-hexane; instead, the available Immediately Dangerous to Life or Health (IDLH) values are used. These IDLH values are determined by the National Institute for Occupational Safety and Health (NIOSH) and were obtained from EPA's Air Toxics Database (EPA 2002).

Long-term exposure to HAPs emitted by the Proposed Actions will be compared to Reference Concentrations for Chronic Inhalation (RfCs). An RfC is defined by EPA as the daily inhalation concentration at which no long-term adverse health effects are expected. RfCs exist for both non-carcinogenic and carcinogenic effects on human health (EPA 2002). Annual modeled HAP concentrations for all HAPs emitted will be compared directly to the non-carcinogenic RfCs shown in Table 4.3.

RfCs for suspected carcinogens benzene and formaldehyde are expressed as risk factors, shown in Table 4.4. Accepted methods for risk assessment will be used to evaluate the incremental cancer risk for these pollutants.

Annual modeled concentrations will be multiplied by EPA's unit risk factors (URF) (based on 70-year exposure) for those pollutants, and then the product will be multiplied by an adjustment factor that represents the ratio of projected exposure time to 70 years. The adjustment factors represent two scenarios: a most likely exposure (MLE) scenario and one reflective of the maximally exposed individual (MEI).

The MLE duration will be assumed to be 9 years, which corresponds to the mean duration that a family remains at a residence (EPA 1993). This duration corresponds to an adjustment factor of 9/70 = 0.13. The duration of exposure for the MEI is assumed to be 50 years (i.e., the LOP), corresponding to an adjustment factor of 50/70 = 0.71.

Table 4.2 Acute RELs.

HAP	REL (mg/m^3)
Benzene	1.3 [1]
Toluene	37 [1]
Ethylbenzene	35 [2]
Xylene	22 [1]
n-Hexane	39 [2]
Formaldehyde	0.094 [1]

1 EPA Air Toxics Database, Table 2 (EPA 2002).
2 No REL available for these HAPs. Values shown are from Immediately Dangerous to Life or Health (IDLH/10), EPA Air Toxics Database, Table 2 (EPA 2002).

Table 4.3 Non-Carcinogenic HAP RfCs.

HAP	Non-Carcinogenic RfC [1] ($\mu g/m^3$)
Benzene	30
Toluene	400
Ethylbenzene	1,000
Xylenes	430
n-Hexane	200
Formaldehyde	9.8

1 EPA Air Toxics Database, Table 1 (EPA 2002).

Table 4.4 Carcinogenic HAP URFs and Exposure Adjustment Factors.

Analysis[1]	HAP Constituent	Carcinogenic URF (Unit Risk Factor) [2] $1/(\mu g/m^3)$	Exposure Adjustment Factor
MLE	Benzene	7.8×10^{-6}	0.0949
MLE	Formaldehyde	1.3×10^{-5}	0.0949
MEI	Benzene	7.8×10^{-6}	0.71
MEI	Formaldehyde	1.3×10^{-5}	0.71

1 MLE = most likely exposure; MEI = maximally exposed individual.
2 EPA Air Toxics Database, Table 1 (EPA 2002).

A second adjustment will be made for time spent at home versus time spent elsewhere. For the MLE scenario, the at-home time fraction is 0.64 (EPA 1993), and it will be assumed that during the rest of the day the individual would remain in an area where annual HAP concentrations would be one quarter as large as the maximum annual average concentration. Therefore, the MLE adjustment factor will be (0.13) x [(0.64 x 1.0) + (0.36 x 0.25)] = 0.0949. The MEI scenario assumes that the individual is at home 100% of the time, for a final adjustment factor of (0.71 x 1.0) = 0.71. EPA unit risk factors and adjustment factors are shown in Table 4.4.

5.0 FAR-FIELD ANALYSIS

5.1 METHODOLOGY

The purpose of the far-field analysis is to quantify the impacts on Class I and other sensitive areas from air pollutant emissions expected to result from the development of the two projects. Ambient air quality impacts beyond the immediate project areas and throughout the study area will be analyzed. Cumulative impacts also will be quantified by including in the analysis other documented sources of air pollutant emissions within the study area. To achieve these goals, the most current long-range modeling analysis tools will be used in conjunction with the most recent guidance for their utilization.

As requested by BLM and generally accepted for long-range modeling analyses, the CALMET/CALPUFF modeling system (Earth Tech 2003) will be used in this analysis. The study will be performed in accordance with the following recent and major guidance sources:

- guidance provided by representatives of the BLM, the National Park Service, and the USDA Forest Service;
- *Guideline on Air Quality Models*, 40 *Code of Federal Regulations* (C.F.R.), Part 51, Appendix W;
- *Interagency Work Group on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts*, EPA-454/R-98-019, Office of Air Quality Planning and Standards, December 1998 (IWAQM 1998); and
- *Federal Land Managers - Air Quality Related Values Workgroup (FLAG), Phase I Report*, December 2000 (FLAG 2000).

Air emissions of NO_x, SO_2, PM_{10}, and $PM_{2.5}$ from 1) the Atlantic Rim Proposed Action, 2) the Seminoe Road Proposed Action, and 3) cumulative emissions, including all currently permitted and operating, permitted but not yet operating, and RFD emissions sources within the modeling domain as described in Section 3.0 will be modeled. The idealization of these emissions sources for input to the CALPUFF model is described in Section 5.2.

The proposed modeling domain for this analysis, along with other regional features, is shown in Figure 3.1. This modeling domain was developed following IWAQM guidance, which suggests that the domain should extend at least 50 km beyond sources and receptor areas. This guidance was followed to the extent possible based on the MM5 data available. The CALPUFF dispersion model will be run with CALMET wind field data, developed for year 1995, to predict the transport and dispersion of pollutants. The CALMET year was selected because of the availability of 20 km mesoscale model (MM5) data which was developed for use in other EIS projects in this region and the SWWYTAF study.

CALPUFF output will be post-processed with POSTUTIL and CALPOST to derive concentrations for comparison to ambient standards, significance thresholds, and Class I and II Increments; deposition rates for comparison to sulfur (S) and nitrogen (N) deposition thresholds and to calculate acid neutralizing capacity (ANC) for sensitive water bodies; and light extinction for comparison to visibility impact thresholds in Class I and other sensitive areas. A discussion of the post-processing methodology to be used is provided in Section 5.3 of this Protocol.

5.2 MODEL INPUT

5.2.1 Model Selection and Settings

5.2.1.1 CALMET

The most recently released version of the CALMET modeling system (July 11, 2003) will be used. The SWWYTAF CALMET methodology is proposed for use in combination with meteorological data updated for use in the Pinedale Anticline EIS. This approach ensures consistency with the well-accepted SWWYTAF study while incorporating improved data quality resulting from extensive quality assurance/quality control (QA/QC) procedures performed on data used in the Pinedale Anticline EIS (BLM 1999a). This analysis utilizes the regional mesoscale meteorological (MM5) data subgrid processed to 20-km spacing, and surface and precipitation data updated for use in the Pinedale Anticline EIS as discussed below.

The CALMET wind fields utilized in the Pinedale Anticline EIS study were based upon wind fields developed by Earth Tech for the SWWYTAF study (Earth Tech 2001). As part of the Pinedale Anticline EIS, Air Sciences performed extensive review and QA/QC of surface station and precipitation data used in SWWYTAF, and corrections were made. These QA/QC'd surface data will be used in this analysis, along with additional surface stations not included in the Pinedale Anticline study.

A total of 51 surface meteorological stations will be used. Of these stations, an additional six stations that were originally included in SWWYTAF but not used in the Pinedale Anticline analysis and two Wyoming Department of Transportation surface stations were added to the dataset. Appendix A lists all surface meteorological data sites proposed for use in this CALMET analysis.

A total of 134 precipitation stations used in the SWWYTAF study will be used for this analysis. The Pinedale Anticline modeling analysis identified problems with the subset of the original SWWYTAF precipitation data files that were used in the Pinedale Anticline study – specifically, that the data for the month of December were missing. The SWWYTAF precipitation data proposed for use in this analysis have been corrected.

Four upper air meteorological stations will be used to supplement the MM5 upper air estimates in accordance with National Park Service (NPS) recommendations. Denver and Grand Junction, Colorado, Salt Lake City, Utah, and Riverton, Wyoming upper air data will be used in this analysis

Differences between the SWWYTAF study and the Pinedale Anticline EIS study include 1) upper air observations were not used in the Pinedale Anticline EIS and 2) changes were made to CALMET input settings in the Pinedale Anticline EIS from those originally used in

SWWYTAF. A detailed description of the modeling methodology used in the Pinedale Anticline EIS can be found in the supporting air quality technical document (BLM 1999b).

The uniform horizontal grid is processed to 4-km resolution, based on a Lambert Conformal Projection defined with a central longitude/latitude at (-108.55°, 42.55°) and first and second latitude parallels at 30° and 60°. The modeling domain consists of 125 x 100 4-km grid cells, and covers the project area and Class I and other sensitive areas with a sufficient buffer zone to allow for potential recirculation or flow reversal effects to be evaluated. The total area of the modeling domain is 500 x 400 km. Ten vertical layers exist at heights of 20, 40, 100, 140, 320, 580, 1,020, 1,480, 2,220, and 2,980 m. The extents of the horizontal grid, which form the extents of the cumulative study area, are shown in Figure 3.1.

5.2.1.2 CALPUFF

The most recently released version of the CALPUFF modeling system (July 11, 2003) will be used. The CALPUFF model will be run using the IWAQM-recommended default switch settings for all parameters. Chemical transformation will be based on the MESOPUFF II chemistry for conversion of SO_2 to sulfate (SO_4) and NO_x to nitric acid (HNO_3) and nitrate (NO_3). Each of these pollutant species will be included in the CALPUFF model run. NO_x, HNO_3, and SO_2 will be modeled with gaseous deposition and SO_4, NO_3, PM_{10}, and $PM_{2.5}$ will be modeled using particle deposition. Electronic copies of CALMET, CALPUFF, and CALPOST input files will be included with the TSD.

5.2.2 Emissions

5.2.2.1 Project Emissions

Pollutant emission rates estimated as described in Section 3.0 will be input to CALPUFF to predict air quality impacts from the projects. Emissions from both the construction phase and well production (field operation) phase will be modeled for each project. Emissions from construction activities and production activities over each project's LOP may be examined to determine an annual period representing a maximum combination of production and construction.

Particulate emissions generated from production traffic and construction traffic will be included in the field-wide modeling scenarios to estimate maximum in-field PM_{10} and $PM_{2.5}$ impacts. However, for far-field modeling scenarios, only $PM_{2.5}$ traffic emissions will be included. It is assumed that most of the particles larger than $PM_{2.5}$ would deposit out near the emissions source and would not transport to the distant sensitive receptor areas.

Hourly emission-rate adjustment factors will be applied to emissions that occur only during specific diurnal periods, such as travel on unpaved roads. Seasonal adjustment factors will be applied to compensate for increased gas well-heater use in the winter months. Well locations will be modeled as area sources within the specific project area they are projected to be located in, on a rectangular grid not exceeding 4 x 4 km spacing and possessing a total area not exceeding the total area of the respective project area. Compressor-engine emissions will be input as point sources with actual expected stack parameters at their permitted locations. It is anticipated that compression emissions will be modeled at 90% load in the far-field analysis only.

Although the Seminoe Road Proposed Action includes electrification of the field and thus the elimination of natural gas-fired generators at pumps within the field, a second scenario is proposed to be analyzed which assumes no electricity would be available in the field throughout the LOP. The Atlantic Rim Proposed Action does not yet include a definitive plan for electrification; therefore, only a non-electrified scenario is proposed to be analyzed for the ARPA at this time.

5.2.2.2 Cumulative Source Emissions

Cumulative sources, including permitted sources, RFD, and RFFA inventoried following the methodology described in Section 3.2, will be input to the CALPUFF model as point sources or area sources. As part of the emissions inventory, source location and exit parameter data will be obtained. Permitted and proposed sources will be modeled both alone and with RFD and RFFA sources to provide a clear analysis of the impacts attributable to each.

Pollutant emissions from stacks will be modeled as point sources in the CALPUFF model. Multiple stacks within single facilities will be combined into a single, worst-case stack to reduce model run-time. Worst-case stack parameters will be selected based on the potential for the greatest long-range impacts (i.e., greater stack height, greater exhaust flow rate).

Fugitive emissions will be aggregated into area sources in the model, and area sources will be placed either specific to individual source locations or specific to the region in which the sources are location, depending upon the nature of the fugitive emissions sources. The locations of area sources input to the model will be disclosed in the TSD. Because regional paved and unpaved roadway travel not associated with any specific regional well development field and biogenic sources are considered to be included in the ambient air background concentrations described in this Protocol, those fugitive sources will not be modeled.

5.2.3 Receptors

Model receptors will be input to CALPUFF, at which concentration, deposition, and other impacts will be calculated. A gridded Cartesian receptor grid will be placed in and around the project area to identify maximum cumulative concentrations. Receptors will be placed along the boundaries of all Class I and sensitive areas at 2-km spacing and within the boundaries of those areas at 4-km resolution.

Prevention of Significant Deterioration (PSD) Class I and other sensitive areas located within the modeling domain and the distance of each from the ARPA and SRPA are shown in Figure 3.1. Federal Class I areas to be evaluated are as follows:

- Bridger Wilderness Area,
- Fitzpatrick Wilderness Area,
- Mount Zirkel Wilderness Area,
- Rawah Wilderness Area,
- Rocky Mountain National Park,

- Savage Run Wilderness Area (Federal Class II, Wyoming Class I), and
- Dinosaur National Monument (Federal Class II, Colorado Class I SO_2 only).

Several PSD Class II areas are located within the modeling domain for which ambient air and AQRV impacts assessments are not mandatory but have been requested. These Class II sensitive areas are as follows:

- Popo Agie Wilderness Area (Federal Class II) and
- Wind River Roadless Area (Federal Class II).

In addition, discrete receptors will be placed at the following sensitive lakes identified as the most sensitive to acid deposition:

- Black Joe Lake, Bridger Wilderness Area,
- Deep Lake, Bridger Wilderness Area,
- Hobbs Lake, Bridger Wilderness Area,
- Lazy Boy Lake, Bridger Wilderness Area,
- Upper Frozen Lake, Bridger Wilderness Area,
- Ross Lake, Fitzpatrick Wilderness Area,
- West Glacier Lake, Glacier Lakes Ecosystem Experiments Site (GLEES),
- Lake Elbert, Mount Zirkel Wilderness Area,
- Seven Lakes, Mount Zirkel Wilderness Area,
- Summit Lake, Mount Zirkel Wilderness Area,
- Lower Saddlebag Lake, Popo Agie Wilderness Area,
- Island Lake, Rawah Wilderness Area,
- Kelly Lake, Rawah Wilderness Area, and
- Rawah Lake #4, Rawah Wilderness Area.

5.2.4 Background Data

5.2.4.1 Criteria Pollutants

Ambient air concentration data collected at monitoring sites in the region provide a measure of background conditions in existence during the most recent available time period. Regional monitoring-based background values for criteria pollutants (PM_{10}, $PM_{2.5}$, NO_x, and SO_2) were collected at monitoring sites in Wyoming and are summarized in Table 5.1. These ambient air background concentrations will be added to modeled pollutant concentrations (expressed in micrograms per cubic meter [$\mu g/m^3$]) to arrive at total ambient air quality impacts for comparison to National Ambient Air Quality Standards (NAAQS) and Wyoming Ambient Air Quality Standards (WAAQS), as discussed in Section 6.0.

Table 5.1 Far-Field Analysis Background Ambient Air Quality Concentrations ($\mu g/m^3$).

Pollutant	Averaging Period	Measured Background Concentration
Nitrogen dioxide (NO_2)[1]	Annual	3.4
Ozone (O_3)[2]	1-hour	169
	8-hour	147
PM_{10}[3]	24-hour	33
	Annual	16
$PM_{2.5}$[3]	24-hour	13
	Annual	5
Sulfur dioxide (SO_2)[4]	3-hour	132
	24-hour	43
	Annual	9

1 Data collected at Green River Basin Visibility Study site, Green River, Wyoming during period January-December 2001 (ARS 2002).

2 Data collected at Green River Basin Visibility Study site, Green River, Wyoming during period June 10, 1998, through December 31, 2001 (ARS 2002).

3 Data collected by WDEQ-AQD at Emerson Building, Cheyenne, Wyoming, Year 2001.

4 Data collected at LaBarge Study Area at the Northwest Pipeline Craven Creek Site 1982-1983.

5.2.4.2 Chemical Species

The CALPUFF chemistry algorithms require hourly estimates of background ammonia and ozone concentrations for the conversion of SO_2 and NO/NO_2 to sulfates and nitrates, respectively. While ammonia concentrations are thought to be fairly uniform spatially, ozone concentrations vary greatly over time and space. A review of background ozone data indicates that six ozone stations are available in the region for year 1995. 1995 ozone data are used because they are concurrent with the CALMET windfields, which were created using 1995 surface and MM5 datasets. Ozone stations proposed for use are as follows:

- Pinedale, Wyoming,
- Centennial, Wyoming,
- Yellowstone National Park, Wyoming,
- Craters of the Moon National Park, Idaho,
- Highland, Utah, and
- Mount Zirkel Visibility Study, Hayden, Colorado.

Hourly ozone data from these stations will be included in the CALPUFF modeling, with a default value of 44.7 parts per billion (ppb) (7 a.m.-7 p.m. mean, used for SWWYTAF) used for missing hours. A background ammonia concentration of 1.0 ppb as suggested in the IWAQM Phase 2 guidance (for arid lands) will be used.

5.2.4.3 Visibility

The proposed analysis differs from previous Wyoming NEPA cumulative air quality analyses in its update of visibility background to include the most current data available at the time of this Protocol. Monitored visibility background data that have undergone QA/QC are currently available through December 31, 2002. This analysis proposes to utilize IMPROVE visibility data for the period of record 1988 through 2002 and 2001 NO_x background data collected in the final year of the Green River Basin Visibility Study and to revise the period of regional emissions inventory to reflect industrial activity occurring during and since that updated background to represent the most appropriate combination of measured background and modeled impacts.

WDEQ-AQD has prepared an annual report on Wyoming's long-term strategy for visibility protection in Class I areas (WDEQ 2003). An assessment of visibility monitoring data is presented as Appendix F of that report, including an analysis of trends in visibility monitored at Wyoming IMPROVE, Wyoming Visibility Monitoring Network sites, and Regional IMPROVE sites. Bridger Wilderness, Mount Zirkel Wilderness, and Rocky Mountain National Park IMPROVE sites are the closest monitoring sites to the project area, and data reported from these sites extend from January 1989 through December 2001. As a result, visibility trends at these sites are of particular interest. These visibility trends are well-illustrated by graphs in WDEQ-AQD's report, Graphs 3 and 6, which are presented in Appendix B of this Protocol. A detailed description of the data and assumptions behind these graphs are not presented here; rather, the reader is referred to the WDEQ-AQD report (WDEQ 2003).

As this graph indicates, visibility conditions at the Bridger Wilderness and Rocky Mountain National Park have not decreased since 1989 (Bridger WA), 1995 (Mount Zirkel WA), and 1991 (Rocky Mountain NP) (Appendix B). It is important to note the significant fluctuations in monitored visibility during the period from 1995 through 1997 and that previous Wyoming NEPA cumulative air quality analyses utilized visibility background data monitored through 1997. Updating background visibility will improve the quality of the analysis by providing a longer period of record and allowing a better estimate of long-term visibility conditions in the region.

CALPOST will be used to estimate change in light extinction from CALPUFF model concentration results. At the request of the BLM and following the most current agency recommendations, two separate methods are proposed for this analysis: FLAG and IMPROVE.

The FLAG method uses seasonal natural background visibility conditions and relative humidity factors at Class I areas. This method is highly conservative since values of estimated natural background are generally less than measured background, and a calculated light extinction value will therefore comprise a greater percentage of the total light extinction (background plus calculated). For the FLAG method proposed for this analysis, estimated natural background visibility values as provided in Appendix 2.B of FLAG (2000), and monthly relative humidity factors as provided in the *Draft Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule* (EPA 2001) will be used. Because natural background data are provided for Federal Class I areas only, data from the nearest Federal Class I area will be used for other areas analyzed but not classified as Federal Class I areas. The natural background visibility data that will be used with the FLAG visibility analysis for each area analyzed are shown in Table 5.2.

Table 5.2 FLAG Report Background Extinction Values.[1]

Site	Season	Hygroscopic (Mm^{-1})	Non-hygroscopic (Mm^{-1})
Bridger Wilderness Area	Winter	0.6	4.5
(will also be used for Popo Agie Wilderness Area and	Spring	0.6	4.5
Wind River Roadless Area)	Summer	0.6	4.5
	Fall	0.6	4.5
Fitzpatrick Wilderness Area	Winter	0.6	4.5
	Spring	0.6	4.5
	Summer	0.6	4.5
	Fall	0.6	4.5
Mount Zirkel Wilderness Area	Winter	0.6	4.5
(will also be used for Savage Run Wilderness Area	Spring	0.6	4.5
and Dinosaur National Park)	Summer	0.6	4.5
	Fall	0.6	4.5
Rawah Wilderness Area	Winter	0.6	4.5
	Spring	0.6	4.5
	Summer	0.6	4.5
	Fall	0.6	4.5
Rocky Mountain National Park	Winter	0.6	4.5
	Spring	0.6	4.5
	Summer	0.6	4.5
	Fall	0.6	4.5

1 FLAG (2000).

The IMPROVE method uses reconstructed IMPROVE aerosol extinction data. Background visibility data will be based on the quarterly mean of the 20% cleanest days measured at the Bridger Wilderness Area, Mount Zirkel Wilderness Area, and Rocky Mountain National Park IMPROVE sites. The IMPROVE method will also utilize monthly relative humidity factors as provided in the *Draft Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule*. The seasonal mean of the 20% cleanest days visibility data will be determined using data from the historical record through December 2002.

Visibility data from the Bridger Wilderness Area IMPROVE site will be used for the Bridger, Fitzpatrick, and Popo Agie Wilderness Areas and for the Wind River Roadless Area. Visibility data from the Rocky Mountain National Park IMPROVE site will be used for Rawah Wilderness Area and for Rocky Mountain National Park, and data from the Mount Zirkel IMPROVE site will be used for the Mount Zirkel and Savage Run Wilderness Areas and for Dinosaur National Park. Monthly relative humidity data are available for the Bridger, Fitzpatrick, Mount Zirkel, and Rawah Wilderness Areas and for Rocky Mountain National Park. Relative humidity data for the Bridger Wilderness Area will also be used for the Popo Agie Wilderness Area and for the Wind River Roadless Area analyses, and relative humidity data for the Mount Zirkel Wilderness Area will be also be used for the Savage Run Wilderness Area and for Dinosaur National Park.

5.2.4.4 Lake Chemistry

The most recent lake chemistry background ANC data have been obtained from the FLMs for each sensitive lake listed in Section 5.2.4. The 10th percentile lowest ANC values were calculated for each lake following procedures provided from the USDA Forest Service. The ANC values proposed for use in this analysis and the number of samples used in the calculation of the 10^{th} percentile lowest ANC values are provided in Table 5.3.

Table 5.3 Background ANC Values for Acid Sensitive Lakes.

Wilderness Area	Lake	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	10th Percentile Lowest ANC Value (μeq/l)	Number of Samples
Bridger	Black Joe	42º44'22"	109º10'16"	67.0	61
Bridger	Deep	42º43'10"	109º10'15"	59.9	58
Bridger	Hobbs	43º02'08"	109º40'20"	69.9	65
Bridger	Lazy Boy	43º19'57"	109º43'47"	18.8	1
Bridger	Upper Frozen	42º41'08"	109º09'38"	5.0	6
Fitzpatrick	Ross	43º22'41"	109º39'30"	53.5	44
GLEES [1]	West Glacier Lake	41º22'38"	106º15'31"	35.2	14
Mount Zirkel	Lake Elbert	40º38'3"	106º42'25"	51.9	55
Mount Zirkel	Seven Lakes (LG East)	40º53'45"	106º40'55"	36.2	55
Mount Zirkel	Summit Lake	40º32'43"	106º40'55"	47.3	95
Popo Agie	Lower Saddlebag	42º37'24"	108º59'38"	55.5	43
Rawah	Island Lake	40º37'38"	105º56'26"	68.7	15
Rawah	Kelly Lake	40º37'32"	105º57'34"	181.1	13
Rawah	Rawah Lake #4	4040'16"	105º57'28"	41.2	13

[1] GLEES (Glacier Lakes Ecosystem Experiments Site), Medicine Bow National Forest, Snowy Range, Wyoming.

5.3 POST-PROCESSING

5.3.1 Concentration

CALPOST will be used to process the CALPUFF concentration output file to compute maximum concentration values for SO_2 (3-hour, 24-hour, and annual average), $PM_{2.5}$ (24-hour and annual average), PM_{10} (24-hour and annual average), and NO_2 (annual average).

5.3.2 Visibility

As discussed in Section 5.2.4.3, visibility impacts (measured as change in light extinction) will be calculated using two separate methods, which differ by the background data used to derive the percent change in visibility. Changes in light extinction will be estimated for both project emissions and cumulative source emissions at receptor locations outlined in Section 5.2.3 of this Protocol.

CALPOST will first be run using the FLAG method recommended screening mode (MVISBK = 6) to calculate the change in light extinction from natural background conditions. This procedure computes light extinction changes from seasonal estimates of natural background aerosol concentrations and monthly relative humidity factors from the Regional Haze Rule and CALPUFF-predicted particle species concentrations. Seasonal background extinction values used for the FLAG method are shown in Table 5.2. Those values will be input to CALPOST as variables $BKSO_4$ (dry hygroscopic) and BKSOIL (non-hygroscopic). Using these parameters, CALPOST will compute the change in daily (24-hour) visibility, with the results reported in percent change in light extinction and change in deciview (dv). The FLAG method conservatively assumes that the seasonal natural visibility conditions occur on every day during the entire season.

CALPOST will then be run using the IMPROVE method to calculate the change in light extinction using the quarterly mean of the 20% cleanest days particle mass data as background conditions. Quarterly speciated aerosol data for the 20% cleanest days, measured at the Bridger and Mount Zirkel Wilderness Areas and Rocky Mountain National Park IMPROVE sites will be used. This method uses the quarterly background aerosol concentrations and monthly averaged relative humidity factors to estimate the change in light extinction. The CALPOST switch ‘MVISBK' is set to 6 for this method. Similar to the FLAG method, the WDEQ method also conservatively assumes that the cleanest seasonal visibility conditions occur on every day during the entire season.

5.3.3 Deposition

The POSTUTIL utility provided with the CALPUFF modeling system will be used to estimate total S and N fluxes from CALPUFF-predicted wet and dry fluxes of SO_2, SO_4, NO_x, NO_3, HNO_3, PM_{10}, and $PM_{2.5}$. CALPOST will be used to summarize the annual S and N deposition values from the POSTUTIL program.

6.0 ASSESSMENT OF AIR QUALITY IMPACTS

6.1 NEAR-FIELD

Pollutant significance levels are set forth in Wyoming Air Quality Standards and Regulations (WAQSR). Under the New Source Review (NSR) process, an emission source that models pollutant concentrations (from its operations alone) that are below these significance levels is typically exempt from additional modeling analyses for the insignificant pollutant. In this near-field modeling analysis, significance levels will be compared to project concentrations predicted by AERMOD as an indicator of the magnitude of impact from each project alone. Another demonstration of project-only impacts will be made by comparison of project concentrations to Class II PSD Increments. This demonstration is for information only and is not a regulatory PSD Increment consumption analysis, which would be completed as necessary during the WDEQ-AQD permitting process.

In addition, the WDEQ-AQD has been authorized by EPA to enforce ambient air quality standards set forth in the *Clean Air Act* through approval of the Wyoming State Implementation Plan. The NAAQS and ambient standards adopted by state regulatory agencies set absolute upper limits for specific air pollutant concentrations (expressed in $\mu g/m^3$) at all locations where the public has access. Modeled concentrations occurring from construction and production operations will be added to the existing ambient air quality background concentrations shown in Table 4.1, and the total concentrations will be compared to corresponding NAAQS and WAAQS shown in Table 6.1.

Ambient air quality standards, significance levels, and PSD Class II Increments are shown in Table 6.1.

Table 6.1 Ambient Standards, Class II PSD Increments, and Significance Levels for Comparison to Near-Field Analysis Results (µg/m^3).

Pollutant/Averaging Time	Ambient Air Quality Standards		PSD Class II Increment	Class II Significance Level
	National	Wyoming		
Carbon monoxide (CO)				
1-hour[1]	40,000	40,000	--	2,000
8-hour[1]	10,000	10,000	--	500
Nitrogen dioxide (NO_2)				
Annual[2]	100	100	25	1
Ozone (O_3)				
1-hour	235	235	--	--
8-hour[3]	157	157	--	--
PM_{10}				
24-hour[1]	150	150	30	5
Annual[2]	50	50	17	1
$PM_{2.5}$				
24-hour[4]	65	65	NA	--
Annual [4]	15	15	NA	--
Sulfur dioxide (SO_2)				
3-hour[1]	1,300	1,300	512	25
24-hour[1]	365	260	91	5
Annual[2]	80	60	20	1

1 No more than one exceedance per year.
2 Annual arithmetic mean.
3 Average of annual fourth-highest daily maximum 8-hour average.
4 Proposed.

6.2 FAR-FIELD

6.2.1 NAAQS and WAAQS

Modeled concentrations of NO_x, SO_2, PM_{10}, and $PM_{2.5}$ from each project alone, predicted at regular grid spacing throughout the modeling domain, will be compared to corresponding NAAQS and WAAQS shown in Table 6.1. Cumulative impacts (i.e., projects plus permitted state inventories, RFD, and RFFA) predicted at these receptors will also be compared to the NAAQS and WAAQS.

6.2.2 Class I and Class II Increments

Under federal and state PSD regulations, increases in ambient air concentrations in Class I areas are limited by PSD Class I Increments. Specifically, emissions associated with a particular development may increase ambient concentrations above baseline levels only within those specific increments developed for SO_2, PM_{10}, and NO_2. PSD Class I Increments are set forth in federal and state PSD regulations and are shown in Table 6.2. EPA has also proposed modeled significance levels for Class I areas, which would eliminate further analysis under the NSR program if ambient concentrations were shown to be below significance levels (also shown in Table 6.2). PSD Class II Increments are applicable in Class II areas and are shown in Table 6.1.

Table 6.2 PSD Class I Increments and Significance Level Concentrations ($\mu g/m^3$).

Pollutant	Averaging Period	Class I Increment	Significance Level[1]
SO_2	Annual	2	0.1
	24-hour	5	0.2
	3-hour	25	1.0
PM_{10}	Annual	4	0.2
	24-hour	8	0.3
NO_2	Annual	2.5	0.1

1 Proposed Class I significance levels, *Federal Register*/Vol. 61, No. 142, pg. 38292, July 23, 1996.

Modeled concentrations predicted in Federal PSD Class I areas from each project alone will be compared to Class I significance levels and Class I Increments, and cumulative modeling results
predicted within Federal PSD Class I areas will be compared to Class I Increments. Project and cumulative impacts predicted at sensitive areas designated as PSD Class II areas will be compared to Class II Increments.

These demonstrations are for information only and are not regulatory PSD Increment consumption analyses, which would be completed during WDEQ-AQD permitting processes if required. Emissions sources of the size associated with this natural gas development are typically too small to require a PSD Increment analysis.

6.2.3 Visibility

Atmospheric light extinction relative to background conditions is used to measure regional haze. Analysis thresholds for atmospheric light extinction are set forth in FLAG (2000). The thresholds are defined as 5% and 10% of the reference background visibility (or 0.5 and 1.0 dv) for projects sources alone and cumulative source impacts, respectively. In general, if impacts are greater than these thresholds, FLMs may consider conditions (magnitude, frequency, duration, etc.) of the impact on a case by case basis. These thresholds and the FLAG guidelines were developed for NSR applications where an AQRV analysis is required as part of a PSD permit application.

6.2.4 Deposition

CALPUFF will be used to predict the total wet and dry fluxes of SO_2, SO_4, NO_x, NO_3, and HNO_3 at the sensitive receptor areas. The modeled deposition flux of each oxide of S or N will then be adjusted for the difference of the molecular weight of their oxide and then summed to yield a total deposition flux of S or N. The total S deposition and N deposition from project emissions will be calculated and presented in kilograms/hectare/year (kg/ha/yr). These values will be compared to the 0.005 kg/ha/yr deposition analysis thresholds defined by NPS for total N and total S in the western U.S. (NPS 2001). Estimated total deposition fluxes of S and N from cumulative source impacts at sensitive areas will be compared with threshold values for terrestrial ecosystems presented by the USDA Forest Service in its screening procedure to evaluate effects of air pollution in eastern region wildernesses cited as Class I air quality areas (Fox et al. 1989). These threshold values are 5 and 3 kg/ha/yr for total S and N deposition fluxes, respectively.

6.2.5 ANC

The CALPUFF-predicted annual deposition fluxes of S and N at sensitive lake receptors listed in Section 5.2.3 will be used to estimate the change in ANC. The change in ANC will be calculated following the January 2000, USDA Forest Service Rocky Mountain Region's *Screening Methodology for Calculating ANC Change to High Elevation Lakes, User's Guide* (USDA Forest Service 2000). The predicted changes in ANC will be compared with the USDA Forest Service's Level of Acceptable Change (LAC) thresholds of 10% for lakes with ANC values greater than 25 microequivalents per liter (μeq/l) and 1 μeq/l for lakes with background ANC values of 25 μeq/l and less. Lake impacts will be assessed with consideration of limited data points available for Upper Frozen Lake and Lazy Boy Lake. ANC calculations will be performed for both project emissions and for cumulative source emissions.

7.0 REFERENCES

Air Resource Specialists. 2002. Green River Basin Visibility Study. Monitored Air Quality Data. Air Resource Specialists, Fort Collins, Colorado.

Bureau of Land Management. 1983. Riley Ridge Natural Gas Project Air Resources Technical Report. U.S. Department of Interior, Bureau of Land Management, Kemmerer Field Office, Kemmerer, Wyoming, in cooperation with Environmental Research and Technology Inc.

______. 1990. Record of Decision and Approved Resource Management Plan for the Great Divide Resource Area. U.S. Department of Interior, Bureau of Land Management, Great Divide Resource Area, Rawlins District. Rawlins, Wyoming.

______. 1999a. Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement-Technical Report. U.S. Department of Interior, Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming, in cooperation with U.S. Forest Service, U.S. Army Corps of Engineers, and State of Wyoming.

______. 1999b. Continental Divide/Wamsutter II and South Baggs Natural Gas Development Projects, Environmental Impact Statement, Air Quality Impact Assessment, Technical Support Document, Volume II, Far-Field Analysis. U.S. Department of Interior, Bureau of Land Management, Rock Springs Field Office, Rock Springs, Wyoming, in cooperation with Earth Tech, Inc., Concord, Massachusetts.

______. 2003. Desolation Flats Natural Gas Exploration and Development Project - Technical Support Documents for the Ambient Air Quality Impact Analysis. U.S. Department of Interior Bureau of Land Management in cooperation with Buys & Associates, Inc.

Earth Tech. 1999. Air Quality Impact Assessment Technical Support Document Continental Divide/Wamsutter II and South Baggs Natural Gas Development Projects – Environmental Impact Statements. Volumes I and II. Earth Tech, Inc., Concord, Massachusetts in cooperation with the U.S. Department of Interior Bureau of Land Management Rawlins and Rock Springs Offices. April 1999.

______. 2001. The Southwest Wyoming Regional CALPUFF Air Quality Modeling Study Final Report. Earth Tech, Inc., Concord, Massachusetts. February 2001.

______. 2003. CALMET/CALPUFF Air Quality Modeling System. Earth Tech, Inc., Concord, Massachusetts.

Environmental Protection Agency. 1993. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure. Preliminary Review Draft.

______. 1995. Compilation of Air Pollutant Emission Factors (AP-42), Vol. 1, Stationary Point and Area Sources, Fifth Edition. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

______. 2001. Draft Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

______. 2002. Air Toxics Database. Dose-Response Assessment for Assessing Health Risks Associated With Exposure to Hazardous Air Pollutants, Table 2. Office of Air Quality Planning and Standards (OAQPS). Technology Transfer Network Air Toxics Website. <http://www.epa.gov/ttn/atw/toxsource/summary.html>. Data accessed June 20, 2003.

Federal Land Managers' Air Quality Related Values Workgroup. 2000. Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report. U.S. Forest Service-Air Quality Program, National Park Service-Air Resources Division, U.S. Fish and Wildlife Service-Air Quality Branch. December 2000.

Fox, Douglas, Ann M. Bartuska, James G. Byrne, Ellis Cowling, Rich Fisher, Gene E. Likens, Steven E. Lindberg, Rick A. Linthurst, Jay Messer, and Dale S. Nichols. 1989. A Screening Procedure to Evaluate Air Pollution Effects on Class I Wilderness Areas. General Technical Report RM-168. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 36 pp.

Gas Research Institute. 1999. GRI-HAPCalc® Version 3.01. Gas Research Institute. Des Plaines, Illinois.

Interagency Workgroup on Air Quality Modeling. 1998. Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts. EPA-454/R-98-019. Office of Quality Planning and Standards. U.S. EPA, Research Triangle Park, North Carolina. December 1998.

National Park Service. 2001. Guidance on Nitrogen and Sulfur Deposition Analysis Thresholds. National Park Service and U.S. Fish and Wildlife Service. National Park Service Air Resources Division. <http://www.aqd.nps.gov/ard/flagfree/2001>, Data accessed July 2003.

Scheffe, Richard D. 1988. VOC/NO_x Point Source Screening Tables. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. August 1988.

USDA Forest Service. 2000. Screening Methodology for Calculating ANC Change to High Elevation Lakes, User's Guide. U.S. Department of Agriculture (USDA) Forest Service, Rocky Mountain Region. January 2000.

Wyoming Department of Environmental Quality. 2001. Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, Wyoming Department of Environmental Quality-Air Quality Division. June 1997 with revisions through August 2001.

______. 2003. Wyoming's Long Term Strategy for Visibility Protection, 2003 Review Report. Appendix E, Visibility Monitoring Data Assessment. Wyoming Department of Environmental Quality-Air Quality Division (WDEQ-AQD).

APPENDIX A:
CALMET SURFACE STATIONS

Table A.1 CALMET Surface Stations.

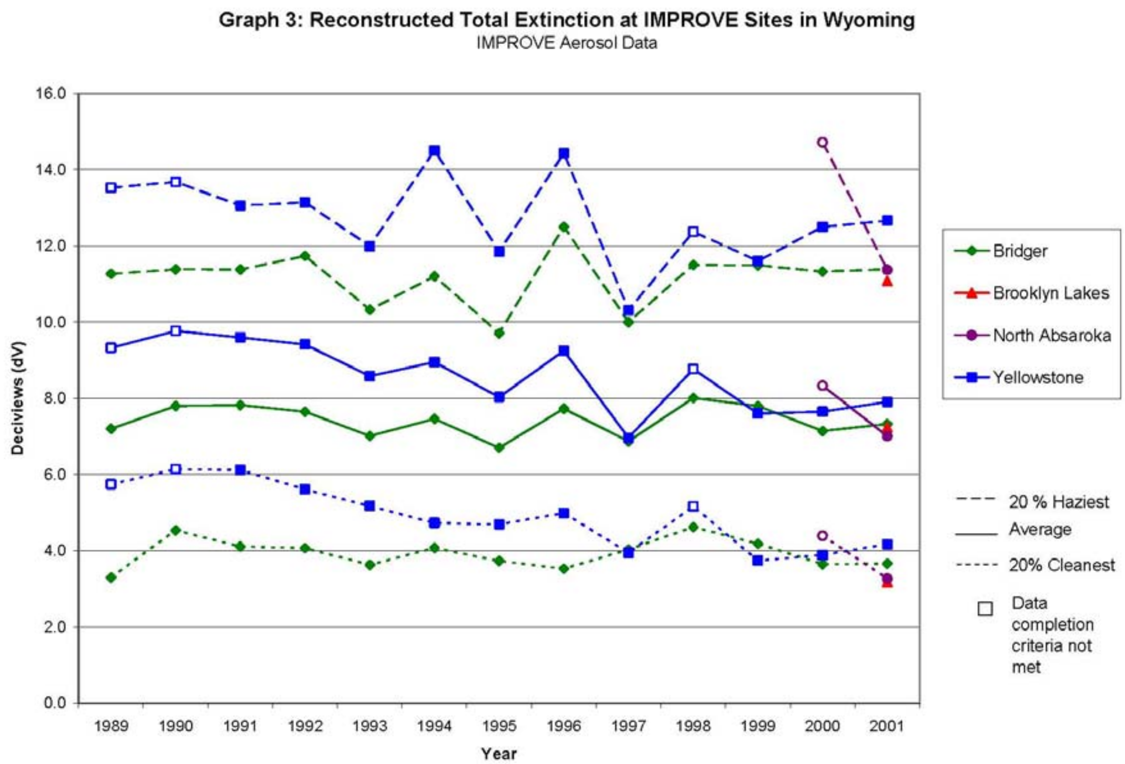
		Location		Location Lambert Conformal[1]	
Station ID	Station Type	Latitude	Longitude	X(km)	Y(km)
Amoco	Industrial	41.429993	-110.890007	-188.837	-117.730
Exxon	Industrial	41.840019	-110.150002	-128.247	-75.080
General Chemical	Industrial	41.590008	-109.759995	-97.396	-102.530
Naughton	Industrial	41.759960	-110.589989	-163.727	-82.890
OCI	Industrial	41.730015	-109.669991	-89.941	-87.569
TG Soda	Industrial	41.690029	-109.889999	-107.679	-91.600
Pinedale	NDDN	42.437225	-108.940804	-97.579	41.610
Centennial	NDDN	43.839733	-110.370804	181.131	-130.873
Lander	NWS	42.345829	-107.552803	-14.192	29.040
Rock Spings	NWS	41.270840	-107.581902	-41.850	-102.050
Casper	NWS	43.679401	-109.611107	163.698	41.900
Salt Lake	NWS	42.300037	-111.237808	-247.589	-219.230
Evanston	NWS	42.537231	-111.854698	-200.631	-133.529
Hayden	NWS	43.723564	-110.710297	115.118	-241.221
Ogden	NWS	42.894428	-111.840599	-245.962	-154.600
Jackson	NWS	43.472195	-110.016701	-169.576	115.150
Riverton	NWS	42.483307	-110.472801	3.930	48.370
Rawlins	NWS	42.490799	-110.526703	108.284	-79.759
Soda Springs	NWS	42.978313	-109.116707	-222.333	-13.320
Vernal	NWS	42.586975	-108.287003	-62.525	-245.160
Worland	NWS	41.645992	-108.583008	46.380	152.760
Cody	NWS	41.715012	-107.699997	-35.756	211.436
Idaho Falls	NWS	41.295990	-110.773003	-273.915	109.943
Denver	NWS	43.091991	-107.320999	335.813	-324.404
Denver	NWS	42.560005	-106.852989	335.813	-324.404
Grand Junction	NWS	41.000008	-107.629997	18.459	-376.037
Cheyenne	NWS	40.450012	-107.589996	302.347	-143.592
Anderson Ridge	RAWS	40.449955	-108.030006	-31.013	-12.050
Burro Hill	RAWS	42.930042	-109.790001	-141.055	140.200
Camp Creek	RAWS	42.819977	-108.730003	79.256	-21.460
Cow Creek	RAWS	41.600040	-109.069992	78.342	-137.150
Elkhorn	RAWS	42.919987	-106.469994	-82.435	121.920
Getch Hollow	RAWS	40.469982	-111.570000	-213.753	-23.290
Grace	RAWS	41.280006	-111.029999	-261.735	4.029
Grand Teton	RAWS	40.299980	-107.150002	-167.686	128.380
Pole Canyon	RAWS	41.069969	-111.579994	-259.041	42.350
Raspberry	RAWS	43.599983	-110.729996	-114.350	100.161
Riley Ridge	RAWS	42.999962	-108.500008	-152.455	-5.340
Snider Basin	RAWS	41.799953	-107.199997	-156.708	-4.430
Wind River	RAWS	42.389965	-111.349991	-44.560	46.200
Beaver Rim	WYDOT	40.270027	-109.309998	20.818	4.010

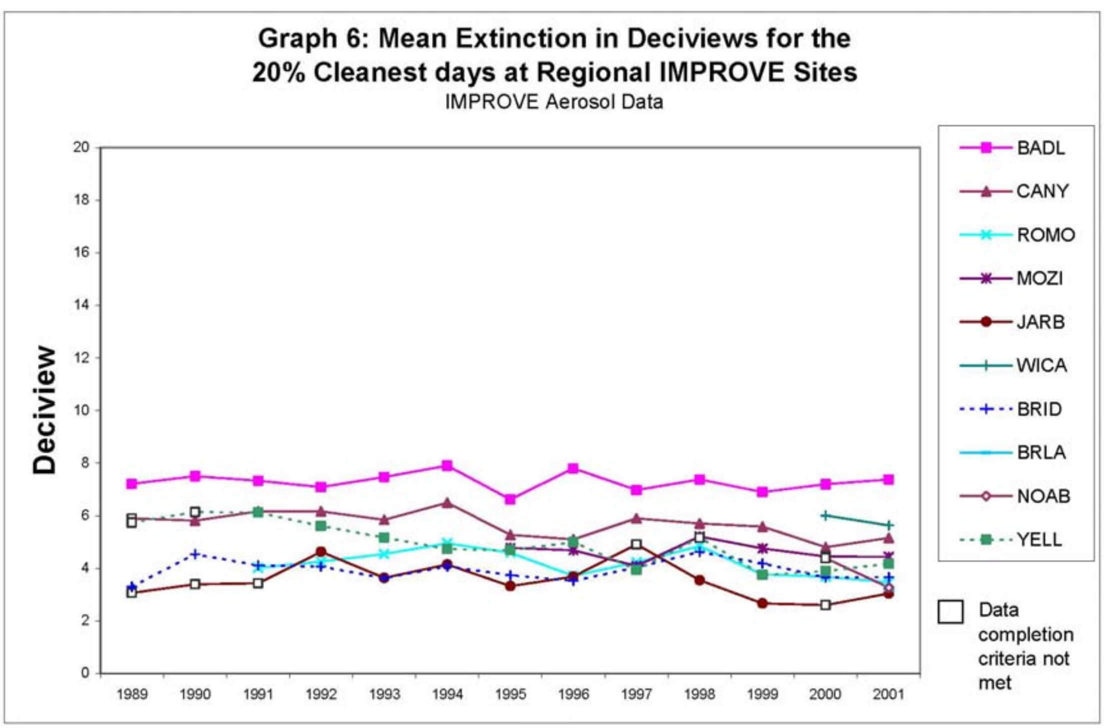
Table A.1 (Continued)

		Location		Location Lambert Conformal[1]	
Station ID	Station Type	Latitude	Longitude	X(km)	Y(km)
Bitter Creek	WYDOT	43.969982	-107.950005	-2.654	-97.240
Continental Divide	WYDOT	41.310000	-106.310000	68.278	-89.450
First Divide	WYDOT	44.517000	-109.017000	-179.798	-132.419
Hiland	WYDOT	43.517000	-112.067000	96.447	59.000
Pathfinder Hi.	WYDOT	43.940000	-106.640000	134.381	2.500
I-25 Divide	WYDOT	44.270000	-108.870000	147.707	151.128
Meeteetsee	WYDOT	39.460000	-104.520000	-24.607	184.857
Baggs	Zirkel	39.460000	-104.520000	74.785	-166.360
Craig Mtn	Zirkel	39.060000	-108.330000	78.747	-225.580
Juniper Mtn.	Zirkel	41.150000	-104.820000	42.655	-225.920

[1] Reference latitude 42.55, reference longitude -108.55.

APPENDIX B:
SOUTHWEST WYOMING VISIBILITY TRENDS


Graph 3: Reconstructed Total Extinction at IMPROVE Sites in Wyoming
IMPROVE Aerosol Data
Deciviews (dV)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
Year
Bridger
Brooklyn Lakes
North Absaroka
Yellowstone
20 % Haziest
Average
20% Cleanest
Data completion criteria not met


Graph 6: Mean Extinction in Deciviews for the 20% Cleanest days at Regional IMPROVE Sites
IMPROVE Aerosol Data
Deciview
20
18
16
14
12
10
8
6
4
2
0
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
BADL
CANY
ROMO
MOZI
JARB
WICA
BRID
BRLA
NOAB
YELL
Data completion criteria not met

APPENDIX B1:

ATLANTIC RIM EMISSIONS INVENTORY

Appendix B1 – Atlantic Rim Emissions Inventory

The following is a list of the tables included within this appendix.

B1.2.19 Un-permitted Compressor Station #2
B1.2.20 Un-permitted Compressor Station #3
B1.2.21 Un-permitted Compressor Station #4
B1.2.22 Wind Erosion
B1.2.23 Wind Erosion Output

Table B1.1.1
Atlantic Rim Emissions Inventory
Well Pad Construction

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Road Construction
Activity: Fugitive Particulate Emissions from Well Pad Construction
Engineer: Cassady Marshall
Date: 5/20/2004

Well Pad Area	Construction Activity TSP Emission Factor[1]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[2]	Emission Control Efficiency	PM_{10} Emissions (controlled)[3]	PM-2.5 Emissions (controlled)[4]
(acre)	(tons/acre-month)	(days/well pad)	(hours/day)	(days/week)	(months/year)	(%)	(lb/well)	(lb/well)
2.0	1.2	1	10	7	8	0	57.60	15.20
					Well Pad Construction Emissions (lb/day/well)		57.60	15.20
					Well Pad Construction Emissions (lb/hr/well)		5.76	1.52

[1] AP-42 (EPA, 1995), Section 13.2.3, "Heavy Construction Operations".
[2] Construction occurs 8 months per year, March - October.
[3] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[4] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table B1.1.2
Atlantic Rim Emissions Inventory
Resource Road Construction

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Road Construction
Activity: Fugitive Particulate Emissions from Resource Road Construction
Engineer: Cassady Marshall
Date: 5/20/2004

Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Emission Control Efficiency	PM-10 Emissions (controlled)[4]	PM-2.5 Emissions (controlled)[5]
(acres)	(tons/acre-month)	(days/pad)	(hours/day)	(day/week)	(months/year)	(%)	(lb/pad)	(lb/pad)
1.8182	1.2	1	10	7	8	0	52.36	13.82
						Resource Road Construction Emissions (lb/day/well)	52.36	13.82
						Resource Road Construction Emissions (lb/hr/well)	5.24	1.38

[1] Construction Area = 1320 ft/well x 60-ft ROW = 1.8182 acres.
[2] AP-42 (EPA, 1995), Section 13.2.3, "Heavy Construction Operations".
[3] Construction occurs 8 months per year, March - October.
[4] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10}
size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$
size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table B1.1.3
Atlantic Rim Emissions Inventory
Well Pad/Resource Road Traffic

TRC

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Well Pad/Resource Road Construction
Activity: Fugitive Particulate Emissions from Traffic on Resource Roads
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Construction Activity Duration	Vehicle Miles Traveled (VMT)	Vehicle Miles Traveled (VMT)	Emission Control Efficiency	PM-10 Emission Factor[4]	PM-2.5 Emission Factor[4]	PM-10 Emissions[5] (controlled)	PM-2.5 Emissions[5] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/week)	(month/year)	(days/well)	(VMT/day)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/pad)	(lb/pad)
Jolly Rogers															
Light trucks/pickups	7,000	25	8.4	2.4	10	7	8	1	43.4	43.4	0	0.84	0.13	36.46	5.46
Total Unpaved Road Traffic Emissions (lb/pad)														36.46	5.46
Total Unpaved Road Traffic Emissions (lb/hr/pad)[6]														3.65	0.55
Muddy Mountain															
Light trucks/pickups	7,000	25	8.4	2.4	10	7	8	1	29.8	29.8	0	0.84	0.13	25.03	3.75
Total Unpaved Road Traffic Emissions (lb/pad)														25.03	3.75
Total Unpaved Road Traffic Emissions (lb/hr/pad)[6]														2.50	0.37

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Construction occurs 8 months per year, March - October.
[4] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/pad x control efficiency.
[6] Calculated as lb/well / 1.0 days/well / 10 hours/day.

Table B1.1.4
Atlantic Rim Emissions Inventory
Well Pad/Resource Road Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Well Pad/Road Construction
Activity: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Engineer: Cassady Marshall
Date: 5/20/2004

Heavy Equipment	Engine Horsepower (hp)	Number Required	Operating Load Factor	Pollutant Emission Factor[1] (g/hp-hr) CO	NO_x	SO_2	VOC	PM_{10}	Construction Activity Duration (days/ equipment type)	Construction Activity Duration (hours/day)	Construction Activity Duration (day/week)	Construction Activity Duration[3] (months/year)	Pollutant Emissions (lb/well) CO	NO_x	SO_2	VOC	PM_{10}[5]	Pollutant Emissions[4] (lb/hr/well) CO	NO_x	SO_2	VOC	PM_{10}[5]
D8 Dozer[2]	285	1	0.4	2.15	7.81	0.851	0.75	0.692	2	10	7	8	10.81	39.26	4.28	3.77	3.48	0.54	1.96	0.21	0.19	0.17
Backhoe	128	1	0.4	2.71	8.81	0.857	0.97	0.805	1	10	7	8	3.06	9.94	0.97	1.09	0.91	0.31	0.99	0.10	0.11	0.09
Total Heavy Equipment Tailpipe Emissions													13.87	49.20	5.24	4.86	4.39	0.85	2.96	0.31	0.30	0.26

[1] AP-42 (EPA, 1985), Volume II Mobile Sources.
[2] Emission factor for track-type tractor.
[3] Construction occurs 8 months per year, March - October.
[4] Calculated as lb/well / days/equipment type / 10 hours/day.
[5] PM-2.5 assumed equivalent to PM-10 for combustion sources.

Table 1.1.5
Atlantic Rim Emissions Inventory
Rig-up and Rig-down Traffic

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Rig-up and Rig-down
Activity: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content [1]	Moisture Content [2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Vehicle Miles Traveled (VMT)	Total VMT	Emission Control Efficiency	PM-10 Emission Factor [4]	PM-2.5 Emission Factor [4]	PM-10 Emissions [5] (controlled)	PM-2.5 Emissions [5] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/week)	(days/year)	(days/well)	(VMT/day/well)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Jolly Rogers															
Semi-Trucks	40,000	20	8.4	2.4	24	7	350	4	5	20	0	2.56	0.39	51.11	7.84
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	86.8	347	0	0.84	0.13	291.65	43.65
Total Resource Road Traffic Emissions (lb/pad)														342.76	51.48
Total Resource Road Emissions (lb/hr/well) [6]														3.57	0.54
Muddy Mountain															
Semi-Trucks	40,000	20	8.4	2.4	24	7	350	4	5	20	0	2.56	0.39	51.11	7.84
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	59.6	238	0	0.84	0.13	200.26	29.97
Total Resource Road Traffic Emissions (lb/pad)														251.37	37.81
Total Resource Road Emissions (lb/hr/well) [6]														2.62	0.39

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] 4 days/well = 2 days for rig-up and 2 days for rig-down.
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/pad x control efficiency.
[6] Calculated as (lb/well) / 4 days/well / 24 hours/day.

Table B1.1.6
Atlantic Rim Emissions Inventory
Drilling Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Drilling
Activity: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content [1]	Moisture Content [2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Vehicle Miles Traveled (VMT)	Vehicle Miles Traveled (VMT)	Emission Control Efficiency	PM-10 Emission Factor [3]	PM-2.5 Emission Factor [3]	PM-10 Emissions [4] (controlled)	PM-2.5 Emissions [4] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/week)	(days/year)	(days/well)	(VMT/day)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Jolly Rogers															
Fuel Truck	40,000	20	8.4	2.4	24	7	350	4	43.4	173.6	0	2.56	0.39	443.60	68.02
Mud Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Water Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	183.6	734.4	0	0.84	0.13	616.91	92.32
Total Resource Road Traffic Emissions (lb/well)														1,264.93	191.69
Total Resource Road Emissions (lb/hr/well) [5]														13.18	2.00
Doty Mountain															
Fuel Truck	40,000	20	8.4	2.4	24	7	350	4	36.8	147.2	0	2.56	0.39	376.14	57.67
Mud Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Water Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	163.2	652.8	0	0.84	0.13	548.36	82.07
Total Resource Road Traffic Emissions (lb/well)														1,128.92	171.08
Total Resource Road Emissions (lb/hr/well) [5]														11.76	1.78
Cow Creek															
Fuel Truck	40,000	20	8.4	2.4	24	7	350	4	9.9	39.6	0	2.56	0.39	101.19	15.52
Mud Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Water Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	49.6	198.4	0	0.84	0.13	166.66	24.94
Total Resource Road Traffic Emissions (lb/well)														472.27	71.80
Total Resource Road Emissions (lb/hr/well) [5]														4.92	0.75
Blue Sky															
Fuel Truck	40,000	20	8.4	2.4	24	7	350	4	22.2	88.8	0	2.56	0.39	226.91	34.79
Mud Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Water Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	98.8	395.2	0	0.84	0.13	331.98	49.68
Total Resource Road Traffic Emissions (lb/well)														763.31	115.82
Total Resource Road Emissions (lb/hr/well) [5]														7.95	1.21
Wild Horse															
Fuel Truck	40,000	20	8.4	2.4	24	7	350	4	12.1	48.4	0	2.56	0.39	123.68	18.96
Mud Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Water Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	58.5	234	0	0.84	0.13	196.56	29.42
Total Resource Road Traffic Emissions (lb/well)														524.66	79.73
Total Resource Road Emissions (lb/hr/well) [5]														5.47	0.83
Muddy Mountain															
Fuel Truck	40,000	20	8.4	2.4	24	7	350	4	28.9	115.6	0	2.56	0.39	295.39	45.29
Mud Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Water Truck	40,000	20	8.4	2.4	24	7	350	4	10	40	0	2.56	0.39	102.21	15.67
Light trucks/pickups	7,000	25	8.4	2.4	24	7	350	4	127.4	509.6	0	0.84	0.13	428.07	64.06
Total Resource Road Traffic Emissions (lb/well)														927.89	140.70
Total Resource Road Emissions (lb/hr/well) [5]														9.67	1.47

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/pad x control efficiency.
[5] Calculated as (lb/well) / 4 days/well / 24 hours/day.

Table B1.1.7
Atlantic Rim Emissions Inventory
Rig-up, Drilling Heavy, and Rig-down Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Rig-up, Drilling, Rig-down
Activity: Diesel Combustion Emissions from Haul Truck Tailpipes
Engineer: Cassady Marshall
Date: 5/20/2004

Pollutant	Pollutant Emission Factor[1]	Vehicle Miles Traveled (VMT)	Haul Activity Duration	Haul Activity Duration	Haul Activity Duration	Emissions	Emissions[4]
	(grams/mile)	(VMT/well)	(days/well)	(hours/day)	(days/year)	(lb/well)	(lb/hr/well)
CO	14.74	202	4	24	350	6.57	6.84E-02
NO_x	11.44	202	4	24	350	5.10	5.31E-02
SO_2[3]	0.32	202	4	24	350	0.14	1.47E-03
VOC	5.69	202	4	24	350	2.54	2.64E-02

[1] AP-42 (EPA, 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[3] The SO_2 emission factor is calculated assuming 10 mpg fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal.

[4] Calculated as (lb/well) / 4 days/well / 24 hours/day.

Table B1.1.8
Atlantic Rim Emissions Inventory
Drilling Engines

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Drilling
Activity: Diesel Combustion Emissions from Drilling Engines - Manufacturer's Data
Engineer: Cassady Marshall
Date: 6/18/2004

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions	Emissions
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr/well)
CO	0.00331	2,550	0.42	4	24	342.02	3.56
NOx	0.019	2,550	0.42	4	24	1,995.14	20.78
SO_2	0.00205	2,550	0.42	4	24	212.03	2.21
VOC	0.0006	2,550	0.42	4	24	57.00	0.59
PM_{10}[5]	0.0022	2,550	0.42	4	24	227.54	2.37

[1] Emission factors for NOx, CO, and VOC based on manufacturer's data. PM10 and SO2 emissions factors AP-42 (EPA, 1996), Section 3.3, "Gasoline and Diesel Industrial Engines. Table 3.3-1.
[2] Drilling engine horsepower based on three 850 hp engines.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table B1.1.9
Atlantic Rim Emissions Inventory
Completion Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Completion
Activity: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Completion Activity Duration	Completion Activity Duration	Vehicle Miles Traveled (VMT)	Vehicle Miles Traveled (VMT)	Emission Control Efficiency	PM-10 Emission Factor [3]	PM-2.5 Emission Factor [3]	PM-10 Emissions [4] (controlled)	PM-2.5 Emissions [4] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/well)	(VMT/day)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Jolly Rogers													
Water Truck	40,000	20	8.40	2.40	12.00	2.00	10.00	20.00	0.00	2.56	0.39	51.11	7.84
Cement Delivery	40,000	20	8.40	2.40	12.00	2.00	10.00	20.00	0.00	2.56	0.39	51.11	7.84
Light Pick-ups	7,000	25	8.40	2.40	12.00	2.00	43.40	86.80	0.00	0.84	0.126	72.91	10.91
Total Resource Road Emissions (lb/well)												175.12	26.58
Total Resource Road Emissions (lb/hr/well) [5]												7.30	1.108
Muddy Mountain													
Water Truck	40,000	20	8.40	2.40	12.00	2.00	10.00	20.00	0.00	2.56	0.39	51.11	7.84
Cement Delivery	40,000	20	8.40	2.40	12.00	2.00	10.00	20.00	0.00	2.56	0.39	51.11	7.84
Light Pick-ups	7,000	25	8.40	2.40	12.00	2.00	29.80	59.60	0.00	0.84	0.126	50.07	7.49
Total Resource Road Emissions (lb/well)												152.28	23.16
Total Resource Road Emissions (lb/hr/well) [5]												6.34	0.965

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/pad x control efficiency.
[5] Calculated as (lb/well) / 2 days/well / 12 hours/day.

Table B1.1.10
Atlantic Rim Emissions Inventory
Completion Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Completion
Activity: Diesel Combustion Emissions from Haul Truck Tailpipes
Engineer: Cassady Marshall
Date: 5/20/2004

Pollutant	Pollutant Emission Factor[1]	Vehicle Miles Traveled	Haul Activity Duration	Haul Activity Duration	Emissions	Emissions[2]
	(grams/mile)	(VMT/well)	(days/well)	(hours/day)	(lb/well)	(lb/hr/well)
CO	14.74	20	2	12	0.65	2.71E-02
NO_x	11.44	20	2	12	0.50	2.10E-02
SO_2[3]	0.32	20	2	12	0.01	5.83E-04
VOC	5.69	20	2	12	0.25	1.05E-02

[1] AP-42 (EPA, 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] Calculated as lb/well / 2 days/well / 12 hours/day.

[3] The SO_2 emission factor is calculated assuming 10 mpg fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal.

Table B1.1.11
Atlantic Rim Emissions Inventory
Completion Engines

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Completion
Activity: Diesel Combustion Emissions from Completion Engines
Engineer: Cassady Marshall
Date: 5/20/2004

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines	Overall Load Factor[2]	Drilling Activity Duration	Drilling Activity Duration	Emissions	Emissions
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr/well)
CO	0.00668	350	0.42	2	12	23.71	0.99
NOx	0.031	350	0.42	2	12	110.02	4.58
SO_2	0.00205	350	0.42	2	12	7.28	0.30
VOC	0.0025	350	0.42	2	12	8.87	0.37
PM_{10}[3]	0.0022	350	0.42	2	12	7.81	0.33

[1] AP-42 (EPA, 1996), Section 3.3, "Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[3] PM2.5 assumed equivalent to PM10 for drilling engines.

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Completion
Activity: Completion Flaring
Engineer: Cassady Marshall
Date: 5/20/2004

Flaring Specifications[1]:

Total Volume of Gas Emitted	35000	mcf
Total Volume of Condensate Emitted	250	bbls
Average Heat Content	1092.9	BTU/scf
Flaring/Flowback Activity Duration	120	hrs/well
Flaring Duration	80	hr/well
Pre-ignition Flow-back Duration	40	hr/well
Pre-ignition Flow-back Time Involving a Gas Stream	10	%
Actual Hours Gas is Vented	4	hrs
Total Hours in which Gas is Vented or Flared[2]	84	hrs
Average Flowrate of Gas[3]	416.67	mcf/hr
Total Volume of Gas Vented[4]	1,666.67	mcf
Total Volume of Flared Gas[5]	33,333.33	mcf
Average Flowrate of Condensate	2.98	bbls/hr
Pre-flare Volume of Condensate	11.90	bbls
Volume of Condensate Flared	238.10	bbls

Activity	Volume	Volume Units	Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source[7]	Total Emissions (tons)	Duration (hours)	Hourly Emissions (lb/hr)
Venting - Natural Gas [6]	1,666.67	mcf	VOC	4.70	lb / 1000 scf	Gas Constituent Analysis	3.91	4	1,956.87
			HAP (total)	0.37	lb / 1000 scf	Gas Constituent Analysis	0.31	4	155.91
			n-Hexane	0.08	lb / 1000 scf	Gas Constituent Analysis	0.070	4	35.13
			Benzene	0.026	lb / 1000 scf	Gas Constituent Analysis	0.022	4	10.75
			Toluene	0.041	lb / 1000 scf	Gas Constituent Analysis	0.034	4	17.02
			Ethylbenzene	0.0019	lb / 1000 scf	Gas Constituent Analysis	0.0016	4	0.80
			Xylenes	0.018	lb / 1000 scf	Gas Constituent Analysis	0.015	4	7.67
Flaring - Natural Gas	33,333.33	mcf	NOx	0.068	lb / 10^6 BTU	AP-42 Section 13.5	1.24	80	30.97
			CO	0.37	lb / 10^6 BTU	AP-42 Section 13.5	6.74	80	168.49
			VOC	2.35	lb / 1000 scf	Gas Constituent Analysis	39.14	80	978.43
			HAP (total)	0.19	lb / 1000 scf	Gas Constituent Analysis	3.12	80	77.95
			n-Hexane	0.042	lb / 1000 scf	Gas Constituent Analysis	0.70	80	17.57
			Benzene	0.013	lb / 1000 scf	Gas Constituent Analysis	0.22	80	5.38
			Toluene	0.020	lb / 1000 scf	Gas Constituent Analysis	0.34	80	8.51
			Ethylbenzene	0.001	lb / 1000 scf	Gas Constituent Analysis	0.016	80	0.40
			Xylenes	0.009	lb / 1000 scf	Gas Constituent Analysis	0.15	80	3.83
Flaring - Condensate	238.10	bbls	VOC	121.98	lb/bbl	Condensate Constituent Analysis	14.52	80	363.03
			HAP (total)	26.27	lb/bbl	Condensate Constituent Analysis	3.13	80	78.19
			n-hexane	4.59	lb/bbl	Condensate Constituent Analysis	0.55	80	13.67
			Benzene	1.42	lb/bbl	Condensate Constituent Analysis	0.17	80	4.22
			Toluene	6.11	lb/bbl	Condensate Constituent Analysis	0.73	80	18.19
			Ethylbenzene	0.74	lb/bbl	Condensate Constituent Analysis	0.09	80	2.19
			Xylenes	12.99	lb/bbl	Condensate Constituent Analysis	1.55	80	38.66

[1] These are estimates for the Atlantic Rim Project from Encanna for the Jonah Infill Drilling Proejct.
[2] Calculated as 10% * 40 hrs of pre-ignition flowback + 80 hrs of flaring.
[3] Calculated as 3500 mcf / 84 hrs.
[4] Calculated as 416.67 mcf/hr * 4 hrs.
[5] Calculated as 416.67 mcf/hr * 80 hrs.
[6] An estimated 11.9 bbl of condensate are captured prior to flare ignition. Flashing from this condensate is not analyzed.
[7] For all emission factors that used the constituent analysis, a 50% destruction rate was assumed.

Table B1.1.13
Atlantic Rim Emissions Inventory
Pipeline Installation

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Pipeline Installation
Activity: Fugitive Particulate Emissions from Pipeline Installation
Engineer: Cassady Marshall
Date: 5/20/2004

Pipeline Area[1]	Construction Activity TSP Emission Factor[2]	Pipeline Activity Duration	Pipeline Activity Duration	Pipeline Activity Duration	Pipeline Activity Duration[3]	Emission Control Efficiency	PM-10 Emissions (controlled)[4]	PM-2.5 Emissions (controlled)[5]
(acres)	(tons/acre-month)	(days/pad)	(hours/day)	(day/week)	(months/year)	(%)	(lb/pad)	(lb/pad)
2.7548	1.2	1	10	7	8	0	79.34	20.94
				Pipeline Installation Construction Emissions (lb/day/well)			79.34	20.94
				Pipeline Installation Construction Emissions (lb/hr/well)			7.93	2.09

[1] Pipeline Area = 3960 ft/well x 30' ROW = 2.4992 acres.
[2] AP-42 (EPA, 1995), Section 13.2.3, "Heavy Construction Operations".
[3] Construction occurs 8 months per year, March -October.
[4] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10}
size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$
size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table B1.1.14
Atlantic Rim Emissions Inventory
Pipeline Installation Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Pipeline Installation
Activity: Fugitive Particulate Emissions from Traffic on Resource Roads
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Construction Activity Duration	Vehicle Miles Traveled (VMT)	Vehicle Miles Traveled (VMT)	Emission Control Efficiency	PM-10 Emission Factor[4]	PM-2.5 Emission Factor[4]	PM-10 Emissions[5] (controlled)	PM-2.5 Emissions[5] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/week)	(months/year)	(days/well)	(VMT/day)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Jolly Rogers															
Semi-truck	40,000	20	8.4	2.4	10	7	8	1	43.4	43.4	0	2.56	0.39	110.90	17.00
Light trucks/pickups	7,000	25	8.4	2.4	10	7	8	1	10	10	0	0.84	0.13	8.40	1.26
Pipeline Installation Construction Emissions (lb/well)														119.30	18.26
Pipeline Installation Construction Emissions (lb/hr/well)[6]														11.93	1.83
Muddy Mountain															
Semi-truck	40,000	20	8.4	2.4	10	7	8	1	29.8	29.8	0	2.56	0.39	76.15	11.68
Light trucks/pickups	7,000	25	8.4	2.4	10	7	8	1	10	10	0	0.84	0.13	8.40	1.26
Pipeline Installation Construction Emissions (lb/well)														84.55	12.93
Pipeline Installation Construction Emissions (lb/hr/well)[6]														8.45	1.29

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Construction occurs 8 months per year, March - October.
[4] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/pad x control efficiency.
[6] Calculated as lb/well / 1 days/well / 10 hours/day.

Table 1.1.15
Atlantic Rim Emissions Inventory
Pipeline Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Pipeline Installation
Activity: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Engineer: Cassady Marshall
Date: 5/20/2004

Heavy Equipment	Engine Horsepower (hp)	Number Required	Operating Load Factor	Pollutant Emission Factor[1] (g/hp-hr) CO	NO_x	SO_2	VOC	PM_{10}	Construction Activity Duration (days/ equipment type)	Construction Activity Duration (hours/day)	Construction Activity Duration (day/week)	Construction Activity Duration[2] (months/year)	Pollutant Emissions (lb/well) CO	NO_x	SO_2	VOC	PM_{10}[4]	Pollutant Emissions[3] (lb/hr/well) CO	NO_x	SO_2	VOC	PM_{10}[4]
Trencher	128	1	0.4	1.54	7.14	0.874	0.36	0.625	1	10	7	8	1.74	8.06	0.99	0.41	0.71	0.17	0.81	0.10	0.04	0.07
Fuser	128	1	0.4	2.15	7.81	0.851	0.75	0.692	1	10	7	8	2.43	8.82	0.96	0.85	0.78	0.24	0.88	0.10	0.08	0.08
Total Heavy Equipment Tailpipe Emissions													4.17	16.87	1.95	1.25	1.49	0.42	1.69	0.19	0.13	0.15

[1] AP-42 (EPA, 1985), Volume II Mobile Sources.
[2] Construction occurs 8 months per year, March -October.
[3] Calculated as lb/well / days/equipment type / 10 hours/day.
[4] PM-2.5 assumed equivalent to PM-10 for combustion sources.

Table B1.1.16
Atlantic Rim Emissions Inventory
Wind Erosion

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Well Pad, Resource Road, and Pipeline Construction
Activity: Wind Erosion
Engineer: Cassady Marshall
Date: 5/20/2004

Emission Factor : 0.3534 lb/hr/100m^2 — Based on AP-42 Chapter 13.2.5, Industrial Wind Erosion using Rawlins, Wyoming meteorological data.

Control Efficiency: 0 %

Disturbed Area:

Well Pad Construction:	2.00	acres	8094.00	m^2	
Resource Road Construction:	1.82	acres	7358.18	m^2	(based on 60' ROW road width, 1320 feet section per well)
Pipeline Installation	2.75	acres	11148.76	m^2	(based on 30' ROW road width, 3960 feet section per well)

PM-10 Emissions Calculations:

	PM-10 Emission Factor (lb/hr/100 m^2)	PM-2.5 Emission Factor (lb/hr/100 m^2)	Area/100 (100 m^2)	Control Efficiency (%)	PM-10 Emissions (lb/hr)	PM-2.5 Emissions (lb/hr)	PM-10 Emissions (g/sec)	PM-2.5 Emissions (g/sec)
Well Pad Construction	0.3534	0.1414	80.94	0	28.60	11.44	3.60	1.44
Resource Road Construction	0.3534	0.1414	73.58	0	26.00	10.40	3.28	1.31
Pipeline Installation	0.3534	0.1414	111.49	0	39.40	15.76	4.96	1.99

Table B1.1.17
Atlantic Rim Emissions Inventory
Wind Erosion Output

rawl2003

COMPUTATION OF WIND EROSION EMISSIONS (version 93037)
BASED ON AP-42 SECTION 13.2.5 INDUSTRIAL WIND EROSION

EXAMINE COMPUTED EMISSIONS FOR DISTURBANCE FREQUENCY --
COMPUTATION ASSUMES DISTURBANCE EVERY HOUR

Particle Size (1=TSP, 2=PM10): 2
Anemometer Ht (m): 10.00
Threshold Friction Velocity (m/sec): 1.02
Stockpile or Exposed Surface Area (m2): 100.
Surface Type (1=Flat, 2=Stockpile): 1
Correction Factor: 1.000

YR	MO	DAY	HR	ANEM WIND SPEED (m/sec)	THRESHOLD FRICTION VELOCITY (m/sec)	FRICTION VELOCITY @SURFACE (m/sec)	POTENTIA EMISSION (lb)	POTENTIAL EMISSIONS (g/sec)
3	2	10	6	17	1.02	1.0812	0.1926	0.0243
3	2	16	19	19	1.02	1.2084	0.7461	0.094
3	3	5	18	17.5	1.02	1.113	0.3116	0.0393
3	3	5	19	17	1.02	1.0812	0.1926	0.0243
3	3	5	20	17	1.02	1.0812	0.1926	0.0243
3	3	5	21	17.5	1.02	1.113	0.3116	0.0393
3	3	5	22	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	4	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	5	17.5	1.02	1.113	0.3116	0.0393
3	3	6	14	18.5	1.02	1.1766	0.5883	0.0741
3	3	6	15	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	16	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	13	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	14	17	1.02	1.0812	0.1926	0.0243
3	3	8	17	17.5	1.02	1.113	0.3116	0.0393
3	3	10	18	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	12	18.5	1.02	1.1766	0.5883	0.0741
3	4	1	13	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	16	17.5	1.02	1.113	0.3116	0.0393
3	4	2	12	18	1.02	1.1448	0.4435	0.0559
3	4	2	16	17	1.02	1.0812	0.1926	0.0243
3	9	12	16	17	1.02	1.0812	0.1926	0.0243
3	9	16	14	17.5	1.02	1.113	0.3116	0.0393
3	10	27	10	16.5	1.02	1.0494	0.0865	0.0109
3	10	28	18	17	1.02	1.0812	0.1926	0.0243
3	10	28	19	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	21	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	22	18	1.02	1.1448	0.4435	0.0559
3	10	28	23	20.1	1.02	1.2784	1.1387	0.1435
3	10	28	24	16.5	1.02	1.0494	0.0865	0.0109
3	10	29	2	18.5	1.02	1.1766	0.5883	0.0741
3	10	29	9	17.5	1.02	1.113	0.3116	0.0393
3	10	29	11	18.5	1.02	1.1766	0.5883	0.0741
3	11	11	10	16.5	1.02	1.0494	0.0865	0.0109
3	11	11	11	18	1.02	1.1448	0.4435	0.0559

Table B1.1.17
Atlantic Rim Emissions Inventory
Wind Erosion Output

3	11	11	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	13	17	1.02	1.0812	0.1926	0.0243
3	12	13	20	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	8	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	9	18	1.02	1.1448	0.4435	0.0559
3	12	26	20	17	1.02	1.0812	0.1926	0.0243
3	12	30	1	18	1.02	1.1448	0.4435	0.0559
3	12	30	2	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	3	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	4	16.5	1.02	1.0494	0.0865	0.0109
3	12	30	5	16.5	1.02	1.0494	0.0865	0.0109
				16.5			16.6101	total/hr
							0.353406	average lb/hr

when ws>16.5 mph

Table B1.1.18
Atlantic Rim Emissions Inventory
Reclamation Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Pad and Pipeline Reclamation
Activity: Fugitive Particulate Emissions from Traffic on Resource Roads
Engineer: Cassady Marshall
Date: 5/20/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Vehicle Miles Traveled	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Emission Control Efficiency	PM-10 Emission Factor[4]	PM-2.5 Emission Factor[4]	PM-10 Emissions[5] (controlled)	PM-2.5 Emissions[5] (controlled)
	(lb)	(mph)	(%)	(%)	(VMT/well)	(hours/day)	(day/week)	(months/year)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Semi-truck	40,000	20	8.4	2.4	20	10	7	8	0	2.56	0.39	51.11	7.84
Pipeline Installation Construction Emissions (lb/well)												51.11	7.84
Pipeline Installation Construction Emissions (lb/hr/well) [6]												5.11	0.78

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Construction occurs 8 months per year, March -October.
[4] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/pad x control efficiency.
[6] Calculated as lb/well / 1 days/well / 10 hours/day.

Table 1.1.19
Atlantic Rim Emissions Inventory
Reclamation Heavy Equipment

TRC

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Pad and Pipeline Reclamation
Activity: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Engineer: Cassady Marshall
Date: 5/20/2004

Heavy Equipment	Engine Horsepower (hp)	Number Required	Operating Load Factor	Pollutant Emission Factor[1] (g/hp-hr) CO	NO_x	SO_2	VOC	PM_{10}	Construction Activity Duration (days/ equipment type)	Construction Activity Duration (hours/day)	Construction Activity Duration (day/week)	Construction Activity Duration[2] (months/year)	Pollutant Emissions (lb/well) CO	NO_x	SO_2	VOC	PM_{10}[4]	Pollutant Emissions[3] (lb/hr/well) CO	NO_x	SO_2	VOC	PM_{10}[4]
Dozer	128	1	0.4	1.54	7.14	0.874	0.36	0.625	1	10	7	8	1.74	8.06	0.99	0.41	0.71	0.17	0.81	0.10	0.04	0.07
Tractor with disc.	128	1	0.4	2.15	7.81	0.851	0.75	0.692	1	10	7	8	2.43	8.82	0.96	0.85	0.78	0.24	0.88	0.10	0.08	0.08
Total Heavy Equipment Tailpipe Emissions													4.17	16.87	1.95	1.25	1.49	0.42	1.69	0.19	0.13	0.15

[1] AP-42 (EPA, 1985), Volume II Mobile Sources.
[2] Construction occurs 8 months per year, March -October.
[3] Calculated as lb/well / days/equipment type / 10 hours/day.
[4] PM-2.5 assumed equivalent to PM-10 for combustion sources.

Table B1.2.1
Atlantic Rim Emissions Inventory
Production Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production Traffic
Activity: Fugitive Particulate Emissions from Production Traffic
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Vehicle Miles Traveled	Gathering System Inspection VMTs	Duration	Total VMTs per Pod	Emission Control Efficiency	PM-10 Emission Factor[3]	PM-2.5 Emission Factor[3]	PM-10 Emissions[4] (controlled)	PM-2.5 Emissions[4] (controlled)
	(lb)	(mph)	(%)	(%)	(miles/day/pod)	(VMT/pod/day)	(days/year)	(VMT/pod)	(%)	(lb/VMT)	(lb/VMT)	(lb/pod/yr)	(lb/pod/yr)
TW20NR89W													
Light trucks/ pickups	7,000	20	8.4	2.4	10.8	221.6	365	84,826.0	0	0.75	0.11	63,728.55	9,534.73
								Total Resource Road Emissions (lb/pod/yr)				63,728.55	9,534.73
								Total Resource Road Emissions (lb/well/yr)[5]				381.61	57.09
Red Rim													
Light trucks/ pickups	7,000	20	8.4	2.4	20.2	240.4	365	95,119.0	0	0.75	0.11	71,461.53	10,691.69
								Total Resource Road Emissions (lb/pod/yr)				71,461.53	10,691.69
								Total Resource Road Emissions (lb/well/yr)[5]				427.91	64.02
T19NR90W													
Light trucks/ pickups	7,000	20	8.4	2.4	32.6	265.2	365	108,697.0	0	0.75	0.11	81,662.49	12,217.91
								Total Resource Road Emissions (lb/pod/yr)				81,662.49	12,217.91
								Total Resource Road Emissions (lb/well/yr)[5]				489.00	73.16
Jolly Rogers													
Light trucks/ pickups	7,000	20	8.4	2.4	43.4	286.8	365	120,523.0	0	0.75	0.11	90,547.19	13,547.19
								Total Resource Road Emissions (lb/pod/yr)				90,547.19	13,547.19
								Total Resource Road Emissions (lb/well/yr)[5]				542.20	81.12
Doty Mountain													
Light trucks/ pickups	7,000	20	8.4	2.4	36.8	273.6	365	113,296.0	0	0.75	0.11	85,117.65	12,734.85
								Total Resource Road Emissions (lb/pod/yr)				85,117.65	12,734.85
								Total Resource Road Emissions (lb/well/yr)[5]				509.69	76.26
Cow Creek													
Light trucks/ pickups	7,000	20	8.4	2.4	9.9	219.8	365	83,840.5	0	0.75	0.11	62,988.16	9,423.95
								Total Resource Road Emissions (lb/pod/yr)				62,988.16	9,423.95
								Total Resource Road Emissions (lb/well/yr)[5]				377.17	56.43
Sun Dog													
Light trucks/ pickups	7,000	20	8.4	2.4	13.0	226.0	365	87,235.0	0	0.75	0.11	65,538.40	9,805.51
								Total Resource Road Emissions (lb/pod/yr)				65,538.40	9,805.51
								Total Resource Road Emissions (lb/well/yr)[5]				392.45	58.72
Blue Sky													
Light trucks/ pickups	7,000	20	8.4	2.4	22.2	244.4	365	97,309.0	0	0.75	0.11	73,106.85	10,937.86
								Total Resource Road Emissions (lb/pod/yr)				73,106.85	10,937.86
								Total Resource Road Emissions (lb/well/yr)[5]				437.77	65.50
Blue Sky 2													
Light trucks/ pickups	7,000	20	8.4	2.4	30.0	260.0	365	105,850.0	0	0.75	0.11	79,523.58	11,897.89
								Total Resource Road Emissions (lb/pod/yr)				79,523.58	11,897.89
								Total Resource Road Emissions (lb/well/yr)[5]				476.19	71.24
Wildhorse													
Light trucks/ pickups	7,000	20	8.4	2.4	12.1	224.2	365	86,249.5	0	0.75	0.11	64,798.01	9,694.73
								Total Resource Road Emissions (lb/pod/yr)				64,798.01	9,694.73
								Total Resource Road Emissions (lb/well/yr)[5]				388.01	58.05
Muddy Mountain 1													
Light trucks/ pickups	7,000	20	8.4	2.4	20.0	240.0	365	94,900.0	0	0.75	0.11	71,297.00	10,667.08
								Total Resource Road Emissions (lb/pod/yr)				71,297.00	10,667.08
								Total Resource Road Emissions (lb/well/yr)[5]				426.93	63.87
Muddy Mountain 2													
Light trucks/ pickups	7,000	20	8.4	2.4	28.9	257.8	365	104,645.5	0	0.75	0.11	78,618.66	11,762.50
								Total Resource Road Emissions (lb/pod/yr)				78,618.66	11,762.50
								Total Resource Road Emissions (lb/well/yr)[5]				470.77	70.43
												888,388.08	132,915.88
												444.194038	66.4579403

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/well x control efficiency.
[5] Calculated assuming 167 wells per pod.

Table B1.2.2
Atlantic Rim Emissions Inventory
Production Heavy Equipment

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production Traffic
Activity: Diesel Combustion Emissions from Haul Truck Tailpipes
Engineer: Cassady Marshall
Date: 5/20/2004

Pollutant	Pollutant Emission Factor[1]	Annual Well VMT	Hourly Emissions Single Well	Annual Emissions Single Well
	(grams/mi)	(VMT/well/yr)	(lb/hr)	(tpy)
CO	14.74	249.60	9.26E-04	4.06E-03
NO_x	11.44	249.60	7.19E-04	3.15E-03
SO_2[2]	0.32	249.60	2.02E-05	8.84E-05
VOC	5.69	249.60	3.57E-04	1.57E-03

[1]AP-42 (EPA, 1985), Table 2.7.1 "Volume II Mobile Sources." Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] The SO_2 emission factor is calculated assuming 10 mpg fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.08 lb/gal.

Table B1.2.3
Atlantic Rim Emissions Inventory
Condensate Truck Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production Traffic
Activity: Fugitive Particulate Emissions from Production Traffic
Engineer: Cassady Marshall
Date: 6/18/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Vehicle Miles Traveled	Emission Control Efficiency	PM-10 Emission Factor[4]	PM-2.5 Emission Factor[4]	PM-10 Emissions[5] (controlled)	PM-2.5 Emissions[5] (controlled)
	(lb)	(mph)	(%)	(%)	(VMT/well/yr)	(%)	(lb/VMT)	(lb/VMT)	(lb/well/yr)	(lb/well/yr)
Condensate Truck mileage for the 200 traditional gas wells only.										
Condensate Trucks[3]	40,000	25	8.4	2.4	249.6	0	2.56	0.39	637.80	97.80

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] VMT/well/year for condensate trucks based on 2 trucks operating each day, each truck visits 10 wells, and the trucks operate 5 days/week, year round.

Table B1.2.4
Atlantic Rim Emissions Inventory
Condensate Storage Tank

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Condensate Storage Tank
Engineer: Cassady Marshall
Date: 8/30/2004

Condensate storage tanks located only at traditional gas wells.
Condensate storage tank flashing emissions for one storage tank.

Pollutant	**Emissions[1]**	
	(lb/hr)	**(tpy)**
VOC	6.85	30.0
Benzene	0.13	0.56
Toluene	0.13	0.56
Ethlybenzene	0.0075	0.033
Xylenes	0.043	0.19
n-hexane	0.70	3.06

[1] Emissions taken from Continental Divide Condensate Tank Emissions

Table B1.2.5
Atlantic Rim Emissions Inventory
Separator Heater

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Separator Heater
Engineer: Cassady Marshall
Date: 5/20/2004

Fuel Combustion Source:

Unit Description	Separator Heater at traditional wells only					
Design Firing Rate (MMBTU/hr)	0.5					

Operating Parameters:

Operating cycle	7.5	min/hr September to April				
Operating hours	24	hr/day,	7	days/wk,	213	days/yr.
Annual Operating hours	638.75					
Capacity (%)	100					
Annual Load (%):	Winter	43.75	Spring	12.5		
	Summer	0	Fall	43.75		

Actual Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	0.32	MMSCF
Heat Content	1000	Btu/scf

Potential Emission Data:

	Emissions (lb/hr)	Emissions (tpy)	Method of Determination	Emission Factors	Units
Nitrogen oxides	5.00E-02	0.02	AP-42	100.0	lb/MMscf
Carbon monoxide	1.05E-02	0.003	AP-42	21.0	lb/MMscf
Sulfur dioxide	0.00E+00	0.00	Fuel Analysis	0.0	lb/MMscf
Filterable Particulate	2.25E-03	0.001	AP-42	4.5	lb/MMscf
Condensable Particulate	0.00E+00	0.00	AP-42	7.5	lb/MMscf
Total PM	2.25E-03	0.001			
VOC	4.00E-03	0.001	AP-42	8.0	lb/MMscf

Table B1.2.6
Atlantic Rim Emissions Inventory
TEG Dehydrator

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: TEG Dehydration
Engineer: Cassady Marshall
Date: 8/30/2004

10.0 MMSCFD TEG Dehydrator

Emissions calculated using GRI-GLYCalc.

One dehydrator located at each of the 12 compressor stations.

Pollutant	**Emissions**	
	(lb/hr)	**(tpy)**
VOC	9.60	42.04
Benzene	0.76	3.31
Toluene	2.23	9.76
Ethlybenzene	0.35	1.52
Xylenes	1.82	7.97
n-hexane	0.18	0.81

Table B1.2.7
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Summary of Input Values

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Atlantic Rim TEG Dehy
File Name: C:\Program Files\GRI-GLYCalc4\AR_10MMSCFD.DDF
Date: August 30, 2004

DESCRIPTION:

Description: 10.0 MMSCFD Dehydrator, Max Circulation Rate
= 90gph (1.5gpm)

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 80.00 deg. F
Pressure: 700.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	1.2950
Nitrogen	0.8360
Methane	94.3860
Ethane	1.3200
Propane	1.1010
Isobutane	0.1380
n-Butane	0.3750
Isopentane	0.1030
n-Pentane	0.1190
n-Hexane	0.0520
Cyclohexane	0.0240
Other Hexanes	0.0650
Heptanes	0.1020
Methylcyclohexane	0.0300
2,2,4-Trimethylpentane	0.0070
Benzene	0.0060
Toluene	0.0100
Ethylbenzene	0.0010
Xylenes	0.0040
C8+ Heavies	0.0250

Table B1.2.7
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Summary of Input Values

DRY GAS:

Flow Rate: 10.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 1.5 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Atlantic Rim TEG Dehy
File Name: C:\Program Files\GRI-GLYCalc4\AR_10MMSCFD.DDF
Date: August 30, 2004

DESCRIPTION:

Description: 10.0 MMSCFD Dehydrator, Max Circulation Rate = 90gph (1.5gpm)

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.0209	48.502	8.8516
Ethane	0.1846	4.430	0.8085
Propane	0.4012	9.630	1.7575
Isobutane	0.0986	2.367	0.4319
n-Butane	0.3604	8.650	1.5786
Isopentane	0.1310	3.144	0.5737
n-Pentane	0.1984	4.760	0.8688
n-Hexane	0.1838	4.412	0.8052
Cyclohexane	0.3681	8.835	1.6124
Other Hexanes	0.1718	4.124	0.7526
Heptanes	0.8271	19.851	3.6227
Methylcyclohexane	0.6240	14.975	2.7330
2,2,4-Trimethylpentane	0.0273	0.654	0.1194
Benzene	0.7553	18.128	3.3084
Toluene	2.2287	53.489	9.7617
Ethylbenzene	0.3465	8.317	1.5179
Xylenes	1.8200	43.680	7.9716
C8+ Heavies	1.0566	25.359	4.6281
Total Emissions	11.8044	283.306	51.7034
Total Hydrocarbon Emissions	11.8044	283.306	51.7034
Total VOC Emissions	9.5989	230.374	42.0433
Total HAP Emissions	5.3617	128.680	23.4841
Total BTEX Emissions	5.1506	123.614	22.5595

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.0209	48.502	8.8516
Ethane	0.1846	4.430	0.8085
Propane	0.4012	9.630	1.7575
Isobutane	0.0986	2.367	0.4319
n-Butane	0.3604	8.650	1.5786
Isopentane	0.1310	3.144	0.5737
n-Pentane	0.1984	4.760	0.8688
n-Hexane	0.1838	4.412	0.8052
Cyclohexane	0.3681	8.835	1.6124
Other Hexanes	0.1718	4.124	0.7526
Heptanes	0.8271	19.851	3.6227
Methylcyclohexane	0.6240	14.975	2.7330
2,2,4-Trimethylpentane	0.0273	0.654	0.1194
Benzene	0.7553	18.128	3.3084
Toluene	2.2287	53.489	9.7617
Ethylbenzene	0.3465	8.317	1.5179
Xylenes	1.8200	43.680	7.9716
C8+ Heavies	1.0566	25.359	4.6281
Total Emissions	11.8044	283.306	51.7034
Total Hydrocarbon Emissions	11.8044	283.306	51.7034
Total VOC Emissions	9.5989	230.374	42.0433
Total HAP Emissions	5.3617	128.680	23.4841
Total BTEX Emissions	5.1506	123.614	22.5595

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	8.8516	8.8516	0.00
Ethane	0.8085	0.8085	0.00
Propane	1.7575	1.7575	0.00
Isobutane	0.4319	0.4319	0.00
n-Butane	1.5786	1.5786	0.00

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

Isopentane	0.5737	0.5737	0.00
n-Pentane	0.8688	0.8688	0.00
n-Hexane	0.8052	0.8052	0.00
Cyclohexane	1.6124	1.6124	0.00
Other Hexanes	0.7526	0.7526	0.00
Heptanes	3.6227	3.6227	0.00
Methylcyclohexane	2.7330	2.7330	0.00
2,2,4-Trimethylpentane	0.1194	0.1194	0.00
Benzene	3.3084	3.3084	0.00
Toluene	9.7617	9.7617	0.00
Ethylbenzene	1.5179	1.5179	0.00
Xylenes	7.9716	7.9716	0.00
C8+ Heavies	4.6281	4.6281	0.00
-------------------------------	------------	------------	------------
Total Emissions	51.7034	51.7034	0.00
Total Hydrocarbon Emissions	51.7034	51.7034	0.00
Total VOC Emissions	42.0433	42.0433	0.00
Total HAP Emissions	23.4841	23.4841	0.00
Total BTEX Emissions	22.5595	22.5595	0.00

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
Calculated Dry Gas Dew Point: 2.07 lbs. H2O/MMSCF

Temperature: 80.0 deg. F
Pressure: 700.0 psig
Dry Gas Flow Rate: 10.0000 MMSCF/day
Glycol Losses with Dry Gas: 0.0324 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 41.65 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 5.45 gal/lb H2O

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.97%	95.03%
Carbon Dioxide	99.81%	0.19%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.92%	0.08%
Isobutane	99.89%	0.11%
n-Butane	99.85%	0.15%
Isopentane	99.84%	0.16%
n-Pentane	99.79%	0.21%
n-Hexane	99.63%	0.37%
Cyclohexane	98.34%	1.66%
Other Hexanes	99.72%	0.28%
Heptanes	99.26%	0.74%
Methylcyclohexane	98.07%	1.93%
2,2,4-Trimethylpentane	99.69%	0.31%
Benzene	85.33%	14.67%
Toluene	77.98%	22.02%
Ethylbenzene	70.28%	29.72%
Xylenes	60.98%	39.02%
C8+ Heavies	97.74%	2.26%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	43.39%	56.61%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.50%	99.50%
n-Pentane	0.50%	99.50%

n-Hexane	0.50%	99.50%
Cyclohexane	3.20%	96.80%
Other Hexanes	1.00%	99.00%
Heptanes	0.50%	99.50%
Methylcyclohexane	4.00%	96.00%
2,2,4-Trimethylpentane	1.50%	98.50%
Benzene	5.00%	95.00%
Toluene	7.90%	92.10%
Ethylbenzene	10.41%	89.59%
Xylenes	12.91%	87.09%
C8+ Heavies	12.02%	87.98%

STREAM REPORTS:

WET GAS STREAM

Temperature: 80.00 deg. F
Pressure: 714.70 psia
Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.78e-002	1.74e+001
Carbon Dioxide	1.29e+000	6.26e+002
Nitrogen	8.35e-001	2.57e+002
Methane	9.43e+001	1.66e+004
Ethane	1.32e+000	4.36e+002
Propane	1.10e+000	5.33e+002
Isobutane	1.38e-001	8.81e+001
n-Butane	3.75e-001	2.39e+002
Isopentane	1.03e-001	8.16e+001
n-Pentane	1.19e-001	9.43e+001
n-Hexane	5.20e-002	4.92e+001
Cyclohexane	2.40e-002	2.22e+001
Other Hexanes	6.49e-002	6.15e+001
Heptanes	1.02e-001	1.12e+002
Methylcyclohexane	3.00e-002	3.24e+001

2,2,4-Trimethylpentane	6.99e-003	8.78e+000
Benzene	5.99e-003	5.15e+000
Toluene	9.99e-003	1.01e+001
Ethylbenzene	9.99e-004	1.17e+000
Xylenes	4.00e-003	4.66e+000
C8+ Heavies	2.50e-002	4.68e+001
Total Components	100.00	1.94e+004

DRY GAS STREAM

Temperature: 80.00 deg. F
Pressure: 714.70 psia
Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.37e-003	8.64e-001
Carbon Dioxide	1.29e+000	6.25e+002
Nitrogen	8.36e-001	2.57e+002
Methane	9.44e+001	1.66e+004
Ethane	1.32e+000	4.36e+002
Propane	1.10e+000	5.33e+002
Isobutane	1.38e-001	8.80e+001
n-Butane	3.75e-001	2.39e+002
Isopentane	1.03e-001	8.15e+001
n-Pentane	1.19e-001	9.41e+001
n-Hexane	5.18e-002	4.90e+001
Cyclohexane	2.36e-002	2.18e+001
Other Hexanes	6.48e-002	6.14e+001
Heptanes	1.01e-001	1.11e+002
Methylcyclohexane	2.94e-002	3.17e+001
2,2,4-Trimethylpentane	6.98e-003	8.76e+000
Benzene	5.12e-003	4.39e+000
Toluene	7.80e-003	7.89e+000
Ethylbenzene	7.03e-004	8.20e-001
Xylenes	2.44e-003	2.84e+000
C8+ Heavies	2.44e-002	4.57e+001
Total Components	100.00	1.93e+004

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

LEAN GLYCOL STREAM

Temperature: 80.00 deg. F
Flow Rate: 1.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	8.30e+002
Water	1.50e+000	1.27e+001
Carbon Dioxide	1.39e-011	1.18e-010
Nitrogen	4.04e-013	3.40e-012
Methane	8.05e-018	6.79e-017
Ethane	1.03e-008	8.71e-008
Propane	1.94e-009	1.63e-008
Isobutane	3.51e-010	2.96e-009
n-Butane	1.06e-009	8.94e-009
Isopentane	7.80e-005	6.58e-004
n-Pentane	1.18e-004	9.97e-004
n-Hexane	1.10e-004	9.24e-004
Cyclohexane	1.44e-003	1.22e-002
Other Hexanes	2.06e-004	1.74e-003
Heptanes	4.93e-004	4.16e-003
Methylcyclohexane	3.08e-003	2.60e-002
2,2,4-Trimethylpentane	4.92e-005	4.15e-004
Benzene	4.71e-003	3.98e-002
Toluene	2.27e-002	1.91e-001
Ethylbenzene	4.77e-003	4.03e-002
Xylenes	3.20e-002	2.70e-001
C8+ Heavies	1.71e-002	1.44e-001
Total Components	100.00	8.43e+002

RICH GLYCOL STREAM

Temperature: 80.00 deg. F
Pressure: 714.70 psia
Flow Rate: 1.56e+000 gpm
NOTE: Stream has more than one phase.

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.51e+001	8.30e+002
Water	3.34e+000	2.92e+001
Carbon Dioxide	1.35e-001	1.18e+000
Nitrogen	3.90e-003	3.41e-002
Methane	2.32e-001	2.02e+000
Ethane	2.11e-002	1.85e-001
Propane	4.60e-002	4.01e-001
Isobutane	1.13e-002	9.86e-002
n-Butane	4.13e-002	3.60e-001
Isopentane	1.51e-002	1.32e-001
n-Pentane	2.28e-002	1.99e-001
n-Hexane	2.12e-002	1.85e-001
Cyclohexane	4.36e-002	3.80e-001
Other Hexanes	1.99e-002	1.74e-001
Heptanes	9.52e-002	8.31e-001
Methylcyclohexane	7.45e-002	6.50e-001
2,2,4-Trimethylpentane	3.17e-003	2.77e-002
Benzene	9.11e-002	7.95e-001
Toluene	2.77e-001	2.42e+000
Ethylbenzene	4.43e-002	3.87e-001
Xylenes	2.39e-001	2.09e+000
C8+ Heavies	1.38e-001	1.20e+000
Total Components	100.00	8.73e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.49e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.75e+001	1.65e+001
Carbon Dioxide	2.26e+000	1.18e+000
Nitrogen	1.03e-001	3.41e-002
Methane	1.07e+001	2.02e+000
Ethane	5.19e-001	1.85e-001

Propane	7.70e-001	4.01e-001
Isobutane	1.44e-001	9.86e-002
n-Butane	5.25e-001	3.60e-001
Isopentane	1.54e-001	1.31e-001
n-Pentane	2.33e-001	1.98e-001
n-Hexane	1.80e-001	1.84e-001
Cyclohexane	3.70e-001	3.68e-001
Other Hexanes	1.69e-001	1.72e-001
Heptanes	6.98e-001	8.27e-001
Methylcyclohexane	5.38e-001	6.24e-001
2,2,4-Trimethylpentane	2.02e-002	2.73e-002
Benzene	8.18e-001	7.55e-001
Toluene	2.05e+000	2.23e+000
Ethylbenzene	2.76e-001	3.47e-001
Xylenes	1.45e+000	1.82e+000
C8+ Heavies	5.25e-001	1.06e+000
Total Components	100.00	2.95e+001

ANNUAL AIR-COOLED CONDENSER PERFORMANCE:

ANNUAL AIR-COOLED CONDENSER PERFORMANCE

Nearest Site for Air Temperature Data: Midland, TX

Ambient Air Dry Bulb Temperature (deg. F)	Frequency (%)	Condenser Outlet Temperature (deg. F)
<=50	27.33	<=70
51-55	7.38	71-75
56-60	8.11	76-80
61-65	8.69	81-85
66-70	11.03	86-90
71-75	11.00	91-95
76-80	8.52	96-100
81-85	6.79	101-105
86-90	5.33	106-110
91-95	3.96	111-115
96-100	1.56	116-120
>100	0.30	>120

Condenser outlet temperature approach to ambient: 20.00 deg. F

Table B1.2.8
Atlantic Rim Emissions Inventory
GRI-GLYCalc - Aggregate Calculations Report

Annual air-cooled condenser emissions and control efficiency:

	Uncontrolled emissions tons/year	Controlled emissions tons/year	% Control
Benzene	3.308	3.308	0.00
BTEX	22.560	22.560	0.00
Total HAP	23.484	23.484	0.00
VOC	42.043	42.043	0.00

Table B1.2.9
Atlantic Rim Emissions Inventory
Gas Analysis

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Gas Analysis
Engineer: Cassady Marshall
Date: 8/30/2004

Gas Analysis[1]	
carbon dioxide	1.295
nitrogen	0.836
methane	94.386
ethane	1.32
propane	1.101
isobutane	0.138
n-butane	0.375
isopentane	0.103
n-pentane	0.119
cyclopentane	0
n-hexane	0.052
cyclohexane	0.024
other hexanes	0.065
heptanes	0.102
methylcyclohexane	0.03
2,2,4- trimethylpentane	0.007
benzene	0.006
toluene	0.01
ethylbenzene	0.001
zylene	0.004
C8+ heavies	0.025
Total	**100.00**

[1]Gas analysis based on a mix 10% conventional wells and 90% CBM.

Table B1.2.10
Atlantic Rim Emissions Inventory
Blue Sky Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Blue Sky Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Blue Sky Compressor Station
Total Horsepower	4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.78	Blue Sky Permit
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.78	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.2	

Table B1.2.11
Atlantic Rim Emissions Inventory
Brown Cow Compressor Station

TRC

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Brown Cow Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Brown Cow Compressor Station
Total Horsepower	4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Assumed to be identical to most commonly permitted compressor station.
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.0	

Table B1.2.12
Atlantic Rim Emissions Inventory
Cow Creek Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Cow Creek Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Cow Creek Compressor Station
Total Horsepower	2,090

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1089	hp	15.8	5.3	5.3	0.74	Cow Creek Permit MD-951
CAT 398TA	394	hp	3.8	3.8	1.9	0.23	
CAT 3412TA	607	hp	5.9	5.9	2.9	0.35	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			25.6	15.1	10.1	1.3	

Table B1.2.13
Atlantic Rim Emissions Inventory
Doty Mountain Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Doty Mountain Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Doty Mountain Compressor Station
Total Horsepower	4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Doty Mountain Permit CT-3349
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3516TA	1206	hp	11.7	17.5	5.2	0.70	
CAT 3516TA	1206	hp	11.7	17.5	5.2	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			58.5	46.7	20.8	3.0	

Table B1.2.14
Atlantic Rim Emissions Inventory
Jolly Rogers Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Jolly Rogers Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Jolly Rogers Compressor Station
Total Horsepower	4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.80	Jolly Rogers Permit Application
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.80	
CAT 3516TA	1206	hp	11.6	17.5	11.6	0.60	
CAT 3516TA	1206	hp	11.6	17.5	11.6	0.60	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			58.3	46.7	33.6	2.8	

Table B1.2.15
Atlantic Rim Emissions Inventory
Muddy Mountain Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Muddy Mountain Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Muddy Mountain Compressor Station
Total Horsepower	4,824

Facility Emission Summary

Unit	**Rating**	**Rating Units**	**NOx (tpy)**	**CO (tpy)**	**VOC (tpy)**	**Formaldehyde (tpy)**	**Emissions Source**
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.81	Muddy Mountain Permit CT-3352
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.81	
CAT 3516TA	1206	hp	11.6	17.5	5.2	0.70	
CAT 3516TA	1206	hp	11.6	17.5	5.2	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			58.3	46.7	20.8	3.0	

Table B1.2.16
Atlantic Rim Emissions Inventory
Red Rim Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Red Rim Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Red Rim Compressor Station
Total Horsepower	4,255

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Red Rim Permit CT-3393
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3412A	637	hp	6.2	3.1	2.8	0.43	
CAT 3516TA	1206	hp	11.7	17.5	5.2	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			53.0	32.3	18.4	2.8	

Table B1.2.17
Atlantic Rim Emissions Inventory
Sun Dog Compressor Station

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Sun Dog Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description: Sun Dog Compressor Station
Total Horsepower: 4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Assumed to be identical to most commonly permitted compressor station.
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3412A	1206	hp	11.1	16.7	5.0	0.70	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.0	

Table B1.2.18
Atlantic Rim Emission Inventory
Unpermitted Compressor Station #1

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Unpermitted C.S. #1 Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description: Unpermitted Compressor Station #1
Total Horsepower: 4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Assumed to be identical to most commonly permitted compressor station.
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3412A	1206	hp	11.1	16.7	5.0	0.70	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.0	

Table B1.2.19
Atlantic Rim Emission Inventory
Unpermitted Compressor Station #2

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Unpermitted C.S. #2 Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Unpermitted Compressor Station #2
Total Horsepower	4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Assumed to be identical to most commonly permitted compressor station.
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3412A	1206	hp	11.1	16.7	5.0	0.70	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.0	

Table B1.2.20
Atlantic Rim Emission Inventory
Unpermitted Compressor Station #3

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Unpermitted C.S. #3 Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description	Unpermitted Compressor Station #3
Total Horsepower	4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Assumed to be identical to most commonly permitted compressor station.
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3412A	1206	hp	11.1	16.7	5.0	0.70	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.0	

Table B1.2.21
Atlantic Rim Emission Inventory
Unpermitted Compressor Station #4

TRC

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Unpermitted C.S. #4 Compressor Station
Engineer: Cassady Marshall
Date: 6/24/2004

Fuel Combustion Source

Unit Description: Unpermitted Compressor Station #4
Total Horsepower: 4,824

Facility Emission Summary

Unit	Rating	Rating Units	NOx (tpy)	CO (tpy)	VOC (tpy)	Formaldehyde (tpy)	Emissions Source
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	Assumed to be identical to most commonly permitted compressor station.
CAT 3516TALE	1206	hp	17.5	5.8	5.2	0.82	
CAT 3412A	1206	hp	11.1	16.7	5.0	0.70	
CAT 3516TA	1206	hp	11.1	16.7	5.0	0.70	
Dehy Reboiler	0.25	MMBTU/hr	0.1	0.1	--	--	
Tank	400.0	bbls					
Total			57.3	45.1	20.4	3.0	

Table B1.2.22
Atlantic Rim Emission Inventory
Wind Erosion

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Atlantic Rim
Phase: Production
Activity: Wind Erosion
Engineer: Cassady Marshall
Date: 6/24/2004

Emission Factor : 0.3534 lb/hr/100m^2 Based on AP-42 Chapter 13.2.5, Industrial Wind Erosion
Rawlins, Wyoming meteorological data.

Control Efficiency: 0 %

Disturbed Area:
Well Pad Production: 1.0 acres 4047.00 m^2

PM-10 Emissions Calculations:

	PM-10 Emission Factor (lb/hr/100 m^2)	PM-2.5 Emission Factor (lb/hr/100 m^2)	Area/100 (100 m^2)	Control Efficiency (%)	PM-10 Emissions (lb/hr)	PM-2.5 Emissions (lb/hr)	PM-10 Emissions (g/sec)	PM-2.5 Emissions (g/sec)
Well Pad Production	0.3534	0.1414	40.47	0	14.30	5.72	1.80	0.72

Table B1.2.23
Atlantic Rim Emissions Inventory
Wind Erosion Output

rawl2003

COMPUTATION OF WIND EROSION EMISSIONS (version 93037)
BASED ON AP-42 SECTION 13.2.5 INDUSTRIAL WIND EROSION

EXAMINE COMPUTED EMISSIONS FOR DISTURBANCE FREQUENCY --
COMPUTATION ASSUMES DISTURBANCE EVERY HOUR

Particle Size (1=TSP, 2=PM10): 2
Anemometer Ht (m): 10.00
Threshold Friction Velocity (m/sec): 1.02
Stockpile or Exposed Surface Area (m2): 100.
Surface Type (1=Flat, 2=Stockpile): 1
Correction Factor: 1.000

YR	MO	DAY	HR	ANEM WIND SPEED (m/sec)	THRESHOLD FRICTION VELOCITY (m/sec)	FRICTION VELOCITY @SURFACE (m/sec)	POTENTIA EMISSION (lb)	POTENTIAL EMISSIONS (g/sec)
3	2	10	6	17	1.02	1.0812	0.1926	0.0243
3	2	16	19	19	1.02	1.2084	0.7461	0.094
3	3	5	18	17.5	1.02	1.113	0.3116	0.0393
3	3	5	19	17	1.02	1.0812	0.1926	0.0243
3	3	5	20	17	1.02	1.0812	0.1926	0.0243
3	3	5	21	17.5	1.02	1.113	0.3116	0.0393
3	3	5	22	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	4	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	5	17.5	1.02	1.113	0.3116	0.0393
3	3	6	14	18.5	1.02	1.1766	0.5883	0.0741
3	3	6	15	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	16	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	13	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	14	17	1.02	1.0812	0.1926	0.0243
3	3	8	17	17.5	1.02	1.113	0.3116	0.0393
3	3	10	18	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	12	18.5	1.02	1.1766	0.5883	0.0741
3	4	1	13	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	16	17.5	1.02	1.113	0.3116	0.0393
3	4	2	12	18	1.02	1.1448	0.4435	0.0559
3	4	2	16	17	1.02	1.0812	0.1926	0.0243
3	9	12	16	17	1.02	1.0812	0.1926	0.0243
3	9	16	14	17.5	1.02	1.113	0.3116	0.0393
3	10	27	10	16.5	1.02	1.0494	0.0865	0.0109
3	10	28	18	17	1.02	1.0812	0.1926	0.0243
3	10	28	19	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	21	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	22	18	1.02	1.1448	0.4435	0.0559
3	10	28	23	20.1	1.02	1.2784	1.1387	0.1435
3	10	28	24	16.5	1.02	1.0494	0.0865	0.0109

Table B1.2.23
Atlantic Rim Emissions Inventory
Wind Erosion Output

3	10	29	2	18.5	1.02	1.1766	0.5883	0.0741
3	10	29	9	17.5	1.02	1.113	0.3116	0.0393
3	10	29	11	18.5	1.02	1.1766	0.5883	0.0741
3	11	11	10	16.5	1.02	1.0494	0.0865	0.0109
3	11	11	11	18	1.02	1.1448	0.4435	0.0559
3	11	11	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	13	17	1.02	1.0812	0.1926	0.0243
3	12	13	20	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	8	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	9	18	1.02	1.1448	0.4435	0.0559
3	12	26	20	17	1.02	1.0812	0.1926	0.0243
3	12	30	1	18	1.02	1.1448	0.4435	0.0559
3	12	30	2	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	3	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	4	16.5	1.02	1.0494	0.0865	0.0109
3	12	30	5	16.5	1.02	1.0494	0.0865	0.0109
				16.5			16.6101	total/hr
							0.353406	average lb/hr

when ws>16.5 mph

APPENDIX B2:

SEMINOE ROAD EMISSIONS INVENTORY

Appendix B2 – Seminoe Road Emissions Inventory

The following is a list of the tables included within this appendix.

B2.1 Construction Emission Tables

B2.2 Production Emission Tables

Table B2.1.1
Seminoe Road Emissions Inventory
Well Pad Construction

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Road Construction
Activity: Fugitive Particulate Emissions from Well Pad Construction
Engineer: Cassady Marshall
Date: 4/5/2004

Well Pad Area	Construction Activity TSP Emission Factor[1]	Construction Activity Duration[2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Emission Control Efficiency	PM_{10} Emissions (controlled)[4]	PM-2.5 Emissions (controlled)[5]
(acre)	(tons/acre-month)	(days/well pad)	(hours/day)	(days/week)	(months/year)	(%)	(lb/well)	(lb/well)
2.2	1.2	4	10	7	8	0	253.44	66.88
					Well Pad Construction Emissions (lb/day/well)		63.36	16.72
					Well Pad Construction Emissions (lb/hr/well)		6.34	1.67

[1] AP-42 (EPA, 1995), Section 13.2.3, "Heavy Construction Operations".
[2] Days per well estimated by TRC.
[3] Construction occurs 8 months per year, March -October.
[4] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[5] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table B2.1.2
Seminoe Road Emissions Inventory
Resource Road Construction

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Road Construction
Activity: Fugitive Particulate Emissions from Resource Road Construction
Engineer: Cassady Marshall
Date: 4/5/2004

Resource Road Area[1]	Construction Activity TSP Emission Factor[2]	Construction Activity Duration[3]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[4]	Emission Control Efficiency	PM-10 Emissions (controlled)[5]	PM-2.5 Emissions (controlled)[6]
(acres)	(tons/acre-month)	(days/pad)	(hours/day)	(day/week)	(months/year)	(%)	(lb/pad)	(lb/pad)
2.4606	1.2	4	10	7	8	0	283.46	74.80
						Resource Road Construction Emissions (lb/day/well)	70.87	18.70
						Resource Road Construction Emissions (lb/hr/well)	7.09	1.87

[1] Construction Area = 0.58 mi/well x 35-ft ROW = 2.4606 acres.
[2] AP-42 (EPA, 1995), Section 13.2.3, "Heavy Construction Operations".
[3] Days per well estimated by TRC.
[4] Construction occurs 8 months per year, March -October.
[5] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[6] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table B2.1.3
Seminoe Road Emissions Inventory
Well Pad/Resource Road Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Well Pad/Resource Road Construction
Activity: Fugitive Particulate Emissions from Traffic on Resource Roads
Engineer: Cassady Marshall
Date: 4/5/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Vehicle Miles Traveled	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Emission Control Efficiency	PM-10 Emission Factor[4]	PM-2.5 Emission Factor[4]	PM-10 Emissions[5] (controlled)	PM-2.5 Emissions[5] (controlled)
	(lb)	(mph)	(%)	(%)	(VMT/well)	(hours/day)	(day/week)	(month/year)	(%)	(lb/VMT)	(lb/VMT)	(lb/pad)	(lb/pad)
Gravel/haul trucks	40,000	25	5.1	2.4	350	10	7	8	0	1.63	0.25	570.78	87.52
Fuel Trucks	40,000	25	5.1	2.4	8	10	7	8	0	1.63	0.25	13.05	2.00
Light trucks/pickups	7,000	25	5.1	2.4	108	10	7	8	0	0.51	0.08	55.06	8.23
Total Unpaved Road Traffic Emissions (lb/pad)												638.89	97.75
Total Unpaved Road Traffic Emissions (lb/hr/pad)[6]												15.97	2.44

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Construction occurs 8 months per year, March -October.
[4] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/pad x control efficiency.
[6] Calculated as lb/well / 4.0 days/well / 10 hours/day, and represents emissions for 4-mile segment of road.

Table B2.1.4
Seminoe Road Emissions Inventory
Well Pad/Resource Road Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Well Pad/Road Construction
Activity: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Engineer: Cassady Marshall
Date: 4/5/2004

Heavy Equipment	Engine Horsepower (hp)	Number Required	Operating Load Factor	Pollutant Emission Factor[1] (g/hp-hr) CO	NO_x	SO_2	VOC	PM_{10}	Construction Activity Duration (hours/well)	Construction Activity Duration[2] (days/ equipment type)	Construction Activity Duration (hours/day)	Construction Activity Duration (day/week)	Construction Activity Duration[6] (months/year)	Pollutant Emissions (lb/well) CO	NO_x	SO_2	VOC	PM_{10} [8]	Pollutant Emissions[7] (lb/hr/well) CO	NO_x	SO_2	VOC	PM_{10} [8]
Gravel Trucks[3]	325	--	0.4	6.68E-03	0.031	2.05E-03	2.47E-03	2.20E-03	34	--	--	7	8	6.51E-02	5.04E-03	1.55E-03	1.23E-04	1.32E-04	1.91E-03	1.48E-04	4.55E-05	3.63E-06	3.89E-06
Motor Grader	135	1	0.4	1.54	7.14	0.874	0.36	0.625		1	10	7	8	1.83	8.50	1.04	0.43	0.74	0.18	0.85	0.10	0.04	0.07
D8 Dozer[4]	285	1	0.4	2.15	7.81	0.851	0.75	0.692		3	10	7	8	16.21	58.88	6.42	5.65	5.22	0.54	1.96	0.21	0.19	0.17
Loader[5]	200	1	0.4	2.71	8.81	0.857	0.97	0.805		1	10	7	8	4.78	15.54	1.51	1.71	1.42	0.48	1.55	0.15	0.17	0.14
Total Heavy Equipment Tailpipe Emissions														22.82	82.92	8.97	7.79	7.38	1.20	4.37	0.47	0.40	0.39

[1] AP-42 (EPA, 1985), Volume II Mobile Sources.
[2] Construction activity duration estimated by TRC.
[3] Gravel Truck Pollutant Emission Factor taken from AP-42 (EPA 1996), "Table 3.3-1, " Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[4] Emission factor for track-type tractor.
[5] Emission factor for wheeled loader.
[6] Construction occurs 8 months per year, March -October.
[7] Calculated as lb/well / days/equipment type / 10 hours/day.
[8] PM-2.5 assumed equivalent to PM-10 for combustion sources.

Table B2.1.5
Seminoe Road Emissions Inventory
Rig-up, Drilling, and Rig-down Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Rig-up, Drilling, Rig-down
Activity: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Engineer: Cassady Marshall
Date: 4/5/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content [1]	Moisture Content [2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Vehicle Miles Traveled (VMT)	Emission Control Efficiency	PM-10 Emission Factor [3]	PM-2.5 Emission Factor [3]	PM-10 Emissions [4] (controlled)	PM-2.5 Emissions [4] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/week)	(days/year)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Medium Wells [5]													
Supply Trucks	40,000	25	5.1	2.4	24	7	350	42	0	1.63	0.25	68.49	10.50
Fuel Trucks	40,000	25	5.1	2.4	24	7	350	28	0	0.51	0.076	14.28	2.13
Light trucks/pickups	7,000	25	5.1	2.4	24	7	350	557	0	0.51	0.08	283.97	42.43
Total Resource Road Traffic Emissions (lb/pad)												366.74	55.07
Total Resource Road Emissions (lb/hr/well) [6]												1.39	0.21
Deep Wells [5]													
Supply Trucks	40,000	25	5.1	2.4	24	7	350	42	0	1.63	0.25	68.49	10.50
Fuel Trucks	40,000	25	5.1	2.4	24	7	350	28	0	0.51	0.076	14.28	2.13
Light trucks/pickups	7,000	25	5.1	2.4	24	7	350	557	0	0.51	0.08	283.97	42.43
Total Resource Road Traffic Emissions (lb/pad)												366.74	55.07
Total Resource Road Emissions (lb/hr/well) [6]												0.90	0.13

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/pad x control efficiency.
[5] Medium wells refer to a depth of 2,500' - 9,999' and deep wells refer to a depth of 10,000 and deeper, as defined by the proponent.
[6] Calculated as (lb/well) / days/well / 24 hours/day, and represents emissions for 4-mile segment of road. Days per for medium wells = 11 days. Days per well for deep wells = 17 days.

Table B2.1.6
Seminoe Road Emissions Inventory
Rig-up, Drilling, and Rig-down Heavy Equipment

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Rig-up, Drilling, Rig-down
Activity: Diesel Combustion Emissions from Haul Truck Tailpipes
Engineer: Cassady Marshall
Date: 4/5/2004

Pollutant	Pollutant Emission Factor[1]	Vehicle Miles Traveled (VMT)	Haul Activity Duration	Haul Activity Duration	Haul Activity Duration	Emissions	Emissions[4]
	(grams/mile)	(VMT/well)	(days/well)	(hours/day)	(days/year)	(lb/well)	(lb/hr/well)
Medium Wells[2]							
CO	14.74	70	11	24	350	2.27	8.62E-03
NO_x	11.44	70	11	24	350	1.77	6.69E-03
SO_2[3]	0.32	70	11	24	350	0.05	1.86E-04
VOC	5.69	70	11	24	350	0.88	3.33E-03
Deep Wells[2]							
CO	14.74	70	17	24	350	2.27	5.58E-03
NO_x	11.44	70	17	24	350	1.77	4.33E-03
SO_2[3]	0.32	70	17	24	350	0.05	1.20E-04
VOC	5.69	70	17	24	350	0.88	2.15E-03

[1] AP-42 (EPA, 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.

[2] Medium wells refer to a depth of 2,500' - 9,999' and deep wells refer to a depth of 10,000 and deeper, as defined by the proponent.

[3] The SO_2 emission factor is calculated assuming 10 mpg fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal.

[4] Calculated as (lb/well) / days/well / 24 hours/day, and represents emissions for 4-mile segment of road. Days per for medium wells = 11 days. Days per well for deep wells = 17 days.

Table B2.1.7
Seminoe Road Emissions Inventory
Drilling Engines

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Drilling
Activity: Diesel Combustion Emissions from Drilling Engines
Engineer: Cassady Marshall
Date: 4/5/2004

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Drilling Activity Duration	Emissions	Emissions
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(days/year)	(lb/well)	(lb/hr/well)
Medium Drilling Engines[4]								
CO	0.00331	2,100	0.42	11	24	350	774.58	2.93
NOx	0.019	2,100	0.42	11	24	350	4,518.40	17.12
SO_2[5]	0.00205	2,100	0.42	11	24	350	480.18	1.82
VOC	0.0006	2,100	0.42	11	24	350	129.10	0.49
PM_{10}[6]	0.0022	2,100	0.42	11	24	350	515.31	1.95
Deep Drill Engines[4]								
CO	0.00331	2,100	0.42	17	24	350	1,197.08	2.93
NOx	0.019	2,100	0.42	17	24	350	6,982.99	17.12
SO_2[5]	0.00205	2,100	0.42	17	24	350	742.10	1.82
VOC	0.0006	2,100	0.42	17	24	350	199.51	0.49
PM_{10}[6]	0.0022	2,100	0.42	17	24	350	796.40	1.95

1 Emission factors for NOx, CO, and VOC based on manufacturere's data. PM10 and SO2 emissions factors AP-42 (EPA, 1996), Section 3.3, "Gasoline and Diesel Industrial Engines. Table 3.3-1.
2 Drilling engine horsepower based on two 800 hp engines.
3 The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
4 Medium wells refer to a depth of 2,500' - 9,999' and deep wells refer to a depth of 10,000 and deeper, as defined by the proponent
5 The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel Consumption rate taken from "Caterpillar's Oilfield Mechanical Rig Power specification sheets".
6 PM2.5 assumed equivalent to PM10 for drilling engines.

Table B2.1.8
Seminoe Road Emissions Inventory
Completion Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Completion
Activity: Fugitive Particulate Emissions from Traffic on Unpaved Roads
Engineer: Cassady Marshall
Date: 4/5/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration	Vehicle Miles Traveled (VMT)	Emission Control Efficiency	PM-10 Emission Factor [3]	PM-2.5 Emission Factor [3]	PM-10 Emissions [4] (controlled)	PM-2.5 Emissions [4] (controlled)
	(lb)	(mph)	(%)	(%)	(hours/day)	(day/week)	(days/year)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Medium Engines[5]													
Fuel Trucks	40,000	25	5.1	2.4	10	6	312	8	0	1.63	0.25	13.05	2.00
Light Pick-ups	7,000	25	5.1	2.4	10	6	312	200	0	0.51	0.076	101.97	15.24
											Total Resource Road Emissions (lb/well)	115.01	17.24
											Total Resource Road Emissions (lb/hr/well) [6]	1.92	0.29
Deep Wells[5]													
Fuel Trucks	40,000	25	5.1	2.4	10	8	312	8	0	1.63	0.25	13.05	2.00
Light Pick-ups	7,000	25	5.1	2.4	10	8	312	200	0	0.51	0.076	101.97	15.24
											Total Resource Road Emissions (lb/well)	115.01	17.24
											Total Resource Road Emissions (lb/hr/well) [7]	1.44	0.22

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/pad x control efficiency.
[5] Medium wells refer to a depth of 2,500' - 9,999' and deep wells refer to a depth of 10,000 and deeper, as defined by the proponent.
[6] Calculated as (lb/well) / 6 days/well / 10 hours/day, and represents emissions for 4-mile segment of road.
[7] Calculated as (lb/well) / 8 days/well / 10 hours/day, and represents emissions for 4-mile segment of road.

Table B2.1.9
Seminoe Road Emissions Inventory
Completion Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Completion
Activity: Diesel Combustion Emissions from Haul Truck Tailpipes
Engineer: Cassady Marshall
Date: 4/5/2004

Pollutant	Pollutant Emission Factor[1]	Vehicle Miles Traveled (VMT)	Haul Activity Duration	Haul Activity Duration	Haul Activity Duration	Haul Activity Duration	Emissions	Emissions[2]
	(grams/mile)	(VMT/well)	(days/well)	(hours/day)	(days/week)	(days/year)	(lb/well)	(lb/hr/well)
Medium Engines[3]								
CO	14.74	8	6	10	6	312	0.26	4.33E-03
NO_x	11.44	8	6	10	6	312	0.20	3.36E-03
SO_2[4]	0.32	8	6	10	6	312	0.01	9.33E-05
VOC	5.69	8	6	10	6	312	0.10	1.67E-03
Deep Wells[3]								
CO	14.74	8	8	10	6	312	0.26	3.25E-03
NO_x	11.44	8	8	10	6	312	0.20	2.52E-03
SO_2[4]	0.32	8	8	10	6	312	0.01	7.00E-05
VOC	5.69	8	8	10	6	312	0.10	1.25E-03

[1] AP-42 (EPA, 1985), Volume II Mobile Sources. Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.
[2] For medium wells calculated as lb/well / 6 days/well / 10 hours/day. For deep wells calculated as lb/well / 8 days/well / 10 hours/day.
[3] Medium wells refer to a depth of 2,500' - 9,999' and deep wells refer to a depth of 10,000 and deeper, as defined by the proponent.
[4] The SO_2 emission factor is calculated assuming 10 mpg fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal.

Table 2.1.10
Seminoe Road Emissions Inventory
Completion Engines

TRC

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Completion
Activity: Diesel Combustion Emissions from Completion Engines
Engineer: Cassady Marshall
Date: 4/5/2004

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines	Overall Load Factor[2]	Drilling Activity Duration	Drilling Activity Duration	Drilling Activity Duration	Drilling Activity Duration	Emissions	Emissions
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(days/week)	(days/year)	(lb/well)	(lb/hr/well)
Medium Engines[3]									
CO	0.00668	350	0.42	6	10	6	312	59.27	0.99
NOx	0.031	350	0.42	6	10	6	312	275.05	4.58
SO_2[4]	0.00205	350	0.42	6	10	6	312	18.19	0.30
VOC	0.0025	350	0.42	6	10	6	312	22.18	0.37
PM_{10}[5]	0.0022	350	0.42	6	10	6	312	19.52	0.33
Deep Engines[3]									
CO	0.00668	350	0.42	8	10	6	312	79.02	0.99
NOx	0.031	350	0.42	8	10	6	312	366.73	4.58
SO_2[4]	0.00205	350	0.42	8	10	6	312	24.25	0.30
VOC	0.0025	350	0.42	8	10	6	312	29.58	0.37
PM_{10}[5]	0.0022	350	0.42	8	10	6	312	26.03	0.33

[1] AP-42 (EPA, 1996), Section 3.3, "Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[3] Medium wells refer to a depth of 2,500' - 9,999' and deep wells refer to a depth of 10,000 and deeper, as defined by the proponent.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel Consumption rate taken from "Caterpillar's Oilfield Mechanical Rig Power specification sheets".
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table B2.1.11
Seminoe Road Emissions Inventory
Utility Installation

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Utility Installation
Activity: Fugitive Particulate Emissions from Utility Installation
Engineer: Cassady Marshall
Date: 4/5/2004

Utility Area[1]	Construction Activity TSP Emission Factor[2]	Installation Activity Duration[3]	Installation Activity Duration	Installation Activity Duration	Installation Activity Duration[4]	Emission Control Efficiency	PM-10 Emissions (controlled)[5]	PM-2.5 Emissions (controlled)[6]
(acres)	(tons/acre-month)	(days/pad)	(hours/day)	(day/week)	(months/year)	(%)	(lb/pad)	(lb/pad)
1.7576	1.2	4	10	7	8	0	202.47	53.43
						Utility Installation Construction Emissions (lb/day/well)	50.62	13.36
						Utility Installation Construction Emissions (lb/hr/well)	5.06	1.34

[1] Utility Area = 0.58 mi/well x 25-ft ROW = 1.1212 acres. Includes pipeline and electricity installation.
[2] AP-42 (EPA, 1995), Section 13.2.3, "Heavy Construction Operations".
[3] Days per well estimated by TRC.
[4] Construction occurs 8 months per year, March -October.
[5] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 36% of the TSP is in the PM_{10} size range, monthly emissions converted to daily and hourly emissions based on 30-day month.
[6] AP-42 (EPA, 1998), Section 13.2.2 "Unpaved Roads", Background Document. Assuming that 9.5% of the TSP is in the $PM_{2.5}$ size range, monthly emissions converted to daily and hourly emissions based on 30-day month.

Table B2.1.12
Seminoe Road Emissions Inventory
Utility Installation Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Utility Installation
Activity: Fugitive Particulate Emissions from Traffic on Resource Roads
Engineer: Cassady Marshall
Date: 4/5/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Vehicle Miles Traveled (VMT)	Construction Activity Duration	Construction Activity Duration	Construction Activity Duration[3]	Emission Control Efficiency	PM-10 Emission Factor[4]	PM-2.5 Emission Factor[4]	PM-10 Emissions[5] (controlled)	PM-2.5 Emissions[5] (controlled)
	(lb)	(mph)	(%)	(%)	(VMT/well)	(hours/day)	(day/week)	(months/year)	(%)	(lb/VMT)	(lb/VMT)	(lb/well)	(lb/well)
Fuel Trucks	40,000	25	5.1	2.4	8	10	7	8	0	1.63	0.25	13.05	2.00
Supply Trucks	40,000	25	5.1	2.4	8	10	7	8	0	1.63	0.25	13.05	2.00
Light trucks/pickups	7,000	25	5.1	2.4	108	10	7	8	0	0.51	0.08	55.06	8.23
Utility Installation Construction Emissions (lb/well)												81.15	12.23
Utility Installation Construction Emissions (lb/hr/well) [6]												2.03	0.31

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] Construction occurs 8 months per year, March -October.
[4] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[5] Calculated as lb/VMT x VMT/pad x control efficiency.
[6] Calculated as lb/well / 4 days/well / 10 hours/day, and represents emissions for 4-mile segment of road.

Table B2.1.13
Seminoe Road Emissions Inventory
Utility Installation Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Utility Installation
Activity: Diesel Combustion Emissions from Heavy Equipment Tailpipes
Engineer: Cassady Marshall
Date: 4/5/2004

Heavy Equipment	Engine Horsepower (hp)	Number Required	Operating Load Factor	Pollutant Emission Factor[1] (g/hp-hr)					Construction Activity Duration[2] (days/ equipment type)	Construction Activity Duration (hours/day)	Construction Activity Duration (day/week)	Construction Activity Duration[3] (months/year)	Pollutant Emissions (lb/well)					Pollutant Emissions[4] (lb/hr/well)				
				CO	NO_x	SO_2	VOC	PM_{10}					CO	NO_x	SO_2	VOC	PM_{10}[5]	CO	NO_x	SO_2	VOC	PM_{10}[5]
Motor Grader	135	1	0.4	1.54	7.14	0.874	0.36	0.625	1	10	7	8	1.83	8.50	1.04	0.43	0.74	0.18	0.85	0.10	0.04	0.07
D8 Dozer[6]	285	1	0.4	2.15	7.81	0.851	0.75	0.692	2	10	7	8	10.81	39.26	4.28	3.77	3.48	0.54	1.96	0.21	0.19	0.17
Backhoe	128	1	0.4	7.34	11.91	0.851	1.76	1.27	1	10	7	8	8.29	13.44	0.96	1.99	1.43	0.83	1.34	0.10	0.20	0.14
Total Heavy Equipment Tailpipe Emissions													20.93	61.20	6.28	6.19	5.66	1.55	4.16	0.41	0.43	0.39

[1] AP-42 (EPA, 1985), Volume II Mobile Sources.
[2] Construction activity duration estimated by TRC.
[3] Construction occurs 8 months per year, March -October.
[4] Calculated as lb/well / days/equipment type / 10 hours/day.
[5] PM-2.5 assumed equivalent to PM-10 for combustion sources.
[6] Emission factor for track-type tractor.

Table B2.1.14
Seminoe Road Emissions Inventory
Wind Erosion

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Well Pad, Resource Road, Utility Construction
Activity: Wind Erosion
Engineer: Cassady Marshall
Date: 4/5/2004

Emission Factor : 0.3534 lb/hr/100m^2 — Based on AP-42 Chapter 13.2.5, Industrial Wind Erosion using Rawlins, Wyoming meteorological data.

Control Efficiency: 0 %

Disturbed Area:

Well Pad Construction:	2.20	acres	8903.40	m^2	
Resource Road Construction:	2.46	acres	9958.07	m^2	(based on 35' ROW road width, 0.58 mile section per well)
Utitlity Installation	1.76	acres	7112.91	m^2	(based on 25' ROW road width, 0.58 mile section per well)

PM-10 Emissions Calculations:

	PM-10 Emission Factor (lb/hr/100 m^2)	PM-2.5 Emission Factor (lb/hr/100 m^2)	Area/100 (100 m^2)	Control Efficiency (%)	PM-10 Emissions (lb/hr)	PM-2.5 Emissions (lb/hr)	PM-10 Emissions (g/sec)	PM-2.5 Emissions (g/sec)
Well Pad Construction	0.3534	0.1414	89.03	0	31.47	12.59	3.96	1.59
Resource Road Construction	0.3534	0.1414	99.58	0	35.19	14.08	4.43	1.77
Utility	0.3534	0.1414	71.13	0	25.14	10.05	3.17	1.27

Table B2.1.15
Seminoe Road Emissions Inventory
Wind Erosion Output

rawl2003

COMPUTATION OF WIND EROSION EMISSIONS (version 93037)
BASED ON AP-42 SECTION 13.2.5 INDUSTRIAL WIND EROSION

EXAMINE COMPUTED EMISSIONS FOR DISTURBANCE FREQUENCY --
COMPUTATION ASSUMES DISTURBANCE EVERY HOUR

Particle Size (1=TSP, 2=PM10): 2
Anemometer Ht (m): 10.00
Threshold Friction Velocity (m/sec): 1.02
Stockpile or Exposed Surface Area (m2): 100.
Surface Type (1=Flat, 2=Stockpile): 1
Correction Factor: 1.000

YR	MO	DAY	HR	ANEM WIND SPEED (m/sec)	THRESHOLD FRICTION VELOCITY (m/sec)	FRICTION VELOCITY @SURFACE (m/sec)	POTENTIA EMISSION (lb)	POTENTIAL EMISSIONS (g/sec)
3	2	10	6	17	1.02	1.0812	0.1926	0.0243
3	2	16	19	19	1.02	1.2084	0.7461	0.094
3	3	5	18	17.5	1.02	1.113	0.3116	0.0393
3	3	5	19	17	1.02	1.0812	0.1926	0.0243
3	3	5	20	17	1.02	1.0812	0.1926	0.0243
3	3	5	21	17.5	1.02	1.113	0.3116	0.0393
3	3	5	22	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	4	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	5	17.5	1.02	1.113	0.3116	0.0393
3	3	6	14	18.5	1.02	1.1766	0.5883	0.0741
3	3	6	15	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	16	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	13	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	14	17	1.02	1.0812	0.1926	0.0243
3	3	8	17	17.5	1.02	1.113	0.3116	0.0393
3	3	10	18	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	12	18.5	1.02	1.1766	0.5883	0.0741
3	4	1	13	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	16	17.5	1.02	1.113	0.3116	0.0393
3	4	2	12	18	1.02	1.1448	0.4435	0.0559
3	4	2	16	17	1.02	1.0812	0.1926	0.0243
3	9	12	16	17	1.02	1.0812	0.1926	0.0243
3	9	16	14	17.5	1.02	1.113	0.3116	0.0393
3	10	27	10	16.5	1.02	1.0494	0.0865	0.0109
3	10	28	18	17	1.02	1.0812	0.1926	0.0243
3	10	28	19	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	21	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	22	18	1.02	1.1448	0.4435	0.0559
3	10	28	23	20.1	1.02	1.2784	1.1387	0.1435
3	10	28	24	16.5	1.02	1.0494	0.0865	0.0109
3	10	29	2	18.5	1.02	1.1766	0.5883	0.0741
3	10	29	9	17.5	1.02	1.113	0.3116	0.0393
3	10	29	11	18.5	1.02	1.1766	0.5883	0.0741
3	11	11	10	16.5	1.02	1.0494	0.0865	0.0109
3	11	11	11	18	1.02	1.1448	0.4435	0.0559

Table B2.1.15
Seminoe Road Emissions Inventory
Wind Erosion Output

3	11	11	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	13	17	1.02	1.0812	0.1926	0.0243
3	12	13	20	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	8	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	9	18	1.02	1.1448	0.4435	0.0559
3	12	26	20	17	1.02	1.0812	0.1926	0.0243
3	12	30	1	18	1.02	1.1448	0.4435	0.0559
3	12	30	2	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	3	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	4	16.5	1.02	1.0494	0.0865	0.0109
3	12	30	5	16.5	1.02	1.0494	0.0865	0.0109
				16.5			16.6101	total/hr
							0.353406	average lb/hr

when ws>16.5 mph

Table B2.2.1
Seminoe Road Emissions Inventory
Production Traffic

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production Traffic
Activity: Fugitive Particulate Emissions from Production Traffic
Engineer: Cassady Marshall
Date: 4/5/2004

Vehicle Type	Average Vehicle Weight	Average Vehicle Speed	Silt Content[1]	Moisture Content[2]	Vehicle Miles Traveled	Emission Control Efficiency	PM-10 Emission Factor[3]	PM-2.5 Emission Factor[3]	PM-10 Emissions[4] (controlled)	PM-2.5 Emissions[4] (controlled)
	(lb)	(mph)	(%)	(%)	(VMT/well)	(%)	(lb/VMT)	(lb/VMT)	(lb/well/yr)	(lb/well/yr)
Supply Trucks	40,000	25	5.1	2.4	25	0	1.63	0.25	40.77	6.25
Light trucks/ pickups	7,000	25	5.1	2.4	1,035	0	0.51	0.08	527.67	78.85
Total Resource Road Emissions (lb/well/yr)									568.44	85.10

[1] AP-42 (EPA, 1998), Table 13.2.2-1, "Typical Silt Content Values of Surface Material on Industrial and Rural Unpaved Roads."
[2] AP-42 (EPA, 1998), Table 11.9-3, "Typical Values for Correction Factors Applicable to the Predictive Emission Factor Equations."
[3] AP-42 (EPA, 2003), Section 13.2.2 "Unpaved Roads", equations 1a and 1b.
[4] Calculated as lb/VMT x VMT/well x control efficiency.

Table B2.2.2
Seminoe Road Emissions Inventory
Production Traffic Heavy Equipment

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production Traffic
Activity: Diesel Combustion Emissions from Haul Truck Tailpipes
Engineer: Cassady Marshall
Date: 4/5/2004

Pollutant	Pollutant Emission Factor[1]	Annual Well VMT	Hourly Emissions Single Well	Annual Emissions Single Well
	(grams/mi)	(mi/well/yr)	(lb/hr)	(tpy)
CO	14.74	25.00	9.27E-05	4.06E-04
NO_x	11.44	25.00	7.20E-05	3.15E-04
SO_2[2]	0.32	25.00	2.02E-06	8.85E-06
VOC	5.69	25.00	3.58E-05	1.57E-04

[1]AP-42 (EPA, 1985), Table 2.7.1 "Volume II Mobile Sources." Heavy duty diesel engine powered trucks, high altitude, 20 mph, "aged" with 50,000 miles, 1997+ model.
[2] The SO_2 emission factor is calculated assuming 10 mpg fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.08 lb/gal.

Table B2.2.3
Seminoe Road Emissions Inventory
Down-hole Pumps

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production
Activity: Water Pumps
Engineer: Cassady Marshall
Date: 4/5//2004

Fuel Combustion Source

Unit Description: Downhole de-watering pump engine
Engine design (hp): 100

Emission Data

	(lb/hr)	(tpy)	Emission Factor	Units
Nitrogen oxides	0.2	1.0	1.0	g/hp-hr
Carbon monoxide	0.7	3.0	3.0	g/hp-hr
VOC	0.2	1.0	1.0	g/hp-hr
Formaldehyde	0.0010	0.0500	0.05	g/hp-hr

Downhole pumps installed during compleltion for CBM wells and remain for life of well.
Natural gas fired.

Table B2.2.4
Seminoe Road Emissions Inventory
Wells Outside of Electrification Boundary by Year

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production
Activity: Well outside Electrification Boundary
Engineer: Cassady Marshall
Date: 4/5/2004

Wells outside of electrification Boundary

Year	Number of Wells
2004	--
2005	16
2006	13
2007	11
2008	26
2009	9
2010	3
2011	15
2012	0
2013	0
2014	0

Table B2.2.5
Seminoe Road Emissions Inventory
Seminoe Road Compressor Station #1

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production
Activity: Emissions from C.S.
Engineer: Cassady Marshall
Date: 4/5/2004

Fuel Combustion Source

Unit Description	Seminoe Road Compressor Station 1
Engine design (hp)	2,680

Stack Parameters

Height	24	ft
Temperature	750	F
Diameter	1.3	ft
Velocity	89.6	ft/s

Emission Data

	(lb/hr)	(tpy)	Data Source	Emission Factor	Units
PM10	0.0	0.0	Permit CT-2833	--	
PM2.5	0.0	0.00	Permit CT-2833	--	
Sulfur dioxide	0.0	0.0	Permit CT-2833	--	
Nitrogen oxides	8.8	38.6	Permit CT-2833	1.5	g/hp-hr
Carbon monoxide	3.0	13.2	Permit CT-2833	0.5	g/hp-hr
VOC	6.0	26.2	Permit CT-2833	1	g/hp-hr
Formaldehyde	0.4	1.8	Permit CT-2833	0.07	g/hp-hr

Table B2.2.6
Seminoe Road Emissions Inventory
Seminoe Road Compressor Station #2

TRC

605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production
Activity: Emissions from C.S.
Engineer: Cassady Marshall
Date: 4/5/2004

Fuel Combustion Source

Unit Description	Seminoe Road Compressor Station 2
Engine design (hp)	2,680

Stack Parameters

Height	24	ft
Temperature	750	F
Diameter	1.3	ft
Velocity	89.6	ft/s

Emission Data

	(lb/hr)	(tpy)	Data Source	Emission Factor	Units
PM10	0.0	0.0	Permit CT-2833	--	
PM2.5	0.0	0.00	Permit CT-2833	--	
Sulfur dioxide	0.0	0.0	Permit CT-2833	--	
Nitrogen oxides	8.8	38.6	Permit CT-2833	1.5	g/hp-hr
Carbon monoxide	3.0	13.2	Permit CT-2833	0.5	g/hp-hr
VOC	6.0	26.2	Permit CT-2833	1	g/hp-hr
Formaldehyde	0.4	1.8	Permit CT-2833	0.07	g/hp-hr

Table B2.2.7
Seminoe Road Emissions Inventory
Seminoe Road Compressor Station #3

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production
Activity: Emissions from C.S.
Engineer: Cassady Marshall
Date: 4/5/2004

Fuel Combustion Source

Unit Description	Seminoe Road Compressor Station 3
Engine design (hp)	2,680

Stack Parameters

Height	24	ft
Temperature	750	F
Diameter	1.3	ft
Velocity	89.6	ft/s

Emission Data

	(lb/hr)	(tpy)	Data Source	Emission Factor	Units
PM10	0.0	0.0	Permit CT-2833	--	
PM2.5	0.0	0.00	Permit CT-2833	--	
Sulfur dioxide	0.0	0.0	Permit CT-2833	--	
Nitrogen oxides	8.8	38.6	Permit CT-2833	1.5	g/hp-hr
Carbon monoxide	3.0	13.2	Permit CT-2833	0.5	g/hp-hr
VOC	6.0	26.2	Permit CT-2833	1	g/hp-hr
Formaldehyde	0.4	1.8	Permit CT-2833	0.07	g/hp-hr

Table B2.2.8
Seminoe Road Emissions Inventory
Wind Erosion

TRC
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Seminoe Road
Phase: Production
Activity: Wind Erosion
Engineer: Cassady Marshall
Date: 4/5/2004

Emission Factor : 0.3534 lb/hr/100m^2 Based on AP-42 Chapter 13.2.5, Industrial Wind Erosion
Rawlins, Wyoming meteorological data.

Control Efficiency: 0 %

Disturbed Area:
Well Pad Production: 1.2 acres 4856.40 m^2

PM-10 Emissions Calculations:

	PM-10 Emission Factor (lb/hr/100 m^2)	PM-2.5 Emission Factor (lb/hr/100 m^2)	Area/100 (100 m^2)	Control Efficiency (%)	PM-10 Emissions (lb/hr)	PM-2.5 Emissions (lb/hr)	PM-10 Emissions (g/sec)	PM-2.5 Emissions (g/sec)
Well Pad Production	0.3534	0.1414	48.56	0	17.16	6.87	2.16	0.87

Table B2.2.9
Seminoe Road Emissions Inventory
Wind Erosion Output

rawl2003

COMPUTATION OF WIND EROSION EMISSIONS (version 93037)
BASED ON AP-42 SECTION 13.2.5 INDUSTRIAL WIND EROSION

EXAMINE COMPUTED EMISSIONS FOR DISTURBANCE FREQUENCY --
COMPUTATION ASSUMES DISTURBANCE EVERY HOUR

Particle Size (1=TSP, 2=PM10): 2
Anemometer Ht (m): 10.00
Threshold Friction Velocity (m/sec): 1.02
Stockpile or Exposed Surface Area (m2): 100.
Surface Type (1=Flat, 2=Stockpile): 1
Correction Factor: 1.000

YR	MO	DAY	HR	ANEM WIND SPEED (m/sec)	THRESHOLD FRICTION VELOCITY (m/sec)	FRICTION VELOCITY @SURFACE (m/sec)	POTENTIA EMISSION (lb)	POTENTIAL EMISSIONS (g/sec)
3	2	10	6	17	1.02	1.0812	0.1926	0.0243
3	2	16	19	19	1.02	1.2084	0.7461	0.094
3	3	5	18	17.5	1.02	1.113	0.3116	0.0393
3	3	5	19	17	1.02	1.0812	0.1926	0.0243
3	3	5	20	17	1.02	1.0812	0.1926	0.0243
3	3	5	21	17.5	1.02	1.113	0.3116	0.0393
3	3	5	22	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	4	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	5	17.5	1.02	1.113	0.3116	0.0393
3	3	6	14	18.5	1.02	1.1766	0.5883	0.0741
3	3	6	15	16.5	1.02	1.0494	0.0865	0.0109
3	3	6	16	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	13	16.5	1.02	1.0494	0.0865	0.0109
3	3	8	14	17	1.02	1.0812	0.1926	0.0243
3	3	8	17	17.5	1.02	1.113	0.3116	0.0393
3	3	10	18	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	12	18.5	1.02	1.1766	0.5883	0.0741
3	4	1	13	16.5	1.02	1.0494	0.0865	0.0109
3	4	1	16	17.5	1.02	1.113	0.3116	0.0393
3	4	2	12	18	1.02	1.1448	0.4435	0.0559
3	4	2	16	17	1.02	1.0812	0.1926	0.0243
3	9	12	16	17	1.02	1.0812	0.1926	0.0243
3	9	16	14	17.5	1.02	1.113	0.3116	0.0393
3	10	27	10	16.5	1.02	1.0494	0.0865	0.0109
3	10	28	18	17	1.02	1.0812	0.1926	0.0243
3	10	28	19	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	21	20.6	1.02	1.3102	1.3379	0.1686
3	10	28	22	18	1.02	1.1448	0.4435	0.0559
3	10	28	23	20.1	1.02	1.2784	1.1387	0.1435
3	10	28	24	16.5	1.02	1.0494	0.0865	0.0109
3	10	29	2	18.5	1.02	1.1766	0.5883	0.0741
3	10	29	9	17.5	1.02	1.113	0.3116	0.0393
3	10	29	11	18.5	1.02	1.1766	0.5883	0.0741
3	11	11	10	16.5	1.02	1.0494	0.0865	0.0109
3	11	11	11	18	1.02	1.1448	0.4435	0.0559

Table B2.2.9
Seminoe Road Emissions Inventory
Wind Erosion Output

3	11	11	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	12	18.5	1.02	1.1766	0.5883	0.0741
3	11	18	13	17	1.02	1.0812	0.1926	0.0243
3	12	13	20	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	8	16.5	1.02	1.0494	0.0865	0.0109
3	12	17	9	18	1.02	1.1448	0.4435	0.0559
3	12	26	20	17	1.02	1.0812	0.1926	0.0243
3	12	30	1	18	1.02	1.1448	0.4435	0.0559
3	12	30	2	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	3	18.5	1.02	1.1766	0.5883	0.0741
3	12	30	4	16.5	1.02	1.0494	0.0865	0.0109
3	12	30	5	16.5	1.02	1.0494	0.0865	0.0109
				16.5			16.6101	total/hr
							0.353406	average lb/hr

when ws>16.5 mph

APPENDIX C:

REGIONAL INVENTORY METHODOLOGY

This appendix outlines the methodology used in the emissions inventory of industrial sources within the cumulative modeling domain.

C.1 STATE AGENCY-PERMITTED INDUSTRIAL SOURCE INVENTORY

C.1.1 State Air Quality Regulatory Authority

The determination of sources to inventory was based on the date a source was permitted and its operation start-up date. The following criteria were the basis upon which sources were included or excluded.

- Include sources permitted and operating January 1, 2001 – March 31, 2004.
- Include if permitted July 1, 1999 – March 31, 2004 but not yet operating (see RFFA).
- Include sources of NO_x, PM_{10}, or SO_2 emissions.
- Exclude sources permitted and operating prior to January 1, 2001; sources listed but with permits cancelled or rescinded; and sources with no NO_x, SO_2, or PM_{10} emissions.

A list of permitted sources within the Atlantic Rim/Seminoe Road cumulative modeling domain was provided by state air quality agencies. The inclusion/exclusion determination was made either at the initial list stage (depending upon the detail of the information provided), or when the physical file was examined. Throughout the process, excluded facilities and reason for exclusion were documented.

For all included sources, the following information was collected.

- County
- Facility name
- Unique facility ID number
- Permit number
- Permit issuance date
- Operation start-up date
- Unique source ID numbers and SIC codes if available
- Source description
- Site location (lat/long, UTM and zone, and/or section, township, and range)
- Permitted change in NO_x, SO_2, PM_{10}, and $PM_{2.5}$ emission rate by source during inventory period
- NO_x, SO_2, PM_{10}, and $PM_{2.5}$ actual emission rate by source, if available
- Stack exit parameters: height, temperature, velocity, diameter, and flow rate for all included facilities

The change in permitted emission limits occurring during the inventory period was obtained for included sources, either through a physical file search or from the state agency. Actual emissions were obtained, if available electronically, for year 2000 and for the most recent reporting period available for that site (2001 or after) to allow a determination of change in actual emissions during the inventory period. Actual emissions were not available electronically for a majority of the sources. $PM_{2.5}$ data were not available for sources in any state. $PM_{2.5}$ emissions were calculated based on the ratio of $PM_{2.5}$ to PM_{10} using assumptions for natural gas combustion, coal combustion, or fugitive particulates.

For any modification to an included permitted source:

- the permitted increase or decrease in emissions was determined between pre-January 1, 2001 and the inventory period (January 1, 2001 – March 31, 2004);
- the permitted increase or decrease was obtained from permit documents by locating a description of the change or by recording both new and old permit limits;
- emissions decreases were tracked for major sources only (>250 tpy);
- emissions increases of less than 1 tpy were not tracked;
- fugitive PM_{10} and NO_x emissions for surface coal mine permit modifications were included. Annual emissions calculated in year 2000 or previous applications were reviewed and compared to 2003 annual emissions. The increase or decrease was modeled;
- actual emissions for all included sources were reported as the difference between 2000 reported actual emissions and 2003 reported actual emissions (or most recent year reported after 2000). If no 2000 data existed, no actuals were recorded.

For each site, multiple stacks were combined into a single representative emission point for the cumulative modeling. The following methodology was used in combining the stacks.

- Combine total change in emissions by site and pollutant.
- Select stack parameters using the following hierarchy.
  - Select stack with greatest "M" value using SCREEN method outlined in "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised", EPA-454/R-92-019.
  - Review "M" values and, if they are not representative of the overall facility, use stack parameters from the single point exhibiting the highest emission rate.
  - If stack parameters are still not representative, select worst-case parameters based on the potential for maximum long-range impacts (i.e., high temperature, stack height, exit velocity).
  - If no stack parameters are available, determine the SIC code for the facility and substitute the stack parameters given for that SIC code in the EPA SIC code source parameter guidance. If a single stack parameter value is missing and the SIC code is known, the single value is substituted from SIC code stack parameter guidance when reasonable.

- If the SIC code is not known, or if no representative SIC code values are found, use generic stack parameters of 15-m height, 422^{o} Kelvin temperature, 0.31-m exit diameter, and 10.0-m per second (m/s) exit velocity. If a single parameter is missing from any source for which no SIC code is known or available, the single generic parameter is substituted.

C.1.2 Natural Gas and Oil Well Agency-permitted Sources

Natural gas and oil well data were gathered by obtaining from state oil and gas permitting agencies total production by county for the years 2000 and 2003. Production rates for the first quarter of 2004 were requested but not yet available for any state at the time the inventory was completed. Production rates for 2000 were subtracted from production rates from the most recent available annual period (2003). An average emission rate per unit natural gas well of 0.18 tpy NO_x was used based on a weighted average well emission rate, calculated from the wells proposed within the modeling domain. An average emission rate for oil wells of 0.3 tpy NO_x was obtained from WDEQ-AQD. These representative emission rates were applied to calculate total NO_x emissions per county. PM_{10}, $PM_{2.5}$, and SO_2 emissions were assumed to be negligible. All states inventoried, with the exception of Idaho, had operational oil and gas wells. Colorado data was only provided through the end of 2002. There was no change in the number of operational oil and gas wells within the period of 2000 and 2002, so the net change for Colorado was assumed to be zero.

All Utah and Wyoming oil and gas agency-permitted well data are included in Table C.9. No table is shown for Idaho or Colorado because the net change is zero.

C.1.3 State-specific Methodologies

The inventory area includes portions of Wyoming, Colorado, Idaho, and Utah. Due to the differences in the data provided by each state, some variation in inventory procedures were necessary. The following are the state-specific procedures used in the inventory.

Colorado

A list of permitted facilities within the inventory area was requested. Permitted and actual emissions for the most recent reporting year were provided in electronic format by Colorado Department of Public Health and Environment (CDPHE). A manual file search was performed to determine the change in emissions for each modification. If a facility had both an initial and a final permit and there were differences between the initial and final permit limits, the differences were documented as a permitted emissions change. Permits with ".CN" suffixes are cancelled, ".XP" indicates permit exempt, ".XA" indicates both APEN and permit exempt, ".GF" indicates grandfathered and all permits with theses extensions were excluded from inventory. "F" indicates fugitive source. Because no start-up dates were included in the files, and because of Colorado's procedures for initial and final permit issuance, all permits issued through March 31, 2004 were conservatively assumed to be operational as March 31, 200. Colorado included state-permitted sources are shown in Table C.1 and Colorado excluded state-permitted sources are shown in Table C.2.

Idaho

A list of permitted facilities within the inventory area was requested, and Idaho Department of Environmental Quality (IDEQ) provided facility numbers, names, and locations. Permit files for all facilities listed were reviewed on-site at the IDEQ offices in Boise to obtain necessary data. No actual emissions were available in the files. All permitted facilities were assumed operational and stack exit parameters were obtained from files when available. Idaho included state-permitted sources are shown in Table C.3 and Idaho excluded state-permitted sources are shown in Table C.4.

Utah

Utah Division of Air Quality (UDAQ) supplied electronic versions of Approval Order documents and a list of available actual emissions and stack parameters in electronic format. Approval Orders were examined for changes in emissions. If no emissions change was listed in the Approval Order, change in emissions was calculated based on the difference between the current facility total emissions as reported by UDAQ and facility total emissions from the most recent permit as reported by UDAQ. Actual emissions were provided by UDAQ for 2000 and 2002, and change in actual emissions for the inventory period was assumed to be the difference between these values. No actuals reported in either 2000 or 2002 were assumed to indicate no emissions change. Because UDAQ does not track start-up dates electronically, and no physical file search was required for any other reason, all permitted sources were assumed operational. Utah included state-permitted sources are shown in Table C.5 and Utah excluded state-permitted sources are shown in Table C.6.

Wyoming

A list of permitted facilities within the state of Wyoming was requested from WDEQ-AQD. Permit files for all facilities listed were reviewed on-site at the WDEQ-AQD offices in Cheyenne to obtain necessary data. For any facilities classified as natural gas/coal bed methane (CBM) production sites with emissions increases greater than 3 tpy, the files were reviewed for any combustion equipment and were included if any single piece of combustion equipment emitted more than 2 tpy. All other production sites were assumed to be included in Wyoming Oil and Gas Conservation Commission (WOGCC) production estimates. Actual emissions were provided by WDEQ-AQD in electronic format and were limited to only large facilities for which actual emissions are tracked for fee payment purposes. Years 2000 and 2001 were available, and the change in actual emissions for the inventory period was assumed to be the difference between 2000 and 2001 values. Start-up dates were provided by WDEQ-AQD to determine the operating status of a facility. If a facility had no reported start-up date but the facility permit was issued more than 2 years previous, the facility was assumed operational. A list of facilities permitted less than 2 years prior to the inventory period and reporting no start-up date was provided to WDEQ-AQD to verify start-up date, and based on data received from WDEQ-AQD were assumed operational or RFFA. Nine permit files were unable to be located by WDEQ-AQD staff after an extensive search and, therefore were excluded. Stack exit parameters were obtained from files if available. Wyoming included state-permitted sources are shown in Table C.7 and Wyoming excluded state-permitted sources are shown in Table C.8.

C.2 RFFA

State agency-permitted sources which were determined to not yet be in operation as of the inventory end-date were included as RFFA in all analyses. Included permitted RFFA sources are shown in Table C.10.

C.3 RFD INVENTORY

Wyoming RFD within the modeling domain was compiled. In accordance with definitions agreed upon by BLM, EPA, WDEQ-AQD, and USDA Forest Service for use in EIS projects, RFD was defined as 1) the NEPA-authorized but not yet developed portions of Wyoming NEPA projects and 2) not yet authorized NEPA projects for which air quality analyses were in progress and for which emissions had been quantified. A list of known NEPA projects was submitted to each Wyoming BLM Field Office, along with a request for feedback regarding the inclusion of listed projects or presence of any additional unlisted projects. The air quality technical documentation for projects to be inventoried and any available information on development status within each project area were requested, if not already in possession.

This information, along with project status data received from the Wyoming State BLM office, provided a basis for the RFD inventory; however, no information on the development status within each field was available from BLM. Therefore, the WOGCC and WDEQ-AQD were consulted to determine permitted wells and permitted compressor engines, respectively. WOGCC had available well development by BLM project area for the Pinedale and Rawlins Field Offices only. Well development by project area in other field offices was determined by geographically plotting well locations, counting the wells permitted after the project authorization date located within each project area, and using those well counts to determine remaining authorized wells. No compressor development or ancillary facility development data was available for any BLM field office. As a result, compressors and ancillary facilities permitted through WDEQ-AQD were geographically plotted and those associated with a specific project area that were permitted after the project authorization date were subtracted from total authorized compression to determine RFD.

Emissions of all available pollutants were summarized by project. Any excluded projects and exclusion reason were documented. A summary of NEPA RFD project emissions are shown in Table X.12.

C.4 QA/QC PROCEDURES

The QA/QC procedure followed throughout the inventory process was as follows:

- Procedures for data collection and processing were documented (see above).

- Files were obtained digitally directly from agency to eliminate transcription errors.
- When physical file searches were required, relevant documents were photocopied so input could be completed in an orderly manner, transcription errors could be minimized, and documents could be reviewed without return to agency premises if questions arise.
- All input values were checked once following initial input for numerical errors, and again following completion of input group for reasonableness.
- Exclusions and questionable data were documented. Methods used to single out incorrect data included: examine UTM zone by county, plot geographic locations, and spot-check data points to determine reasonableness.
- The issuing agency was contacted with permit questions rather than making assumptions.
- All data were entered into databases with consistent format to eliminate inconsistency between states.
- Database query results were spot-checked manually to ensure accuracy.
- Inventory was peer reviewed at several stages during development and upon completion.

C.5 LIST OF TABLES INCLUDED IN APPENDIX C

Table C.1
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Included Sources

Facility Name	Site ID	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Argali Exploration Compay	133	02MF0001	Moffat	2.74	422.00	0.10	53.86	43.40	0.00	0.00	0.00
Big West Oil & Gas Flying J Oil & Gas	108	95MF004-2	Moffat	3.35	422.00	0.20	14.72	19.12	0.00	0.00	0.00
Blue Mountain Energy - Deserado Mine	14	00RB0283	Rio Blanco	21.34	301.32	0.88	8.51	0.00	0.00	5.73	1.72
Blue Mountain Energy - Deserado Mine	14	12RB802-2	Rio Blanco	1.00	294.00	0.10	0.10	0.00	0.00	6.30	1.89
Blue Mountain Energy - Deserado Mine	14	12RB802-3F	Rio Blanco	1.00	294.00	0.10	0.10	0.00	0.00	16.22	4.87
Blue Mountain Energy - Deserado Mine	14	03RB0569F	Rio Blanco	0.00	294.26	0.00	0.00	0.00	0.00	66.97	20.09
Blue Mountain Energy - Deserado Mine	14	03RB0570	Rio Blanco	0.00	294.26	0.00	0.00	0.00	0.00	54.86	54.86
Blue Mountain Energy - Deserado Mine	14	12RB802-3F	Rio Blanco	22.38	294.26	0.67	7.77	0.00	0.00	8.69	2.61
Duckels Const INC DBA Yampa Aggregates	75	99RO0342F	Routt	1.00	294.00	0.10	0.10	0.00	0.00	1.74	0.52
Journey Operating, LLC - Sandhills Lease	143	01MF0993	Moffat	2.44	422.00	0.10	26.55	15.90	0.00	0.00	0.00
KLT Gas INC. - Pinyon Ridge Field	232	03RB0578	Rio Blanco	2.44	255.37	0.20	12.50	24.00	0.00	0.00	0.00
Koch Exploration LLC - Walker 12-2	177	03MF0809	Moffat	2.13	833.15	0.10	12.50	31.23	2.07	2.22	2.22
Koch Exploration LLC - Walker 12-4	178	03MF0810	Moffat	2.13	833.15	0.10	12.50	31.23	2.07	2.22	2.22
Koch Exploration LLC - Walker 12-5	168	03MF0808	Moffat	3.05	808.15	0.10	12.50	11.50	0.00	0.00	0.00
Koch Exploration LLC - Walker 3-1	169	03MF0434	Moffat	3.05	808.15	0.10	14.73	23.04	3.06	0.00	0.00
Koch Exploration LLC - Walker 3-2	223	03MF0811	Moffat	2.13	833.15	0.10	12.50	31.23	2.07	2.22	2.22
Koch Exploration LLC - Walker 3-4	224	03MF0812	Moffat	2.13	833.15	0.10	12.50	31.23	2.07	2.22	2.22
Koch Exploration LLC - Walker 3-3	228	03MF0943	Moffat	2.13	833.15	0.10	11.34	31.23	2.07	2.22	2.22
Lafarge West, INC - River Valley Resource	81	03RO0044F	Routt	1.00	294.00	0.10	0.10	0.00	0.00	8.29	2.49
Merit Energy - Powder Wash Station	111	02MF0073	Moffat	3.35	422.00	0.15	40.63	18.70	0.00	0.00	0.00
Precision Excavating, INC.	79	00RO0741F	Routt	1.00	294.00	0.10	0.10	0.00	0.00	15.05	4.52
Questar Gas Management CO. - Lion C.S.	161	01MF0787	Moffat	4.57	422.00	0.30	28.38	15.70	0.00	0.00	0.00
Questar Gas Management CO. - Lion C.S.	161	03MF0662	Moffat	4.57	866.48	0.30	12.50	14.30	0.00	0.00	0.00
Questar Gas Mgmt Co W Hiawatha C.S.	67	01MF0039	Moffat	4.57	422.00	0.30	31.27	12.50	0.00	0.00	0.00
Rocky Mtn Nat Gas - Blue Gravel	125	03MF0113	Moffat	9.05	509.82	0.76	12.50	8.53	0.00	0.00	0.00
South-Tex Treaters, INC. - Meeker Plant	163	02RB0217	Rio Blanco	7.32	422.00	0.30	48.34	84.30	0.00	2.20	2.20
Tipperary Coporation - Walker 12-5	168	02MF0370	Moffat	2.44	422.00	0.09	11.34	14.60	0.00	2.00	2.00
Tipperary Coporation - Walker 12-5	168	02MF0371	Moffat	2.44	422.00	0.09	11.34	3.30	0.00	0.00	0.00
Tipperary Coporation - Walker 3-1	169	02MF0995	Moffat	9.05	509.82	0.76	12.50	14.60	2.70	0.00	0.00
Tom Brown, Inc - Federal Land Bank 21-14	225	03MF0962	Moffat	9.05	294.26	0.76	11.34	1.44	0.00	0.00	0.00
Tom Brown, Inc - Federal Land Bank 33-15	226	03MF0963	Moffat	32.93	829.82	0.76	12.50	1.44	0.00	0.00	0.00
Tom Brown, INC - Schroeder 33-32	229	03MF1025	Moffat	9.05	810.93	0.76	12.50	1.73	0.00	0.00	0.00
Tri State Generation Craig	18	01MF0003	Moffat	25.49	361.71	1.04	17.29	0.00	0.00	2.60	2.60
True Oil LLC - BTA Federal #12-33	156	00MF0111	Moffat	3.05	422.00	1.83	18.99	10.70	0.00	0.00	0.00
Twin Landfill Corp. - Milner Landfill	57	02RO0124	Routt	20.43	424.21	0.82	10.46	0.00	0.00	16.90	5.07
Total Colorado State-Permitted Source Emissions								495.0	16.1	218.7	116.5

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Boulder	ABRA AUTO BODY AND GLASS	1231	00BO0125	Change in VOCs only.
CO	Weld	ADVANCED FORMING TECHNOLOGY	0495	96WE428-1	Operating prior to Jan 1, 2001.
CO	Boulder	AGGREGATE IND - WCR, INC. - LYONS QUARRY	0009	93BO199F	Operating prior to Jan 1, 2001.
CO	Weld	AGGREGATE INDUSTRIES - PLATTE VALLEY WCR	0378	93WE448F	Reduction at a PSD minor source.
CO	Weld	AGGREGATE INDUSTRIES - PLATTE VALLEY WCR	0378	94WE0486	Reduction at a PSD minor source.
CO	Larimer	AGGREGATE INDUSTRIES - WCR, INC -STEGNER	0357	02LR0077.CN	Cancelled.
CO	Larimer	AGGREGATE INDUSTRIES - WCR, INC -STEGNER	0357	00LR0033F	Reduction at a PSD minor source.
CO	Boulder	AGGREGATE INDUSTRIES - WCR, INC.	0009	99BO0649.CN	Cancelled.
CO	Larimer	AGGREGATE INDUSTRIES - WCR, INC.	0025	10LR342	Outside domain.
CO	Larimer	AGGREGATE INDUSTRIES - WCR, INC.	0024	10LR406	No change.
CO	Weld	AGGREGATE INDUSTRIES - WCR, INC.	0173	89WE087F	No change.
CO	Weld	AGGREGATE INDUSTRIES - WCR, INC.	0173	99WE0083	Outside domain.
CO	Weld	AGGREGATE INDUSTRIES - WCR, INC. - LEWIS	0587	01WE0042F	Outside domain.
CO	Weld	AGGREGATE INDUSTRIES - WCR, INC. - TULL	0582	00WE0628F	Outside domain.
CO	Weld	AGGREGATE INDUSTRIES - WCR, INC. -E. 8TH	0585	00WE0831F	Outside domain.
CO	Weld	AGGREGATE INDUSTRIES -WEST CENTRAL REG.	0305	92WE858F	Reduction at a PSD minor source.
CO	Boulder	AGGREGATE INDUSTRIES-WCR, INC. - FRANCIS	0058	83BO286	No change.
CO	Weld	AGGREGATE INDUSTRIES-WCR,INC.-WW FARMS P	0549	99WE0033F	Reduction at a PSD minor source.
CO	Larimer	AGILENT TECHNOLOGIES	0044	95LR474.CN	Permit exempt.
CO	Larimer	AGILENT TECHNOLOGIES	0044	01LR0544.XP	Permit exempt.
CO	Larimer	AGILENT TECHNOLOGIES	0030	95LR1033	Outside domain.
CO	Larimer	AGILENT TECHNOLOGIES	0044	01LR0543	Outside domain.
CO	Larimer	AGILENT TECHNOLOGIES	0044	01LR0668	Outside domain.
CO	Weld	AGLAND, INC. - FARMLAND FEED, LLC	0397	94WE025	Grain bins are not permitted.
CO	Weld	AKA ENERGY GROUP - KERSEY	0473	95WE175-1	Change in ownership only.
CO	Weld	AKA ENERGY GROUP - KERSEY	0473	95WE175-2	Change in ownership only.
CO	Weld	AKA ENERGY GROUP - KERSEY	0473	04WE0051	Outside domain.
CO	Boulder	AMGEN BOULDER INC	0351	99BO0890	Outside domain.
CO	Boulder	AMGEN INC	0626	99BO0942	No change.
CO	Boulder	AMGEN INC	0626	99BO0942	Outside domain.
CO	Weld	ANDESITE ROCK CO - CARR GRAVEL RESOURCE	0186	89WE068F	Reduction at a PSD minor source.
CO	Weld	ANDESITE ROCK CO DEL CAMINO PIT	0100	84WE086-2.XA	Operating prior to Jan 1, 2001.
CO	Weld	ANDESITE ROCK CO DEL CAMINO PIT	0100	84WE086-1F	Reduction at a PSD minor source.
CO	Larimer	ANHEUSER BUSCH INC	0060	99LR0453	Operating prior to Jan 1, 2001.
CO	Weld	ANTELOPE ENERGY COMPANY-TERANCE PLANT	0444	01WE0295	Outside domain.
CO	Weld	ANTELOPE ENERGY COMPANY-TERANCE PLANT	0444	94WE250-1	Outside domain.
CO	Weld	ANTELOPE ENERGY COMPANY-TERANCE PLANT	0444	94WE250-2	Outside domain.
CO	Moffat	ARGALI EXPLORATION COMPANY	0133	95MF544-1.CN	Cancelled.
CO	Boulder	ASPHALT SPECIALIST CO - KENOSHA PONDS	0655	00BO0326F	Operating prior to Jan 1, 2001.
CO	Boulder	BALL AEROSPACE & TECHNOLOGIES CORP	0084	95BO405	Operating prior to Jan 1, 2001.
CO	Weld	BESTWAY CONCRETE COMPANY	0580	00WE0536	Outside domain.
CO	Weld	BITTER CREEK PIPELINES - NEW RAYMER .CN	0270	92WE049.CN	Cancelled.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Rio Blanco	BLUE MOUNTAIN ENERGY - DESERADO MINE	0014	12RB802-2	Decrease < 1 tpy.
CO	Rio Blanco	BLUE MOUNTAIN ENERGY - DESERADO MINE	0014	12RB802-6	No change.
CO	Rio Blanco	BLUE MOUNTAIN ENERGY - DESERADO MINE	0014	12RB802-5	Reduction at a PSD minor source.
CO	Rio Blanco	BLUE MOUNTAIN ENERGY - DESERADO MINE	0014	12RB802-6	Reduction at a PSD minor source.
CO	Morgan	BRUSH COGENERATION PARTNERS/COLO POWER	0027	91MR933	Operating prior to Jan 1, 2001.
CO	Morgan	BRUSH COGENERATION PARTNERS/COLO POWER	0027	98MR0727	Outside domain.
CO	Weld	CAMAS COLORADO INC/BESTWAY PAVING	0004	10WE552.CN	Cancelled.
CO	Weld	CAMAS COLORADO, INC. - AGGREGATES DIV.	0568	99WE0925F	Outside domain.
CO	Weld	CAT CONSTRUCTION CO - I-25 NORTH 40 PROJ	1350	02WE0342F	Outside domain.
CO	Boulder	CEMEX, INC.	0124	02BO0176F	Outside domain.
CO	Boulder	CEMEX, INC. - LYONS CEMENT PLANT	0003	98BO0259	Operating prior to Jan 1, 2001.
CO	Boulder	CEMEX, INC. - LYONS CEMENT PLANT	0003	98BO0292	Operating prior to Jan 1, 2001.
CO	Larimer	CHAPPELLE ANIMAL HOSP	0077	01LR0837	Increase < 1TPY.
CO	Rio Blanco	CHEVRON USA - WILSON CREEK GAS PLT	0010	99RB0602.CN	Cancelled.
CO	Rio Blanco	CHEVRON USA PRODUCTION CO RANGELY FIELD	0034	88RB066-10	Operating prior to Jan 1, 2001.
CO	Rio Blanco	CHEVRON USA PRODUCTION CO RANGELY FIELD	0034	90RB073	Operating prior to Jan 1, 2001.
CO	Rio Blanco	CHEVRON USA PRODUCTION CO RANGELY FIELD	0034	88RB066-11	Reduction at a PSD minor source.
CO	Boulder	CITY OF BOULDER POLICE DEPARTMENT	0642	98BO0829	Operating prior to Jan 1, 2001.
CO	Weld	CITY OF GREELEY WATER POLLUT CONTROL FAC	0322	96WE739	Exempt/no emission limits.
CO	Weld	CITY OF LONGMONT WASTE/WASTEWATER UT	0212	90WE081	Outside domain.
CO	Larimer	COLLINS COLLISION PRODUCTS INC	0048	90LR126-1	No change.
CO	Larimer	COLLINS COLLISION PRODUCTS INC	0048	12LR830	Change in VOCs only.
CO	Weld	COLORADO INTERSTATE GAS CO. - FT. LUPTON	0586	01WE1039	No change.
CO	Weld	COLORADO INTERSTATE GAS CO. - FT. LUPTON	0586	01WE0033	Outside domain.
CO	Weld	COLORADO INTERSTATE GAS CO. - FT. LUPTON	0586	01WE1039	Outside domain.
CO	Moffat	COLOWYO COAL CO	0007	95MF1040	No change.
CO	Boulder	COMPOSITE TEK	0458	92BO1369	Operating prior to Jan 1, 2001.
CO	Larimer	CONNELL RESOURCES, INC.	0373	00LR0746	Outside domain.
CO	Larimer	CONNELL RESOURCES-TIMNATH CONNELL PIT	0353	99LR0923F	No change.
CO	Larimer	COULSON EXCAVATING - BONSER PIT	0374	01LR0011F	Outside domain.
CO	Larimer	COULSON EXCAVATING CO INC	0392	02LR0607F	Outside domain.
CO	Larimer	COULSON EXCAVATING CO INC	0392	02LR0607F	No change.
CO	Larimer	COULSON EXCAVATING COMPANY INC	0301	95LR767F.CN	Cancelled.
CO	Morgan	DAIRY FARMERS OF AMERICA, INC.	0076	01MR0571	No change.
CO	Morgan	DAIRY FARMERS OF AMERICA, INC.	0076	01MR0760	Outside domain.
CO	Weld	DENVER REGIONAL LANDFILL	0079	83WE412	Change in VOCs only.
CO	Weld	DENVER REGIONAL LANDFILL	0079	12WE652	Outside domain.
CO	Larimer	DON KEHN CONSTRUCTION INC	0319	00LR0280	Operating prior to Jan 1, 2001.
CO	Larimer	DON KEHN CONSTRUCTION INC	0319	97LR0311F	Operating prior to Jan 1, 2001.
CO	Larimer	DON KEHN CONSTRUCTION INC	0319	97LR0312	Operating prior to Jan 1, 2001.
CO	Weld	DUKE ENERGY FIELD SERVICES - EAST LATERA	0202	95WE192	Change in ownership only.
CO	Weld	DUKE ENERGY FIELD SERVICES - EATON	0035	97WE0349	Reduction at a synthetic minor.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Weld	DUKE ENERGY FIELD SERVICES - FINA	0199	97WE0852	Change in ownership only.
CO	Weld	DUKE ENERGY FIELD SERVICES - JODY	0535	98WE0263	Change in ownership only.
CO	Weld	DUKE ENERGY FIELD SERVICES - JOHNSTOWN	0093	98WE0548	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - KIRKMEYER	0221	97WE0001	No change.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARILYN	0507	97WE0033	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARLA	0243	01WE0499	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARLA	0243	01WE0500	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARLA	0243	01WE0501	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARLA	0243	01WE0503	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARLA	0243	01WE0504	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MARLA	0243	01WE0505	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - MIDPOINT	0152	98WE0709	No inventoried pollutants.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0433	Increase < 1 TPY.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0422	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0423	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0424	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0425	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0426	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0427	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0428	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0429	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - PLATTEVILLE	0595	01WE0431	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES - RIVERSIDE	0110	97WE0791	Reduction at a PSD minor source.
CO	Weld	DUKE ENERGY FIELD SERVICES - SOUTHFIELD	0024	98WE0708	No change.
CO	Weld	DUKE ENERGY FIELD SERVICES - SURREY	0075	97WE0319	No change.
CO	Weld	DUKE ENERGY FIELD SERVICES - WEST SPINDL	0076	96WE140	No change.
CO	Weld	DUKE ENERGY FIELD SERVICES - WEST SPINDL	0076	96WE140	No change.
CO	Weld	DUKE ENERGY FIELD SERVICES -MEWBOURN	0090	01WE0495	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES -MEWBOURN	0090	01WE0496	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES -MEWBOURN	0090	01WE0497	Outside domain.
CO	Weld	DUKE ENERGY FIELD SERVICES, LLC - TAMPA	0115	00WE0503	Name change only.
CO	Weld	EASTMAN KODAK CO	0003	01WE0460	Change in VOCs only.
CO	Rio Blanco	ELAM CONST INC DAVENPORT PIT	0050	91RB043F	Change in ownership only.
CO	Weld	ENCANA GATERHERING SERVICES (USA) INC.	0319	02WE0927	Outside domain.
CO	Weld	ENCANA OIL & GAS (USA) INC. - ARISTOCRAT	0127	85WE384-1	Change in ownership only.
CO	Weld	ENCANA OIL & GAS (USA) INC. - ARISTOCRAT	0127	85WE384-1	Name change only.
CO	Weld	ENCANA OIL & GAS (USA) INC. - ARISTOCRAT	0127	85WE384-4	Name change only.
CO	Weld	ENCANA OIL & GAS (USA) INC. - ARISTOCRAT	0127	01WE0785	Outside domain.
CO	Weld	ENCANA OIL & GAS (USA) INC. - ARISTOCRAT	0127	85WE384-4	Outside domain.
CO	Weld	ENCANA OIL & GAS (USA) INC. - ARISTOCRAT	0127	03WE0692	Outside domain.
CO	Weld	ENCANA OIL & GAS (USA) INC. - FREDERICK	0151	98WE0452	Change in ownership only.
CO	Weld	ENCANA OIL & GAS (USA) INC. - FREDERICK	0151	98WE0452	Name change only.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Weld	ENCANA OIL & GAS (USA) INC. - FREDERICK	0151	98WE0453	No change.
CO	Moffat	ENCANA OIL & GAS (USA), INC -SAND HILLS	0148	96MF892.CN	Cancelled.
CO	Moffat	ENCANA OIL & GAS (USA), INC -SAND HILLS	0148	99MF0797	No change.
CO	Weld	ENCANA OIL & GAS (USA), INC.	1351	02WE0351	Outside domain.
CO	Weld	ENCANA OIL & GAS (USA), INC.	1351	02WE0352	Outside domain.
CO	Rio Blanco	ENCANA OIL & GAS (USA), INC. - BUCKSKIN	0152	00RB0201.CN	Cancelled.
CO	Rio Blanco	ENCANA OIL & GAS (USA), INC. - BUCKSKIN	0152	01RB0927.CN	Cancelled.
CO	Rio Blanco	ENCANA OIL & GAS (USA), INC. - BUCKSKIN	0152	02RB0620.CN	Cancelled.
CO	Rio Blanco	ENCANA OIL & GAS (USA), INC. - BUCKSKIN	0152	02RB0912	Outside domain.
CO	Rio Blanco	ENCANA OIL & GAS (USA), INC. - BUCKSKIN	0169	02RB0113	Outside domain.
CO	Moffat	ENSIGN OPERATING COMPANY	0112	95MF025	Operating prior to Jan 1, 2001.
CO	Weld	ENVIROCYCLE, LLC.CN	0565	99WE0738.CN	Cancelled.
CO	Morgan	EXCEL CORP	0024	99MR0691	Operating prior to Jan 1, 2001.
CO	Larimer	GENESIS FIXTURES, INC.	0351	99LR0766	No change.
CO	Larimer	GENESIS FIXTURES, INC.	0351	99LR0766	Outside domain.
CO	Larimer	GENESIS INNOVATIONS INC	0275	94LR249	Outside domain.
CO	Larimer	GOES FUNERAL CARE & CREMATORY	0387	02LR0101	Increase < 1 TPY.
CO	Boulder	GOLDEN CONCRETE DBA AGGREGATE INDUSTRIE;	0579	00BO0084.CN	Cancelled.
CO	Boulder	GOLDEN CONCRETE DBA AGGREGATE INDUSTRIE;	0579	00BO0085.CN	Cancelled.
CO	Boulder	GOLDEN CONCRETE DBA AGGREGATE INDUSTRIE;	0579	95BO290F	Outside domain.
CO	Boulder	GOLDEN CONCRETE DBA AGGREGATE INDUSTRIE;	0579	00BO0086	Increase < 1 TPY.
CO	Boulder	GOLDEN CONCRETE DBA AGGREGATE INDUSTRIE;	0579	00BO0161	Operating prior to Jan 1, 2001.
CO	Boulder	GOLDEN CONCRETE LLLP DBA AGGREGATE IND	0007	00BO0293	Outside domain.
CO	Weld	GOLDEN'S ANDESITE MINING CO.CN	0244	91WE569F.CN	Cancelled.
CO	Routt	GRAND SUMMIT RESORT HOTEL	0076	99RO0806	Operating prior to Jan 1, 2001.
CO	Larimer	GREAT WESTERN DIAMOND COMPANY	0155	92LR307F	Operating prior to Jan 1, 2001.
CO	Weld	HALL IRWIN CONST CO - BASELINE RESOURCES	0530	98WE0005	Outside domain.
CO	Weld	HALL-IRWIN CONST CO - FIRESTEIN PIT	0505	96WE923F	Outside domain.
CO	Weld	HALL-IRWIN CORPORATION - CENTENNIAL SITE	0589	01WE0064F	Outside domain.
CO	Routt	HAYDEN GULCH TERMINAL INC	0013	00RO0297F	Operating prior to Jan 1, 2001.
CO	Weld	HIGHLAND FEED & BEAN, INC.	0167	88WE296	Operating prior to Jan 1, 2001.
CO	Larimer	HOLCIM (US) INC - FORT COLLINS PLANT	0002	02LR0142	Outside domain.
CO	Larimer	HOLCIM (US) INC - FORT COLLINS PLANT	0002	02LR0143	Outside domain.
CO	Adams	ICS - CO, LLC	0785	93AD387	No change.
CO	Boulder	INTERNATIONAL BUSINESS MACHINES (IBM)	0006	00BO0630	Operating prior to Jan 1, 2001.
CO	Boulder	INTERNATIONAL BUSINESS MACHINES (IBM)	0006	95BO557	Operating prior to Jan 1, 2001.
CO	Boulder	INTERNATIONAL BUSINESS MACHINES (IBM)	0006	98BO0212.XP	Permit exempt.
CO	Boulder	INTERNATIONAL BUSINESS MACHINES (IBM)	0006	94BO366	Outside domain.
CO	Larimer	ITT INDUSTRIES	0348	99LR0640	No change.
CO	Larimer	JAKE KAUFFMAN & SONS, INC.-WAGNER PIT #3	0354	99LR0926F	Increase < 1 TPY.
CO	Moffat	JOURNEY OPERATING LLC	0152	97MF0493	Change in ownership only.
CO	Moffat	JOURNEY OPERATING, LLC - SANDHILLS LEASE	0143	97MF0619.CN	Cancelled.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Weld	K J PROPERTIES, L.P. - OLSON PIT	4341	03WE0436F	Outside domain.
CO	Weld	KENNETH SCHELL & BILL KOBOBEL	0259	02WE0097 XA	Exempt from APEN.
CO	Weld	KERR-MCGEE - PLATTEVILLE CS	0552	99WE0175	Outside domain.
CO	Weld	KERR-MCGEE - PLATTEVILLE CS	0552	99WE0176	Outside domain.
CO	Weld	KERR-MCGEE FREDERICK CS	0184	03WE0064	Outside domain.
CO	Weld	KERR-MCGEE FT LUPTON COMPRESSOR STATION	0057	01WE0370	No change.
CO	Weld	KERR-MCGEE ROCKY MOUNTAIN CORP. -FT. LUP	0057	00WE0581	Operating prior to Jan 1, 2001.
CO	Weld	KERR-MCGEE ROCKY MOUNTAIN CORP. -FT. LUP	0057	00WE0582	Operating prior to Jan 1, 2001.
CO	Weld	KERR-MCGEE ROCKY MOUNTAIN CORP. -FT. LUP	0057	01WE0763	Reduction at a PSD minor source.
CO	Weld	KERR-MCGEE ROCKY MOUNTAIN CORP. -FT. LUP	0057	01WE0370	Outside domain.
CO	Weld	KERR-MCGEE ROCKY MOUNTAIN CORP. -FT. LUP	0057	01WE0764	Outside domain.
CO	Weld	KERR-MCGEE ROCKY MOUNTAIN CORP. -FT. LUP	0057	97WE0180	Outside domain.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	99WE0177.CN	Cancelled.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	99WE0178	Increase < 1 TPY.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	99WE0175	No change.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	99WE0176	No change.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	01WE0399	Outside domain.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	01WE0400	Outside domain.
CO	Weld	KERR-MCGEE ROCKY MOUNTINA CORP.-PLATTEVI	0552	02WE0126	Outside domain.
CO	Weld	KMIGT - ROCKPORT	0523	02WE0985	Outside domain.
CO	Weld	KMIGT - ROCKPORT	0523	97WE0662	Outside domain.
CO	Moffat	KOCH EXPLORATION CO LLC - WALKER 12-2	0177	03MF0132.CN	Cancelled.
CO	Moffat	KOCH EXPLORATION CO LLC - WALKER 12-4	0178	03MF0133.CN	Cancelled.
CO	Moffat	KOCH EXPLORATION CO LLC - WALKER 12-5	0168	02MF0371	Change in ownership only.
CO	Moffat	KOCH EXPLORATION CO LLC - WALKER 3-1	0169	02MF0686	Outside domain.
CO	Weld	L.G. EVERIST, INC. - FORT LUPTON MINE	0574	00WE0441F	Outside domain.
CO	Boulder	LAFARGE WEST, INC.	0103	84BO174	Outside domain.
CO	Larimer	LAFARGE WEST, INC.	0320	10LR555	Increase < 1 TPY.
CO	Boulder	LAFARGE WEST, INC.	0004	97BO0546F	No change.
CO	Boulder	LAFARGE WEST, INC.	004b	12BO326	No change.
CO	Boulder	LAFARGE WEST, INC.	004a	12BO326	Outside domain.
CO	Weld	LAFARGE WEST, INC. - 35TH AVE PLANT	0426	11WE922F	No change.
CO	Weld	LAFARGE WEST, INC. - 35TH AVE PLANT	0426	11WE922F	Reduction at a PSD minor source.
CO	Weld	LAFARGE WEST, INC. - 35TH AVE PLANT	0426	97WE0029	Reduction at a PSD minor source.
CO	Weld	LAFARGE WEST, INC. - 35TH AVE PLANT	0426	98WE0529	Outside domain.
CO	Rio Blanco	LAFARGE WEST, INC. - BLAIR MESA MINE	0116	96RB890F	Name change.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548	03WE0638F	Outside domain.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548	01WE0676F	Outside domain.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548a	00WE0156F	Outside domain.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548	01WE0264	Increase < 1 TPY.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548	01WE0265	Increase < 1 TPY.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548	01WE0744	Increase < 1 TPY.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548	01WE0707	No change.
CO	Weld	LAFARGE WEST, INC. - COTTONWOOD/SHAW PIT	0548b	00WE0156F	No change.
CO	Larimer	LAFARGE WEST, INC. - EAST RIGDEN PIT	0159	12LR186F	No change.
CO	Larimer	LAFARGE WEST, INC. - EAST RIGDEN PIT	0159	12LR187	No change.
CO	Larimer	LAFARGE WEST, INC. - EAST RIGDEN PIT	0159	99LR0947F	No change.
CO	Weld	LAFARGE WEST, INC. - FT LUPTON PIT	0539	98WE0489F	No change.
CO	Weld	LAFARGE WEST, INC. - GREELEY WEST PIT	0013	97WE0138F	No change.
CO	Weld	LAFARGE WEST, INC. - HAMM PIT	0236	98WE0277.CN	Cancelled.
CO	Weld	LAFARGE WEST, INC. - HAMM PIT	0236	90WE450F	Outside domain.
CO	Weld	LAFARGE WEST, INC. - HAMM PIT	0236	98WE0276	Increase < 1 TPY.
CO	Weld	LAFARGE WEST, INC. - HEATON PIT	0553	99WE0275F	Outside domain.
CO	Larimer	LAFARGE WEST, INC. - HOME OFFICE	0128	00LR0720F.CN	Cancelled.
CO	Larimer	LAFARGE WEST, INC. - HOME OFFICE	0128	91LR070F.CN	Cancelled.
CO	Larimer	LAFARGE WEST, INC. - HOME OFFICE	0128	02LR0581F	Outside domain.
CO	Larimer	LAFARGE WEST, INC. - HOME OFFICE	0128	03LR0607	No change.
CO	Larimer	LAFARGE WEST, INC. - KYGER PIT	0376	99LR0421F	Outside domain.
CO	Larimer	LAFARGE WEST, INC. - LOVELAND PIT	0114	12LR522F	No change.
CO	Boulder	LAFARGE WEST, INC. - LYONS PIT	0314	87BO288F	Reduction at a PSD minor source.
CO	Weld	LAFARGE WEST, INC. - NELSON PIT	1358	02WE1026F	Outside domain.
CO	Weld	LAFARGE WEST, INC. - RIVERBEND PIT	1328	01WE0956F	Decrease < 1 tpy.
CO	Weld	LAFARGE WEST, INC. - RIVERBEND PIT	1328	01WE0956F	Outside domain.
CO	Routt	LAFARGE WEST, INC. - STEAMBOAT NORTH PIT	0015	98RO0526.XP	Permit exempt.
CO	Routt	LAFARGE WEST, INC. - STEAMBOAT NORTH PIT	0015	02RO0576.GF	Permit grandfathered.
CO	Routt	LAFARGE WEST, INC. - STEAMBOAT SOUTH PIT	0024	87RO030F	Change in ownership only.
CO	Weld	LAFARGE WEST, INC. - STONEHAM PIT	1354	02WE0566F.XP	Permit exempt.
CO	Weld	LAFARGE WEST, INC. - STROMQUIST	0095	88WE045	No change.
CO	Larimer	LAFARGE WEST, INC. - THREE BELLS PIT	0260	97LR0632F	No change.
CO	Boulder	LAFARGE WEST, INC. - VALMONT PLANT	0349	12BO218	No change.
CO	Larimer	LARIMER COUNTY LANDFILL	0381	01LR0634	Outside domain.
CO	Morgan	LEPRINO FOODS_COMPANY	0044	97MR0499	Reduction at a PSD minor source.
CO	Morgan	LEPRINO FOODS_COMPANY	0044	99MR0426	Outside domain.
CO	Boulder	LEXMARK INTL INC	0005	96BO251	Increase < 1 TPY.
CO	Boulder	LEXMARK INTL INC	0005	96BO251	No change.
CO	Weld	LG EVERIST, INC.	1333	01WE1011F	Outside domain.
CO	Weld	LOVELAND INDUSTRIES	0398	90WE473-1.CN	Cancelled.
CO	Boulder	LOVELAND READY MIX	0372	00LR0744F	Operating prior to Jan 1, 2001.
CO	Weld	LOVELAND READY MIX - GREEN/CROISSANT PIT	1329	01WE0820F	Outside domain.
CO	Larimer	LOVELAND READY MIX CONC - SEE 1231329	0383	01WE0820F	No change.
CO	Larimer	LOVELAND READY MIX CONC - SEE 1231329	0383	01WE0820F	Permited under another permit.
CO	Weld	LOVELAND READY MIX CONCRETE	0566	99WE0570F.CN	Cancelled.
CO	Larimer	LOVELAND READY MIX CONCRETE INC	0085	12LR201	Outside domain.
CO	Larimer	LOVELAND READY MIX CONCRETE INC	0085	01LR0374	Increase < 1 TPY.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Weld	MAGPIE OPERATING INC.	0669	01WE0061	Outside domain.
CO	Weld	MAGPIE OPERATING INC.	0669	01WE0712	Outside domain.
CO	Morgan	MANCHIEF POWER COMPANY LLC	0072	99MR0169	No change.
CO	Larimer	MJR COMPANY	0366	00LR0365F.CN	Cancelled.
CO	Larimer	MJR COMPANY	0367	00LR0366F.CN	Cancelled.
CO	Moffat	MOFFAT COUNTY LANDFILL	0058	83MF249F	Operating prior to Jan 1, 2001.
CO	Weld	MONFORT FINACE COMPANY, INC. - GILCREST	0060	99WE0736	Outside domain.
CO	Weld	MONFORT FINANCE COMPANY, INC. - KUNER	0009	99WE0498	No change.
CO	Grand	MOUNTAIN PARK CONCRETE INC	0040	02GR0138	Increase < 1 TPY.
CO	Grand	MOUNTAIN PARK CONCRETE INC	0018	91GR165	Reduction at a PSD minor source.
CO	Moffat	NANCE PETROLEUM CORP - BLUE GRAVEL FACIL	0108	95MF004-2	Change in ownership only.
CO	Larimer	NATIONAL WILDLIFE RESEARCH CENTER	0242	94LR088	Operating prior to Jan 1, 2001.
CO	Larimer	NEW BELGIUM BREWING COMPANY, INC.	0390	02LR0762	Outside domain.
CO	Weld	NICHOLS ALUMINUM - GOLDEN	0089	03WE0032	Outside domain.
CO	Weld	NORTHERN CO MEDICAL CTR	0055	96WE218	Operating prior to Jan 1, 2001.
CO	Moffat	NORTHERN LIGHTS PET CREMATORY	0165	02MF0174	Increase < 1 TPY.
CO	WELD	OWENS BROTHERS CONCRETE CO - DEL CAMINO	1352	02WE0454F	Outside domain.
CO	Weld	OWENS BROTHERS CONCRETE CO - DEL CAMINO	1352	02WE0454	Outside domain.
CO	Larimer	PETE LIEN & SONS OWL CANYON COMPLEX	0003	11LR145	Increase < 1 TPY.
CO	Larimer	PETE LIEN & SONS OWL CANYON COMPLEX	0003	97LR0755	Increase < 1 TPY.
CO	Larimer	PETE LIEN & SONS OWL CANYON COMPLEX	0003	97LR0753	No change.
CO	Larimer	PETE LIEN & SONS OWL CANYON COMPLEX	0003	97LR0756	Outside domain.
CO	Larimer	PETE LIEN & SONS OWL CANYON COMPLEX	0003	97LR0753	Outside domain.
CO	Larimer	PETE LIEN & SONS DBA COLO LIEN - MONROE	0323	97LR0353F	No change.
CO	Larimer	PIONEER SAND CO	0368	00LR0646F.CN	Cancelled.
CO	Weld	PLATTE CHEMICAL CO	0036	87WE026-1.CN	Cancelled.
CO	Weld	PLATTE CHEMICAL CO	0036	87WE026-4.CN	Cancelled.
CO	Weld	PLATTE CHEMICAL CO	0036	01WE0472.XP	Permit exempt.
CO	Larimer	PLATTE RIVER POWER AUTHORITY - RAWHIDE	0053	01LR0115.CN	Cancelled.
CO	Larimer	PLATTE RIVER POWER AUTHORITY - RAWHIDE	0053	01LR0291.CN	Cancelled.
CO	Larimer	PLATTE RIVER POWER AUTHORITY - RAWHIDE	0053	00LR0173	Outside domain.
CO	Larimer	PLATTE RIVER POWER AUTHORITY - RAWHIDE	0053	01LR0056	Outside domain.
CO	Larimer	POUDRE VALLEY HOSP	0032	94LR191	No change.
CO	Larimer	PRECIOUS MEMORIES PET CEMETERY	0096	00LR0742	Increase < 1 TPY.
CO	Larimer	PRECIOUS MEMORIES PET CEMETERY	0096	02LR0508	Increase < 1 TPY.
CO	Routt	PRECISION EXCAVATING, INC.	0079	02RO0354.CN	Cancelled.
CO	Boulder	PUBLIC SERVICE CO - VALMONT	0001	00BO0814	Increase < 1 TPY.
CO	Boulder	PUBLIC SERVICE CO - VALMONT	0001	00BO0815	Increase < 1 TPY.
CO	Boulder	PUBLIC SERVICE CO - VALMONT	0001	00BO0816	Increase < 1 TPY.
CO	Boulder	PUBLIC SERVICE CO - VALMONT	0001	00BO0817	Increase < 1 TPY.
CO	Boulder	PUBLIC SERVICE CO - VALMONT	0001	99BO0474	No change.
CO	Boulder	PUBLIC SERVICE CO - VALMONT	0001	00BO0818	Outside domain.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Weld	PUBLIC SERVICE CO FORT SAINT VRAIN PLT	0023	99WE0762	No change.
CO	Routt	PUBLIC SERVICE CO HAYDEN PLT	0001	98RO0374	Operating prior to Jan 1, 2001.
CO	Routt	PUBLIC SERVICE CO HAYDEN PLT	0001	98RO0375	Operating prior to Jan 1, 2001.
CO	Routt	PUBLIC SERVICE CO HAYDEN PLT	0001	98RO0376	Operating prior to Jan 1, 2001.
CO	Rio Blanco	PUBLIC SERVICE CO INDIAN VALLEY STA	0056	99RB0389.CN	Cancelled.
CO	Morgan	PUBLIC SERVICE CO PAWNEE PLT	0011	01MR0683	Outside domain.
CO	Weld	PUBLIC SERVICE CO YOSEMITE STATION	0141	87WE006-1	Operating prior to Jan 1, 2001.
CO	Weld	PUBLIC SERVICE CO YOSEMITE STATION	0141	87WE006-2	Operating prior to Jan 1, 2001.
CO	Weld	PUBLIC SERVICE CO YOSEMITE STATION	0141	95WE461	Operating prior to Jan 1, 2001.
CO	Weld	PUBLIC SERVICE CO YOSEMITE STATION	0141	96WE379	Operating prior to Jan 1, 2001.
CO	Weld	PUBLIC SERVICE CO YOSEMITE STATION	0141	00WE0804	Outside domain.
CO	Weld	PUBLIC SERVICE CO YOSEMITE STATION	0141	01WE0929	Outside domain.
CO	Larimer	QUEBECOR PRINTING LOVELAND INC	0197	93LR0573	Outside domain.
CO	Moffat	QUESTAR EXPLORATION & PROD-JACKS DRAW 16	0085	93MF1655-1XP	Permit rescinded.
CO	Moffat	QUESTAR GAS MANAGEMENT - AVALANCHE	0132	97MF0336	Operating prior to Jan 1, 2001.
CO	Moffat	QUESTAR GAS MANAGEMENT CO. - LION C.S.	0161	01MF0787	No change.
CO	Moffat	QUESTAR GAS MGMT CO W HIAWATHA COMP STA	0067	01MF0040.CN	Cancelled.
CO	Moffat	QUESTAR GAS MGMT CO W HIAWATHA COMP STA	0067	91MF625	No change.
CO	Jackson	R & G OIL COMPANY, LLC - LONE PINE FIELD	0018	99JA0914.CN	Cancelled.
CO	Larimer	REAGER FUNERAL HOME AND CREMATORY	0068	97LR0095	No change.
CO	Weld	RITCHIE BROS. AUCTIONEERS (AMERICA), INC	0558	99WE0429	No change.
CO	Larimer	ROCKY MOUNTAIN CULTURED MARBLE INC	0286	94LR634	Increase < 1 TPY.
CO	Weld	ROCKY MOUNTAIN MILLING, LLC	0194	90WE022	No change.
CO	Weld	ROCKY MOUNTAIN MILLING, LLC	0194	90WE022	Reduction at a PSD minor source.
CO	Moffat	ROCKY MTN NAT GAS - BLUE GRAVEL	0125	97MF0648.CN	Cancelled.
CO	Moffat	ROCKY MTN NAT GAS - BLUE GRAVEL	0125	97MF0647	Change in ownership only.
CO	Rio Blanco	ROCKY MTN NATURAL GAS CO PICEANCE	0037	88RB149	Operating prior to Jan 1, 2001.
CO	Rio Blanco	ROCKY MTN NATURAL GAS CO PICEANCE	0037	92RB1423-2	Operating prior to Jan 1, 2001.
CO	Rio Blanco	SAM F. LOVE	0144	99RB0753F.CN	Cancelled.
CO	Weld	SCHULTE INVESTMENTS (WAS ELSRO INC)	0150	87WE177	No change.
CO	Rio Blanco	SOUTH-TEX TREATERS, INC. - MEEKER PLANT	0163	01RB0220.CN	Cancelled.
CO	Rio Blanco	SOUTH-TEX TREATERS, INC. - MEEKER PLANT	0163	01RB0221.CN	Cancelled.
CO	Rio Blanco	SOUTH-TEX TREATERS, INC. - MEEKER PLANT	0163	02RB0217	No change.
CO	Weld	SOUTHWESTERN PRODUCTION - GILCREST GAS	0098	00WE0777	Outside domain.
CO	Weld	SOUTHWESTERN PRODUCTION - GILCREST GAS	0098	03WE0831	Outside domain.
CO	Larimer	STAINLESS DESIGNS INC.CN	0334	98LR0133.CN	Cancelled.
CO	Weld	STAR READY MIX	4216	03WE0258	Outside domain.
CO	Boulder	SYNGENTA SEEDS, INC.	0582	95BO525	No change.
CO	Routt	TRANS COLO CONCRETE	0071	90RO192	Increase < 1 TPY.
CO	Moffat	TRUE OIL LLC - CADDIS FEDERAL 33-9	0157	00MF0474	No change.
CO	Boulder	TUSCARORA INC	1247	02BO0928	Change in VOC only.
CO	Boulder	TUSCARORA INC	1247	02BO0928	Change in VOCs only.

Table C.2
State-Permitted Inventory - CDPHE APCD Permitted Sources - Table of Excluded Sources

State	County	Facility Name	Site ID	Permit Number	Reason for Exclusion
CO	Routt	TWENTYMILE COAL CO	0009	93RO1204	Operating prior to Jan 1, 2001.
CO	Routt	TWENTYMILE COAL CO.- FOIDEL CREEK	0009	93RO1204	Operating prior to Jan 1, 2001.
CO	Weld	VARRA COMPANIES	0180	02WE0259F	Outside domain.
CO	Weld	VARRA COMPANIES	0180	01WE0946	Increase < 1 TPY.
CO	Weld	VARRA COMPANIES INC	0239	12WE774-F	Operating prior to Jan 1, 2001.
CO	Weld	VARRA COMPANIES, INC.	0544	98WE0746	Outside domain.
CO	Weld	WALSH PRODUCTION INC - LILLI GAS PROC.	0468	98WE0310	Operating prior to Jan 1, 2001.
CO	Weld	WALSH PRODUCTION INC - LILLI GAS PROC.	0468	98WE0311	Operating prior to Jan 1, 2001.
CO	Weld	WALSH PRODUCTION INC - LILLI GAS PROC.	0468	01WE0014	Outside domain.
CO	Morgan	WALSH PRODUCTION, INC.	0069	97MR0706.CN	Cancelled.
CO	Morgan	WALSH PRODUCTION, INC.	0069	97MR0705	Change in ownership only.
CO	Weld	WASTE SERVICES - BUFFALO RIDGE LANDFILL	0448	93WE113	No change.
CO	Weld	WELD COUNTY ROAD & BRIDGE - FISCUS PIT	1344	02WE0303F	Outside domain.
CO	Weld	WELD COUNTY ROAD & BRIDGE - LIND PIT	1336	02WE0070F	Outside domain.
CO	Moffat	WESTERN GAS RESOURCES INC SAND WASH STA	0153	97MF0649	Reduction at a PSD minor source.
CO	Weld	WESTERN SUGAR CO	0002	02WE0621	Increase < 1 TPY.
CO	Boulder	WOOD RECOVERY SYSTEMS INC	0565	94BO479	Outside domain.

Table C.3
State-Permitted Source Inventory - IDEQ Permitted Sources - Table of Included Sources

Facility Name	Permit	Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Brigham Young University Idaho	65	11	Madison	19.507	273.150	1.067	16.015	30.22	85.85	10.12	10.12
Idaho Pacific Corp.	51	13	Jefferson	10.668	273.150	0.957	13.934	38.62	6.80	2.98	2.98
Northwest Pipeline Corp.	7	4	Bear Lake	9.144	273.150	1.119	31.885	25.89	1.02	0.52	0.52
							Total Idaho State-Permitted Source Emissions	94.7	93.7	13.6	13.6

Table C.4
State-Permitted Inventory - IDEQ Permitted Sources - Table of Excluded Sources

State	County	Permit	Number	Facility	Reason for Exclusion
ID	CARIBOU	29	32	ALEXANDER COMPANY	Operating prior to Jan 1, 2001.
ID	MADISON	65	12	ARTCO	Outside domain.
ID	BANNOCK	5	4	ASH GROVE CEMENT COMPANY	Outside domain.
ID	BINGHAM	11	20	BASIC AMERICAN FOODS	Reduction at a PSD minor source.
ID	BINGHAM	11	20	BASIC AMERICAN FOODS	Outside domain.
ID	BINGHAM	11	20	BASIC AMERICAN FOODS	Outside domain.
ID	BINGHAM	11	20	BASIC AMERICAN FOODS	Outside domain.
ID	BONNEVILLE	19	28	BUSCH AG RESOURCES INC	No change in emissions.
ID	BONNEVILLE	19	28	BUSCH AG RESOURCES INC	Reduction at a PSD minor source.
ID	BONNEVILLE	19	25	BUSCH AG RESOURCES INC - MALT	Outside domain.
ID	CARIBOU	29	28	CHEMICAL LIME COMPANY	Operating prior to Jan 1, 2001.
ID	POWER	77	23	CHEVRON PIPELINE CO/NW TERMINA	No criteria pollutants.
ID	BINGHAM	11	22	DEPARTMENT OF ENERGY-INEEL	Administrative change.
ID	BINGHAM	11	22	DEPARTMENT OF ENERGY-INEEL	Emissions below permit thresholds.
ID	BINGHAM	11	22	DEPARTMENT OF ENERGY-INEEL	No change in emissions.
ID	BINGHAM	11	22	DEPARTMENT OF ENERGY-INEEL	Operating prior to Jan 1, 2001.
ID	BINGHAM	11	22	DEPARTMENT OF ENERGY-INEEL	Operating prior to Jan 1, 2001.
ID	BINGHAM	11	28	GENERAL MILLS OPERATIONS INC	Operating prior to Jan 1, 2001.
ID	BINGHAM	11	28	GENERAL MILLS OPERATIONS INC	Outside domain.
ID	ONEIDA	71	3	HESS PUMICE PRODUCTS INC	Outside domain.
ID	BINGHAM	11	23	IDAHO ASPHALT SUPPLY INC	Outside domain.
ID	BANNOCK	5	29	IDAHO STATE UNIVERSITY	Operating prior to Jan 1, 2001.
ID	BONNEVILLE	19	19	IDAHO TRAVERTINE CORP	Operating prior to Jan 1, 2001.
ID	BINGHAM	11	29	J R SIMPLOT COMPANY FOOD GROUP	Operating prior to Jan 1, 2001.
ID	POWER	77	6	J R SIMPLOT COMPANY-DON SIDING	Administrative change.
ID	POWER	77	6	J R SIMPLOT COMPANY-DON SIDING	Operating prior to Jan 1, 2001.
ID	POWER	77	6	J R SIMPLOT COMPANY-DON SIDING	Operating prior to Jan 1, 2001.
ID	POWER	77	6	J R SIMPLOT COMPANY-DON SIDING	Outside domain.
ID	POWER	77	6	J R SIMPLOT COMPANY-DON SIDING	Outside domain.
ID	CARIBOU	29	2	KERR-MCGEE CHEMICAL LLC	No criteria pollutants.
ID	CARIBOU	29	2	KERR-MCGEE CHEMICAL LLC	No criteria pollutants.
ID	CARIBOU	29	2	KERR-MCGEE CHEMICAL LLC	No criteria pollutants.
ID	CARIBOU	29	2	KERR-MCGEE CHEMICAL LLC	Operating prior to Jan 1, 2001.
ID	CARIBOU	29	2	KERR-MCGEE CHEMICAL LLC	Operating prior to Jan 1, 2001.
ID	BANNOCK	5	36	KIMBERLY-CLARK/BALLARD MEDICAL	Operating prior to Jan 1, 2001.
ID	BANNOCK	5	28	NORTHWEST PIPELINE CORP	Administrative change.
ID	BANNOCK	5	28	NORTHWEST PIPELINE CORP	Reduction at a PSD minor source.
ID	BANNOCK	5	28	NORTHWEST PIPELINE CORP	Outside domain.

Table C.4

State-Permitted Inventory - IDEQ Permitted Sources - Table of Excluded Sources

State	County	Permit	Number	Facility	Reason for Exclusion
ID	BANNOCK	5	28	NORTHWEST PIPELINE CORP	Outside domain.
ID	BANNOCK	5	28	NORTHWEST PIPELINE CORP	Outside domain.
ID	CARIBOU	29	3	NU-WEST (AGRIUM)	Operating prior to Jan 1, 2001.
ID	CARIBOU	29	3	NU-WEST (AGRIUM)	Operating prior to Jan 1, 2001.
ID	CARIBOU	29	3	NU-WEST (AGRIUM)	Operating prior to Jan 1, 2001.
ID	CARIBOU	29	1	P4 PRODUCTION LLC	No change in emissions.
ID	CARIBOU	29	1	P4 PRODUCTION LLC	Operating prior to Jan 1, 2001.
ID	BINGHAM	11	33	PENDLETON FLOUR MILLS LLC	Outside domain.
ID	BONNEVILLE	19	26	PENFORD PRODUCTS COMPANY	Reduction at a PSD minor source.
ID	BANNOCK	5	25	PROGRESS RAIL SERVICES CORP	Closed.
ID	JEFFERSON	51	16	SEB'S FEED AND SUPPLY	Operating prior to Jan 1, 2001.
ID	CARIBOU	29	33	SILICON INTERNATIONAL ORE LLC	Emissions < 1TPY.
ID	CARIBOU	29	33	SILICON INTERNATIONAL ORE LLC	Operating prior to Jan 1, 2001.
ID	CARIBOU	777	247	SMITH PAVING & CONSTRUCTION	Operating prior to Jan 1, 2001.
ID	BONNEVILLE	19	41	YELLOWSTONE PLASTICS INC	Operating prior to Jan 1, 2001.

Table C.5
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Included Sources

Company Name	Source ID	Source Name	Approval Order	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Citation Oil and Gas Corporation	10683	Pine View Gas Plant	20683003	12.80	422.00	1.07	0.11	128.98	0.02	0.28	0.28
El Paso Production Oil and Gas Company	12683		22683001	15.00	422.00	0.31	10.00	6.06	0.00	0.00	0.00
El Paso Production Oil and Gas Company	12685		22685001	11.77	450.54	0.82	9.51	3.25	0.00	0.00	0.00
El Paso Production Oil and Gas Company	12686		22686001	11.77	450.54	0.82	9.51	3.55	0.01	0.14	0.14
El Paso Production Oil and Gas Company	12687		22687001	11.77	450.54	0.82	9.51	4.39	0.00	0.00	0.00
El Paso Production Oil and Gas Company	12707		22707001	11.77	450.54	0.82	9.51	1.42	0.01	0.06	0.06
EnCana Oil & Gas (USA) Incorporated	12544	Quintanna Meter Station Dehydrator	2544003	9.05	509.82	0.76	12.50	24.40	0.00	0.00	0.00
Halliburton Energy Services	12100		20002	14.12	350.04	0.91	10.03	0.00	0.00	12.80	12.80
Petroglyph Operating Company Inc.	12904	Ute Tribal 33-09 Oil Production Plant	2904001	9.05	509.82	0.76	12.50	12.00	0.06	0.75	0.75
Questar Pipeline Company	11532	Kastler/Marushack Compressor Station	10164	14.02	422.00	0.60	10.00	1.34	0.00	0.10	0.10
Questar Pipeline Company	11532	Kastler/Marushack Compressor Station	20089	14.02	422.00	0.60	10.00	16.20	0.00	1.10	1.10
SF Phosphates Limited Company	10749	Vernal Phosphate Operations	30749002	26.04	337.32	1.25	14.02	(42.70)	(0.20)	(302.54)	(302.54)
W.W. Clyde and Company	12780		22780001	11.68	326.21	0.73	15.37	32.90	4.95	3.66	3.66
Total Idaho State-Permitted Source Emissions								191.8	4.8	(283.6)	(283.6)

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	"AUTOLIV ASP, Inc./Auto Safety"	10025	Ogden Generant Facility	010623	Outside domain.
Utah	A I B L Painting	12152	Sand Blasting and Painting Operation	2152003	Outside domain.
Utah	Abbott Salt Lake Operations	11644	Salt Lake Operations	020122	No change in emissions.
Utah	Air Liquide America	11825		020341	Outside domain.
Utah	Alcoa Extrusions	10847		020847008	No change in emissions.
Utah	Allen Gravel LLC	11995	Aggregate Processing	010556	Outside domain.
Utah	Alliant Techsystems Incorporated	10402	Bacchus Works	010406	No change in emissions.
Utah	Alliant Techsystems Incorporated	10402	Bacchus Works	010635	No change in emissions.
Utah	Alta Group	12321		022321002	Outside domain.
Utah	AMCOR Precast	12670		022670001	Outside domain.
Utah	American Skiing Company	12403	The Canyons	2403002	Outside domain.
Utah	American Welding and Tank Company	11598	West Jordan Manufacturing Facility	020065	No change in emissions.
Utah	Amoco Pipeline Company	10678	Pineview Station	0678001	Change in HAP/VOC only.
Utah	AMPAC	10279	Utah Operations	020004	No change in emissions.
Utah	AMPAC	10275	Utah Operations	020275006	Outside domain.
Utah	Anadarko Petroleum Corporation	12494	Helper State Central Production Facility	2494002	Outside domain.
Utah	Anadarko Petroleum Corporation	11168	Helper Station (prev. Castlegate)	1168006	Outside domain.
Utah	Ash Grove Cement Company	10303	Leamington Cement Plant	0303010	Outside domain.
Utah	Asphalt Materials Incorporated	11981	Bluffdale Sand Quarry	010759	No change in emissions.
Utah	Asphalt Materials Incorporated	11981	Bluffdale Sand Quarry	011981	No change in emissions.
Utah	Asphalt Materials Incorporated	11981	Bluffdale Sand Quarry	010196	Outside domain.
Utah	Asphalt Materials Incorporated	10343	Stansteel Asphalt Plant SN#413	010376	Outside domain.
Utah	ATK Composite Structures	10152	Plant 2	0152014	Outside domain.
Utah	ATK Composite Structures	10152	Plant 2	0152013	Outside domain.
Utah	ATK Thiokol Propulsion	10162	Clearfield Plant	0162011	Outside domain.
Utah	ATK Thiokol Propulsion	10009	Promontory Plant	010038	No change in emissions.
Utah	ATK Thiokol Propulsion	10009	Promontory Plant	0009099	Outside domain.
Utah	ATK Thiokol Propulsion	10009	Promontory Plant	0009100	Outside domain.
Utah	ATK Thiokol Propulsion	10009	Promontory Plant	0009101	Outside domain.
Utah	ATK Thiokol Propulsion	10009	Promontory Plant	0009098	Outside domain.
Utah	ATK Thiokol Propulsion	10009	Promontory Plant	010456	Outside domain.
Utah	AUTOLIV ASP	11460		021460006	Outside domain.
Utah	Autoliv ASP Inc. OEA Initiator Facility	10026	Airbag Initiator Manufacturing Facility	010845	No change in emissions.
Utah	Autoliv ASP Inc. OEA Initiator Facility	10026	Airbag Initiator Manufacturing Facility	0026007	Outside domain.
Utah	Autoliv ASP Inc./Auto Safety	11460	Brigham City Generant Facility	1460008	Outside domain.
Utah	AUTOLIV ASP, Inc./Auto Safety	11602	Ogden Module Facility	010340	Outside domain.
Utah	Autoliv North America	10025	Ogden Generant Facility	0025008	Outside domain.
Utah	Ballard Petroleum LLC	12543		020147	Reduction at a PSD minor source.
Utah	BDL Mill	12870	Building # 2	2870001	Outside domain.
Utah	BDL Mill Custom Woodworking	12586		020056	Increase < 1TPY.
Utah	Bill Barret Corporation	12948	Dry Canyon Compressor Station	2948001	Outside domain.
Utah	Bill Barret Corporation	12912	Peters Point Main C.S: Nine Mile Canyon	2912001	Outside domain.
Utah	Bill Barret Corporation	12929	Sage Brush Flat Compressor Station	2929001	Outside domain.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Blanchard Metals Processing Company	10591	Blanchard Metals Processing Co.	010972	No change in emissions.
Utah	Blanchard Metals Processing Company	10591	Blanchard Metals Processing Co.	0591006	Outside domain.
Utah	Boeing Company (The)	10425	Aircraft and Parts Manufacturing	010916	Outside domain.
Utah	Boeing Company (The)	10425	Aircraft and Parts Manufacturing	020068	Outside domain.
Utah	Bountiful City Light and Power	10120	Power Plant	020054	No change in emissions.
Utah	Bountiful City Light and Power	10120	Power Plant	010249	Outside domain.
Utah	Bourns, Inc.	10053		020336	No change in emissions.
Utah	Boyer Company (The)	12555	Gateway Shopping Plaza Blocks A&B	010693	Outside domain.
Utah	Bredero Price	12073		020203	Outside domain.
Utah	Brigham Sand and Gravel	10011		020011004	No change in emissions.
Utah	Brigham Sand/Gravel	10011	Brigham City Aggregate Plant	010201	Outside domain.
Utah	Brigham Young University	10790		020179	Outside domain.
Utah	Broken Arrow Construction	11729	Clive Plant	011012	Increase < 1TPY.
Utah	Broken Arrow Construction	11729		021729003	No change in emissions.
Utah	Brush Resources	10311		020267	No change in emissions.
Utah	Burdick Paving	11357		021357003	No change in emissions.
Utah	C. E. Butters Realty & Construction	11840		021840004	No change in emissions.
Utah	Cabinetec	12116		022116004	Outside domain.
Utah	Cache County Corporation - Road Dept.	12518	Cove Pit	010451	Outside domain.
Utah	Canyon Fuel Company	10665	Salina Coal Yard	020665004	No change in emissions.
Utah	Canyon Fuel Company	11634		021634003	Outside domain.
Utah	Canyon Fuel Company LLC	12928	Salina Coal Yard	2928001	Outside domain.
Utah	Canyon Fuel Company LLC	10665	SUFCO (Salina Canyon Coal Mine)	0665006	Outside domain.
Utah	Canyon Fuel Company LLC	10092		020092006	Outside domain.
Utah	Canyon Gas	10268		020268005	Outside domain.
Utah	Canyon Gas Resources	12413		020047	No change in emissions.
Utah	Canyon Gas Resources	10253		020244	No change in emissions.
Utah	Canyon Gas Resources	12413		020247	No change in emissions.
Utah	Canyon Gas Resources	12641		020225	Outside domain.
Utah	Cargill Animal Nutrition	10949	Cargill Incorporated - Feed Division	0949004	Outside domain.
Utah	Cargill Animal Nutrition	10949		020949003	Increase < 1TPY.
Utah	Central Utah Correctional Facility	10648	Gunnison Correctional Facility	0648002	Outside domain.
Utah	Central Valley Water	10414	Reclamation Facility	020414006	No change in emissions.
Utah	Central Valley Water	10414		020414005	No change in emissions.
Utah	Central Valley Water Reclamation Fac.	10414	Wastewater Treatment Plant	0414007	Outside domain.
Utah	Chemical Lime Company	10707	Grantsville Plant	010856	No change in emissions.
Utah	Chemical Lime Company	10707	Grantsville Plant	010574	Outside domain.
Utah	Chemical Lime Company	10707	Grantsville Plant	010717	Outside domain.
Utah	Cherrico Furniture Company	12238		022238002	Increase < 1TPY.
Utah	Chevron Product Company	10119		020313	No change in emissions.
Utah	Chevron Products	10119	SL Refinery	020119046	Outside domain.
Utah	Chevron Products Co - SL Refinery	10119	Salt Lake Refinery	010638	No change in emissions.
Utah	Christensen Construction & Gravel Inc.	12246	Concrete Processing Equipment	010147	No change in emissions.

Table C.6

State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Circle Four Farms	11440		020030	Outside domain.
Utah	Classic Cabinets Incorporated	10488	Cabinet Manufacturing Facility	010938	Increase < 1TPY.
Utah	Classic Cabinets Incorporated	10488	Cabinet Manufacturing Facility	020130	Increase < 1TPY.
Utah	Classic Cabinets Incorporated	10488	Cabinet Manufacturing Facility	020488006	No change in emissions.
Utah	Clipper Publishing	10130		020128	Outside domain.
Utah	Companion Systems Incorporated	10181	Fiberglass Manufacturing	010022	No change in emissions.
Utah	Compeq International Corporation	11743	Printed Circuit Board Manufacturing	010195	No change in emissions.
Utah	Compeq International Corporation	11743	Printed Circuit Board Manufacturing	010996	Outside domain.
Utah	Concrete Products of Utah	12742		022742001	Outside domain.
Utah	Condie Construction	12137		020012	No change in emissions.
Utah	Conoco Incorporated - SL Terminal	10133	Salt Lake Terminal Company	010028	Outside domain.
Utah	Consolidation Coal Company	10229		020229002	Outside domain.
Utah	Construction Products	10407		020407004	Reduction at a PSD minor source.
Utah	Construction Products Company	10513	Kearns Facility	010129	Outside domain.
Utah	Co-Op Mining Company	10240		020145	Outside domain.
Utah	Crown Asphalt Products	12145		020213	No change in emissions.
Utah	Crusher Rental and Sales Incorporated	11621		021621003	No change in emissions.
Utah	CSI Acquisition	10181	D.B.A. Companion Systems	020198	No change in emissions.
Utah	Custom Crushing Incorporated	12142		022142002	No change in emissions.
Utah	D.Q. Holdings	12519		022519003	No change in emissions.
Utah	DAW Technologies	11567		020150	No change in emissions.
Utah	Delta Equipment Industrial Systems Inc.	11199	Salt Lake Manufacturing Facility	1199003	Outside domain.
Utah	Department of the Air Force	10121		020121145	No change in emissions.
Utah	Department of the Army	12236	Deseret Chemical Depot	022236003	No change in emissions.
Utah	Department of the Army	11594	Tooele Army Depot	020291	Reduction at a PSD minor source.
Utah	Department of the Army	11594	Tooele Army Depot	021594021	Reduction at a PSD minor source.
Utah	Department of the Army	11594	Tooele Army Depot	020160	No change in emissions.
Utah	Department of the Army	11594	Tooele Army Depot	020236	No change in emissions.
Utah	Department of the Army	11594	Tooele Army Depot	021594020	No change in emissions.
Utah	Deseret Chemical Depot	11339	Deseret Chemical Depot (South Area)	010153	Reduction at a PSD minor source.
Utah	Deseret Chemical Depot	11339	Deseret Chemical Depot (South Area)	010908	Increase < 1TPY.
Utah	Deseret Chemical Depot	11339	Deseret Chemical Depot (South Area)	1339033	Outside domain.
Utah	Deseret Chemical Depot	11339	Deseret Chemical Depot (South Area)	010508	Outside domain.
Utah	Deseret Chemical Depot	11339	Deseret Chemical Depot (South Area)	010703	Outside domain.
Utah	Deseret Chemical Depot	11339	Deseret Chemical Depot (South Area)	010826	Outside domain.
Utah	Deseret Chemical Depot	11339	SCBTO-RM	020159	Increase < 1TPY.
Utah	Deseret Chemical Depot	11339	Tooele Chemical Agent Disposal Facility	021339029	Outside domain.
Utah	Desert Power L. P.	12519		022519004	Reduction at a PSD minor source.
Utah	Desert Power, L.L.C.	12519	Tooele County	011043	No change in emissions.
Utah	Detroit Diesel Remanufacturing Corp.	11829	Consolidated Maintenance Facility	1829006	Outside domain.
Utah	Dominion Exploration & Production	12474		020077	Outside domain.
Utah	Dominion Exploration & Production	12705		022705001	Outside domain.
Utah	Dominion Exploration & Production	12706		022706001	Outside domain.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	E.A. Miller Incorporated	10051		020051004	Increase < 1TPY.
Utah	Easton Technical Products	10365	Tubing Manufacturing Facility	010963	No change in emissions.
Utah	Easton Technical Products	10365		020365008	No change in emissions.
Utah	ECDC Environmental LC	10107	East Carbon Landfill	0107004	Outside domain.
Utah	El Paso Production	11186		021185007	No change in emissions.
Utah	El Paso Production Oil and Gas	12682		022682001	Increase < 1TPY.
Utah	El Paso Production Oil and Gas	12710		022710001	Increase < 1TPY.
Utah	Energy West Mining Company	10239		020239003	Outside domain.
Utah	Ensign-Bickford Company	10789	Trojan Explosives Manufacturing	010502	Outside domain.
Utah	FAK, LLC	12054		022054003	No change in emissions.
Utah	Fashion Cabinet Manufacturing Inc.	10482	Cabinet Manufacturing Facility	010157	Outside domain.
Utah	Fetzer's Incorporated	11211		021211003	Outside domain.
Utah	Firestone Building Products	10491	Foam Insulation Manufacturing Facility	010193	Increase < 1TPY.
Utah	Firestone Building Products	10491	Foam Insulation Manufacturing Facility	030491005	No change in emissions.
Utah	Flying J Incorporated	10122	Flying J Refinery (Big West Oil Co.)	020330	No change in emissions.
Utah	Flying J Incorporated	10122	Flying J Refinery (Big West Oil Co.)	0122027	Outside domain.
Utah	Flying J Incorporated	10122	Flying J Refinery (Big West Oil Co.)	0122-029	Outside domain.
Utah	Flying J Incorporated	10122		020120	No change in emissions.
Utah	Flying J Incorporated	10122		020221	No change in emissions.
Utah	Flying J Incorporated	10122		020122024	No change in emissions.
Utah	Foreland Refining	12145		020208	No change in emissions.
Utah	Fresenius Medical Care	10951	Ogden Dialysis Products Manufacturing	010370	Outside domain.
Utah	FUTURA Industries	10191	Freeport Center	020167	No change in emissions.
Utah	G & K Services Incorporated	11798	Industrial Laundry	1798004	Outside domain.
Utah	Geary Construction	10695	Wanship Pit	020695002	Outside domain.
Utah	Geary Construction Incorporated	10695	Wanship Pit	021106	Outside domain.
Utah	Geneva Nitrogen Inc.	10825	Geneva Nitrogen Plant	0825005	Outside domain.
Utah	Geneva Rock Products	10565	Point of the Mountain Facility	0565012	Outside domain.
Utah	Geneva Rock Products	10820		020083	Outside domain.
Utah	Geneva Steel	10796	Steel Manufacturing Facility	010031	No change in emissions.
Utah	George W. Johansen Construction Co	11703		021703004	Outside domain.
Utah	Gilbert Western	11086		020211	No change in emissions.
Utah	Gilbert Western	11067		020287	No change in emissions.
Utah	G-L Industries, Inc.	11792	Laminated Wood Beam Manufacturing	010746	Outside domain.
Utah	Global Coatings Incorporated	10880	Global Coatings Incorporated	010342	Outside domain.
Utah	Golden Eagle Refinery, Inc	10134		020134001	Increase < 1TPY.
Utah	Gordon C. Orton Construction Co. Inc.	12242	Aggregate Processing	010808	Increase < 1TPY.
Utah	Gordon C. Orton Construction Co. Inc.	12242	Aggregate Processing	010200	Outside domain.
Utah	Granite Construction	12272		022272004	No change in emissions.
Utah	Granite Construction Company	12272	West Haven Asphalt Plant	010993	No change in emissions.
Utah	Granite School District	10364		020066	Outside domain.
Utah	Graymont Western US	10313		020140	No change in emissions.
Utah	Graymont Western US Incorporated	10313	Cricket Mountain Plant	0313019	Outside domain.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Great Salt Lake Minerals Corporation	10917	Production Plant	010624	Outside domain.
Utah	Great Salt Lake Minerals Corporation	10917		020917018	No change in emissions.
Utah	Great Salt Lake Minerals Corporation	10917		020917019	No change in emissions.
Utah	Great Salt Lake Minerals Corporation	12439		022439001	Outside domain.
Utah	Hallmark Cabinet	10580	Hallmark Cabinet	010283	Increase < 1TPY.
Utah	Hallmark Moldings	11900		020078	Outside domain.
Utah	Harper Contracting	12432	"Aggregate Pit#24, Brown Canyon"	010564	Outside domain.
Utah	Harper Contracting	10570	Pit #14 - Point of the Mountain	010976	Increase < 1TPY.
Utah	Harper Contracting	11481	Pit #16 Parley's Canyon	011016	Outside domain.
Utah	Harper Contracting	11557	Pit #5 - Salt Lake County	010989	Outside domain.
Utah	Harper Contracting	12585	Pit#23 Near Manila	010992	Outside domain.
Utah	Harper Contracting	11051		020125	No change in emissions.
Utah	Harper Contracting	11797		021797002	No change in emissions.
Utah	Harper Contracting	10569		020569003	Outside domain.
Utah	Heber Light and Power	10884		020884005	No change in emissions.
Utah	Heber Light and Power Company	10884	Power Plant	0884007	Outside domain.
Utah	Hexcel Corporation	11386	Salt Lake Operations	010079	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010131	Increase < 1TPY.
Utah	Hill Air Force Base	10121	Main Base	010552	Increase < 1TPY.
Utah	Hill Air Force Base	10121	Main Base	010705	Increase < 1TPY.
Utah	Hill Air Force Base	10121	Main Base	010822	Increase < 1TPY.
Utah	Hill Air Force Base	10121	Main Base	000378	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010103	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010130	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010261	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010274	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010367	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	010981	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	011036	No change in emissions.
Utah	Hill Air Force Base	10121	Main Base	0121132	Outside domain.
Utah	Hill Air Force Base	10121	Main Base	0121162	Outside domain.
Utah	Hill Air Force Base	10121	Main Base	0121161	Outside domain.
Utah	Hill Air Force Base	10121	Main Base	0121157	Outside domain.
Utah	Hill Air Force Base	10121	Main Base	0121133	Outside domain.
Utah	Hill Air Force Base	10121	Main Base	0121154	Outside domain.
Utah	Hill Air Force Base	10121	Main Base	010106	Outside domain.
Utah	Hill Air Force Base	10121	OO-ALCM/EMC	020209	Increase < 1TPY.
Utah	Hill Air Force Base	10121	OO-ALCM/EMC	020210	No change in emissions.
Utah	Hill Air Force Base	10121	OO-ALCM/EMC	020286	Outside domain.
Utah	Hill Air Force Base	11284		021284011	No change in emissions.
Utah	Holcim (US) Inc.	10007	Devil's Slide Plant	010500	No change in emissions.
Utah	Holcim (US) Inc.	10007	Devil's Slide Plant	0007015	Outside domain.
Utah	Holcim (US) Inc.	10007	Devil's Slide Plant	010303	Outside domain.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Holcim (US) Incorporated	10007		020007012	No change in emissions.
Utah	Holcim (US) Incorporated	10007		020007013	Outside domain.
Utah	Holly Refining & Marketing Company	10123	Phillips Refinery	010039	No change in emissions.
Utah	Holly Refining & Marketing Company	10123	Phillips Refinery	010089	No change in emissions.
Utah	Holly Refining & Marketing Company	10123	Phillips Refinery	010811	No change in emissions.
Utah	Holly Refining & Marketing Company	10123	Phillips Refinery	020097	No change in emissions.
Utah	Holly Refining & Marketing Company	10123	Phillips Refinery	020109	No change in emissions.
Utah	Holly Refining & Marketing Company	10123	Phillips Refinery	010763	No change in emissions.
Utah	Honeywell International Incorporated	10146	Automotive Oil & Air Filters - Clearfield	010557	Outside domain.
Utah	Horizon Milling	10920		020920004	Increase < 1TPY.
Utah	Hoyt USA	12481	Archery Products Manufacturing	010973	No change in emissions.
Utah	Hoyt USA	12481	Archery Products Manufacturing	010536	Outside domain.
Utah	Hoyt USA	12481		022481002	No change in emissions.
Utah	Hudson Printing Company	10426		020009	No change in emissions.
Utah	Huish Detergents	10463		020463014	Increase < 1TPY.
Utah	Huish Detergents Incorporated	10463	Detergent Manufacturing	010868	Outside domain.
Utah	Hyrum City Power	12614		020079	Outside domain.
Utah	IBA S&I Incorporated	10435	Ethylene Oxide Commercial Sterilization	010980	No change in emissions.
Utah	IBA S&I Incorporated	10435	Ethylene Oxide Commercial Sterilization	0435011	Outside domain.
Utah	Indian Oil Company	10829		020829004	Outside domain.
Utah	Inland Constructors Incorporated	12741		022741001	No change in emissions.
Utah	Inland Production Company	11679		021679003	Outside domain.
Utah	Intermountain Health Care	12943	New McKay Dee Hospital in Ogden	2943001	Outside domain.
Utah	Intermountain Health Care	12505		020224	Outside domain.
Utah	Intermountain Health Care	12505		022505002	Outside domain.
Utah	Intermountain Power Service	10327		020049	Outside domain.
Utah	Intermountain Power Service Corporation	10327	Intermountain Generation Station	0327010	Outside domain.
Utah	Intermountain Power Service Corporation	10327	Intermountain Generation Station	0327009	Outside domain.
Utah	Interstate Brands West Corporation	12174		022174002	Outside domain.
Utah	J. R. Ready Mix	10002		020002002	Outside domain.
Utah	Jack B. Parson Companies	10721		020721002	Outside domain.
Utah	Jack B. Parson Company	12323		020105	Outside domain.
Utah	Jack B. Parsons Company	11572	Bauer Pit & Batch Plant	990683	Operating prior to Jan 1, 2001.
Utah	Jack B. Parsons Company	10071	Smithfield Cedarapids 29.013 Asphalt Hot Plant	010880	Outside domain.
Utah	Jack B. Parsons Company	10972	West Ogden Operations	010190	Outside domain.
Utah	Jack B. Parsons Company	10042		020006	No change in emissions.
Utah	John Kuhni Sons	12208		020084	Outside domain.
Utah	John Kuhni Sons Incorporated	12982	Levan Rendering Plant (relocated from Provo)	2982001	Outside domain.
Utah	Johnson Matthey Refining	10367		020143	Increase < 1TPY.
Utah	Kennecott Utah Copper	10571		020178	Increase < 1TPY.
Utah	Kennecott Utah Copper Corporation	10571	Mine & Copperton Concentrator	010862	No change in emissions.
Utah	Kennecott Utah Copper Corporation	10572	Power Plt/ Lab/ Tailings Impoundment	010816	No change in emissions.
Utah	Kennecott Utah Copper Corporation	10572	Power Plt/ Lab/ Tailings Impoundment	0572013	Outside domain.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Kern River Gas Transmission	12514		020126	Outside domain.
Utah	Kern River Gas Transmission	12514		020127	Outside domain.
Utah	Kern River Gas Transmission	12514		020129	Outside domain.
Utah	Kern River Gas Transmission	12514		020299	Outside domain.
Utah	Kern River Gas Transmission Company	12514	Elberta Compressor Station	010835	Increase < 1TPY.
Utah	Kern River Gas Transmission Company	12514	Elberta Compressor Station	010603	Outside domain.
Utah	Kern River Gas Transmission Company	12596	Salt Lake City Compressor Station	2596002	Outside domain.
Utah	Kimberly-Clark Worldwide Incorporated	10919	Kimberly-Clark - Ogden Plant	010871	Reduction at a PSD minor source.
Utah	Kimberly-Clark Worldwide Incorporated	10919	Kimberly-Clark - Ogden Plant	0919009	Outside domain.
Utah	Klabzuba Oil and Gas Inc	12656		022656001	Outside domain.
Utah	Koch Performance Asphalt Company	12469	Hot Asphalt Storage Terminal	010288	Outside domain.
Utah	L-3 Communications	12226		020250	No change in emissions.
Utah	Lafarge Southwest	11188		021188003	No change in emissions.
Utah	Lakeview Rock Products	10439	Gravel Pit	0439005	Outside domain.
Utah	La-Z-Boy Utah	10012	Furniture Manufacturing Plant	010869	Reduction at a PSD minor source.
Utah	La-Z-Boy Utah	10012	Furniture Manufacturing Plant	010015	No change in emissions.
Utah	La-Z-Boy Utah	10012	Furniture Manufacturing Plant	0012008	Outside domain.
Utah	LDS Church Printing Center	10449	Salt Lake Printing Center - LDS Church	0449007	Outside domain.
Utah	LDS Church Printing Center	10449		020449005	No change in emissions.
Utah	LeGrand Johnson Construction	10055		020055	Outside domain.
Utah	LeGrand Johnson Construction Company	10639	Moab site:asphalt plant/concrete batch	0639002	Outside domain.
Utah	Lifetime Products	11229	Basketball standards & picnic table manufacturer	010197	No change in emissions.
Utah	Lifetime Products	11229	Basketball standards & picnic table manufacturer	010436	No change in emissions.
Utah	Lifetime Products	11229		021229013	Increase < 1TPY.
Utah	Lifetime Products	11229		020290	No change in emissions.
Utah	Litton Guidance & Control Systems	10397	Litton Guidance & Control Systems	0397009	Outside domain.
Utah	Litton Guidance & Control Systems	10397		020397007	No change in emissions.
Utah	Lloyd H. Facer Trucking Inc.	12308	Wellsville Pit	010475	Outside domain.
Utah	Lodestar Energy	10086	White Oak	020052	Outside domain.
Utah	Lofthouse Foods Incorporated	12919	Bakery	2919001	Outside domain.
Utah	Longview Fibre Company	11789		021789004	Increase < 1TPY.
Utah	Maaco Auto Painting & Bodyworks	12854	MAACO Provo	2854001	Outside domain.
Utah	MACA Supply Company	11358	Foundry	1358004	Outside domain.
Utah	MACA Supply Company	11358		020088	No change in emissions.
Utah	MACA Supply Company	11358		021358002	No change in emissions.
Utah	MacLean Quality Composites	12732		022732001	Outside domain.
Utah	Magnesium Corporation of America	10716		020048	No change in emissions.
Utah	Malt-o-Meal Company	12132	Tremonton plant	2132003	Outside domain.
Utah	Materials Packaging Corporation	10380	Dry Mix Cement Plant	010065	Outside domain.
Utah	McNeil Brothers	12744		022744001	Outside domain.
Utah	Metz Baking Company	10369		020249	No change in emissions.
Utah	Moore Wallace North America	11904	Logan Plant	1904003	Outside domain.
Utah	Morton International/Morton Salt Div.	10726	Morton Salt	010251	No change in emissions.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Murray City Power Department	10348	Electrical Generation Plant	010126	Reduction at a PSD minor source.
Utah	Nestle USA Prepared Foods Division Inc.	10812	Prepared Foods Processing	0812005	Outside domain.
Utah	Nestle USA Prepared Foods Division Inc.	10812	Prepared Foods Processing	010960	Outside domain.
Utah	North Davis Cabinet Incorporated	10187	N. Davis Cabinet Manufacturing Facility	0187002	Outside domain.
Utah	Northeast Casualty Real Property	10736		020736010A	No change in emissions.
Utah	Northern Utah Manufacturing	10049		020378	Outside domain.
Utah	Novell Incorporated	12144		020146	Outside domain.
Utah	Nucor Steel	10008	Nucor Steel	010152	No change in emissions.
Utah	Nucor Steel	10008	Nucor Steel	010787	Outside domain.
Utah	Oldcastle Precast Incorporated	12670	Concrete Pre-Cast Products & Pipe Manufacturing	2670002	Outside domain.
Utah	Owens Corning	10033	Western Fiberglass - Salt Lake City Plant	010541	No change in emissions.
Utah	Owens Corning	10033	Western Fiberglass - Salt Lake City Plant	010987	Outside domain.
Utah	Owens Corning	10033		020033008	No change in emissions.
Utah	Pacific States Cast Iron Pipe Company	10794	Pipe Casting Plant	0794009	Outside domain.
Utah	Pacific States Cast Iron Pipe Company	10794		020794008	Outside domain.
Utah	PacifiCorp	12524	Currant Creek Power Plant	2524002	Outside domain.
Utah	PacifiCorp	10355	Gadsby Power Plant	010263	Reduction at a PSD minor source.
Utah	PacifiCorp	10355	Gadsby Power Plant	010250	Outside domain.
Utah	PacifiCorp	10238	Huntington Plant	020119	Outside domain.
Utah	PacifiCorp	10238	Huntington Power Plant	0238009	Outside domain.
Utah	PacifiCorp	10355		020067	No change in emissions.
Utah	PacifiCorp Environmental Services	10355		020204	Outside domain.
Utah	PacifiCorp Power	12495	West Valley	020282	Outside domain.
Utah	Pacificorp Power Marketing	12495	West Valley Power Plant	010440	Outside domain.
Utah	Pepperidge Farm Incorporated	11841	Commercial Bakery	010620	Outside domain.
Utah	Petersen Engineering	11794	Steel Fabrication	1794003	Outside domain.
Utah	Petersen Specialized Fabricators	12638		020020	No change in emissions.
Utah	Pioneer Oil	10972		020972002	Outside domain.
Utah	Primary Children's Medical Center	10461		020028	No change in emissions.
Utah	Provo City Power	10795	Power Plant	030795???	No change in emissions.
Utah	Provo City Power	10319		020319002	No change in emissions.
Utah	Publishers Press	10488		020130	Increase < 1TPY.
Utah	Questar Gas	10432		020432005	Reduction at a PSD minor source.
Utah	Questar Gas Management	10769		020769004	Outside domain.
Utah	Questar Pipeline Company	13000	Price Dew Point Plant	3000001	Outside domain.
Utah	Questar Regulated Services	11839		020005	Outside domain.
Utah	Qwest	11432	Standby Diesel Emergency Generators	1432006	Outside domain.
Utah	Rail Bearing Service	11246	Rail Road Wheel Bearing Refurbishing Plant	010807	Increase < 1TPY.
Utah	Railco Incorporated	10099		020099003	Outside domain.
Utah	Rayloc - Division of Genuine Parts Co.	10808	Auto Parts Remanufacturing	010709	Increase < 1TPY.
Utah	Recot, Inc. DBA FritoLay	11297	Salty Snack Plant	010743	No change in emissions.
Utah	Rees's Enterprise	11043		021043005	No change in emissions.
Utah	Rees's Enterprise	11067		021067003	No change in emissions.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Rees's Enterprise	11878		021878003	No change in emissions.
Utah	Reynolds Sand & Gravel	12981	Aggregate Production - WVC	2981001	Outside domain.
Utah	Rocky Mountain Pipeline System LLC	10677	Wahsatch Station	0677002	Change in HAP/VOC only.
Utah	Rocky Mountain Pipeline System LLC	10677	Wahsatch Station	0677001	Outside domain.
Utah	Rohm & Haas-Morton International	10726	Morton Salt Division	020726007	No change in emissions.
Utah	Rohm & Haas-Morton International	10726	Morton Salt Division	020726008	No change in emissions.
Utah	RT Manufacturing Incorporated	11867	RT Manufacturing - Orem Facility	010169	No change in emissions.
Utah	Safety-Kleen	10736	APTUS	020168	No change in emissions.
Utah	Safety-Kleen	10736	APTUS	020124	Outside domain.
Utah	Safety-Kleen	10736		020736010	Reduction at a PSD minor source.
Utah	Salt Lake City Department of Airports	10450	Salt Lake City International Airport	010710	Increase < 1TPY.
Utah	Salt Lake City Department of Airports	10450	Salt Lake City International Airport	010052	No change in emissions.
Utah	Salt Lake City Department of Airports	10450	Salt Lake City International Airport	0450013	Outside domain.
Utah	Salt Lake Community College	12279	Jordan Campus	010119	Outside domain.
Utah	Salt Lake County	10409	Welby Pit: Asphalt Plant/ Crusher/ Sand Plant	010308	Outside domain.
Utah	Salt Lake Department of Public Utilities	12724	Salt Lake City Water Reclamation Facility	022724001	Outside domain.
Utah	Schreiber Foods Inc.	12576	Logan Cheese Plant	2576002	Outside domain.
Utah	Sevier Power Company	12529	Power Plant	2529001	Outside domain.
Utah	Silver Eagle Refining	10124	Woods Cross Inc	020082	Reduction at a PSD minor source.
Utah	Skyview Excavation & Grading	11864	Morgan Rock Pit	010872	Outside domain.
Utah	Skywest Airlines	11674	Skywest Airlines at SLC Int'l Airport	010964	No change in emissions.
Utah	Skywest Airlines	11674	Skywest Airlines at SLC Int'l Airport	010247	Outside domain.
Utah	SME Industries Incorporated	11599	SME Steel Fabrication	1599004	Outside domain.
Utah	SME Industries Incorporated	11599		021599002	Outside domain.
Utah	Snowbird Development	10406		020406004	Outside domain.
Utah	Southern Post Utah	10024	Steel Post Manufacturing	0024003	Outside domain.
Utah	Southwire Company	11262	Utah Plant	021262006	No change in emissions.
Utah	Spectrum Press	12969	Printing Press	2969001	Outside domain.
Utah	Spring Canyon Energy	12627		022627001	Outside domain.
Utah	Spring Canyon Energy, LLC	12627	250 MW Electric Power Plant	2627002	Outside domain.
Utah	Springville City Corporation	10819	Whitehead Power Plant	0819007	Outside domain.
Utah	Staker & Parson Companies	10408	Beck Street North Pit and Hot Plant	010485	Outside domain.
Utah	Staker & Parson Companies	10408	Beck Street North Pit and Hot Plant	010569	Outside domain.
Utah	Staker & Parson Companies	10712	Erda Pit & Hot Plant	010032	Outside domain.
Utah	Staker & Parson Companies	10128	Foss Lewis Pit & Aggregate Plant	010857	Outside domain.
Utah	Staker & Parson Companies	11234	Point of the Mtn - Aggregate Production	1234010	Outside domain.
Utah	Staker Paving and Construction	10411		020307	Outside domain.
Utah	Sunnyside Cogeneration	10096		020096011A	Increase < 1TPY.
Utah	Sunnyside Cogeneration	10096		020096010	No change in emissions.
Utah	SUNROC Corporation	12516		020216	Outside domain.
Utah	Temkin International	10860		020085	Outside domain.
Utah	Temkin International Incorporated	10860	Plastic Film Printing Facility	010151	No change in emissions.
Utah	Terra Systems Incorporated	12952	Wellington Coal Blending	2952001	Outside domain.

Table C.6
State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Tesoro West Coast	10335		020217	Outside domain.
Utah	Texaco E & P	12662		022662001	Outside domain.
Utah	Thatcher Chemical Company	10382	Salt Lake City Chemical Processing Plant	0382005	Outside domain.
Utah	The Kroger Company	10163	Layton Manufacturing	020163003	Outside domain.
Utah	The Quikrete Companies	10375		020123	No change in emissions.
Utah	Thermo Fluids Incorporated	11315	Oil Recycling Facility	1315006	Outside domain.
Utah	Thiokol Corporation	10009	Lampo Junction	020009086	Outside domain.
Utah	Thiokol Corporation	10009	Promontory	020009088	No change in emissions.
Utah	Thiokol Propulsion	10009	Promontory Plant	020202	No change in emissions.
Utah	Thiokol Propulsion	10009	Promontory Plant	020009087	No change in emissions.
Utah	Third Rock Sand & Gravel	12437	Sand & Gravel Operation	010386	No change in emissions.
Utah	Tom Brown Incorporated	10034	Lisbon	020034008	No change in emissions.
Utah	Tooele Army Depot	11594	Tooele Army Depot	010712	Increase < 1TPY.
Utah	Tooele Army Depot	11594	Tooele Army Depot	1594026	Outside domain.
Utah	Town of Eagle Mountain	12198	Planning and Utility Department	010468	Increase < 1TPY.
Utah	Town of Eagle Mountain	12198	Planning and Utility Department	032198003	Increase < 1TPY.
Utah	Trinity Furniture Company, Inc.	12238	Furniture Assembly & Finishing	2238003	Outside domain.
Utah	United States Gypsum Company	10654		020342	Reduction at a PSD minor source.
Utah	University of Utah	10354	University of Utah facilities	0354010	Outside domain.
Utah	University of Utah	10354	University of Utah facilities	010128	Outside domain.
Utah	University of Utah	10354	University of Utah facilities	010264	Outside domain.
Utah	University of Utah	10354	University of Utah facilities	010265	Outside domain.
Utah	University of Utah	10354		020081	No change in emissions.
Utah	US Army Proving Ground	10706	Dugway Proving Ground	020706034	Outside domain.
Utah	Utah Metal Works Incorporated	10337	Utah Metal Works	010506	Increase < 1TPY.
Utah	Utah State University	10047		020047006	No change in emissions.
Utah	Utah State University	10047		020001	Outside domain.
Utah	Utah Valley State College	10849	Campus Engineering	0849003	Outside domain.
Utah	Utelite Corporation	10676	Shale Processing	010170	No change in emissions.
Utah	Utelite Corporation	10676	Shale Processing	010027	Outside domain.
Utah	Utility Trailer Manufacturing Company	10156	Trailer Manufacturing Facility	020003	No change in emissions.
Utah	Utility Trailer Manufacturing Company	10156	Trailer Manufacturing Facility	020212	No change in emissions.
Utah	Utility Trailer Manufacturing Company	10156	Trailer Manufacturing Facility	010158	Outside domain.
Utah	Valtek Incorporated	10881		020137	No change in emissions.
Utah	Vulcraft	10028		020269	Outside domain.
Utah	W.W. Clyde and Company	10996	Portable Equipment - Temporary Locations	0996006	Outside domain.
Utah	W.W. Clyde and Company	12780		020139	No change in emissions.
Utah	Wasatch Energy Systems	10129	County Landfill & Energy Recovery Facility	010850	No change in emissions.
Utah	Wasatch Energy Systems	10129		020129010	No change in emissions.
Utah	Wasatch Energy Systems	10129		020138	Outside domain.
Utah	Wasatch Technologies	12395		020173	Increase < 1TPY.
Utah	Wavell-Huber Wood Products	12501		022501002	No change in emissions.
Utah	Wavell-Huber Wood Products Incorporated	12501	Architectural Woodworking Shop	010877	Increase < 1TPY.

Table C.6

State-Permitted Source Inventory - UDAQ Permitted Sources - Table of Excluded Sources

State	Company Name	Source ID	Source Name	Approval Order	Reason For Exclusion
Utah	Weather Shield Manufacturing, Inc.	10059		020059006	No change in emissions.
Utah	Wells' Dairy	12663		022663001	Outside domain.
Utah	Wells Industries Incorporated	11992	Ogden Trailer manufacturing	1992002	Outside domain.
Utah	Wellsville City Corporation	12646		020172	Outside domain.
Utah	Western Rock Products	11796		020280	No change in emissions.
Utah	Westinghouse Electric Company	10922		020275	No change in emissions.
Utah	Westinghouse Electric Company LLC	10922	Zirconium/Halfnium Production Plant	010088	Increase < 1TPY.

Table C.7
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Included Sources

Company	Facility	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
BCCK Engineering, Inc.	Pretty Water Gas Plant	CT-2969	Sweetwater	15.00	422.00	10.00	0.31	13.80	0.00	0.00	0.00
Bill Barrett Corporation	Wallace Creek Compressor Station	MD-954	Natrona	7.32	734.80	35.40	0.30	44.40	0.00	0.00	0.00
Burlington Resources Oil & Gas	MBE Compressor	CT-2735	Fremont	9.05	509.82	12.50	0.76	25.60	0.00	0.00	0.00
Carl D. Underwood Oil & Gas	Burnt Wagon Gas Processing Plant	CT-2370	Natrona	3.66	422.00	10.00	0.15	2.50	0.00	0.00	0.00
Chevron USA, Inc.	Bullfrog Compressor Station	MD-351A	Natrona	5.94	633.71	37.03	0.30	2.30	0.00	0.00	0.00
Chevron USA, Inc.	Waltman 44 Compression Facility	MD-659	Natrona	5.94	649.00	52.70	0.30	11.60	0.00	0.00	0.00
Condor Exploration LLC	Slate Creek End Facility	CT-2617	Lincoln	7.62	422.00	12.50	0.25	8.00	0.00	0.00	0.00
CREDO Petroleum Company	Marianne Compressor Station	MD-971	Sweetwater	9.05	509.82	12.50	0.76	3.90	0.00	0.00	0.00
Double Eagle Petroleum CO	Cow Creek Central Production Facility	MD-951	Carbon	9.05	509.82	12.50	0.76	9.90	0.00	0.00	0.00
Duke Energy Field Services	Black Butte 1-18-100 C.S.	CT-2373	Sweetwater	12.19	422.00	42.37	0.25	5.80	0.00	0.00	0.00
Duke Energy Field Services	Black Butte 13-18-100 C.S.	CT-2606	Sweetwater	9.14	422.00	39.62	0.25	5.80	0.00	0.00	0.00
Duke Energy Field Services	Patrick Draw Gas Plant	MD-663	Sweetwater	7.32	422.00	46.45	0.25	(48.30)	0.00	0.00	0.00
General Chemical Corporation	Green River Trona Plant	MD-567	Sweetwater	25.49	361.71	17.29	1.04	(44.00)	1.00	(1.00)	(1.00)
Imerys Marble, Inc.	White Marble Quarry	MD-619	Platte	10.30	337.87	15.09	0.91	0.00	0.00	23.06	6.92
Jonah Gas Gathering CO.	Bird Canyon/County Line C.S.	CT-2252	Sublette	12.19	726.48	29.75	0.70	63.90	0.00	0.00	0.00
Jonah Gas Gathering CO.	Falcon Compressor Station	CT-2251	Sublette	9.75	725.37	26.39	0.70	83.70	0.00	0.00	0.00
Jonah Gas Gathering CO.	Falcon Compressor Station	MD-815	Sublette	4.57	674.00	30.78	0.20	12.40	0.00	0.00	0.00
Jonah Gas Gathering CO.	Luman Compressor Station	MD-921	Sublette	12.19	726.48	29.75	0.71	50.30	0.00	0.00	0.00
Jonah Gas Gathering CO.	Paradise Compressor Station	CT-2250	Sublette	7.92	725.37	26.39	0.70	83.70	0.00	0.00	0.00
JTL Group Incorporated	Portable Asphalt Hot Mix Plant	CT-2989	Natrona	14.12	350.04	10.03	0.91	86.80	0.00	0.00	0.00
Kern River Gas Transmission	Coyote Creek	CT-3003	Uinta	5.39	422.00	12.50	0.41	44.00	0.00	0.00	0.00
Kern River Gas Transmission	Muddy Creek Station	MD-736	Lincoln	17.22	422.00	13.17	2.59	39.40	0.00	0.00	0.00
Kern River Gas Transmission	Muddy Creek Station	MD-783	Lincoln	17.22	736.00	12.63	2.75	92.80	0.00	0.00	0.00
Merit Energy Company	North Buck Draw Compressor Station	MD-671	Campbell	6.71	754.82	49.68	0.30	23.60	0.00	0.00	0.00
Merit Energy Company	North Buck Draw Compressor Station	MD-955	Campbell	18.31	730.40	47.70	0.31	14.70	0.00	0.00	0.00
Merit Energy Company	SRMGU 27-32	MD-620	Natrona	11.77	450.54	9.51	0.82	17.80	0.00	0.00	0.00
Mountain Gas Resources	Fabian Ditch Compressor Station	MD-642	Sweetwater	7.62	509.82	28.96	0.41	17.20	0.00	0.00	0.00
Mountain Gas Resources	Granger Gas Plant	MD-644	Sweetwater	4.88	833.00	24.38	0.06	4.20	0.00	0.00	0.00
Mountain Gas Resources	Granger Gas Plant	MD-963	Sweetwater	7.92	904.00	32.90	0.38	16.60	0.00	0.00	0.00
Mountain Gas Resources	Hay Reservoir Central C.S.	MD-975	Sweetwater	13.11	880.40	20.00	0.46	16.70	0.00	0.00	0.00
Mountain Gas Resources	Jonah Compressor Station	CT-2280	Sublette	7.62	904.00	28.66	0.41	54.90	0.00	0.00	0.00
Mountain Gas Resources	Storm Shelter Compressor Station	MD-935	Sweetwater	9.05	509.82	12.50	0.76	3.30	0.00	0.00	0.00
Northwest Pipeline Company	Green River Compressor Station	MD-863	Sweetwater	9.60	493.20	11.20	1.90	(31.30)	0.00	0.00	0.00
Powder River Coal Company	North Antelope/Rochelle Coal Mine	MD-575	Campbell	22.38	308.09	7.77	0.67	0.00	0.00	0.00	0.00
Questar Gas Management CO	Blacks Fork Gas Plant	MD-638	Uinta	9.14	869.00	69.17	0.46	32.40	0.00	0.00	0.00
Questar Gas Management CO	Pinedale Compressor Station	CT-2466	Sublette	15.24	714.00	72.54	0.46	75.40	0.00	0.00	0.00
Questar Gas Management CO	Vermillion Creek Compressor Station	MD-549A	Sweetwater	9.05	509.82	12.50	0.76	3.60	0.00	0.00	0.00
Questar Pipeline Company	Eakin Compressor Station	MD-615	Uinta	10.52	700.00	28.01	0.61	(122.00)	0.00	0.00	0.00
Rissler and McMurry CO	CT-2407	CT-2407	Natrona	11.68	326.21	15.37	0.73	15.60	2.60	5.20	5.20
Rowdy Pipeline, LLC	Church Central	MD-934	Campbell	8.54	742.60	69.38	0.25	70.00	0.00	0.00	0.00
Rowdy Pipeline, LLC	Clarkellen Central Compressor Station	MD-628	Campbell	10.06	674.80	49.68	0.31	82.90	0.00	0.00	0.00
Rowdy Pipeline, LLC	Clarkellen Central Compressor Station	MD-825	Campbell	10.06	755.37	30.72	0.31	15.40	0.00	0.00	0.00
Rowdy Pipeline, LLC	Clarkellen Satellite 2 Station	CT-2359	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Clarkellen Satellite 4 Station	CT-2361	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Clarkellen Satellite 5 Station	CT-2362	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Clarkellen Satellite 8 Station	CT-2365	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Drake (formerly Moore Pod 6)	CT-2389	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00

Table C.7
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Included Sources

Company	Facility	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Rowdy Pipeline, LLC	K Bar	CT-2358	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	K Bar	CT-2358A	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Monte Central	CT-2375	Campbell	10.07	742.59	49.69	0.31	44.30	0.00	0.00	0.00
Rowdy Pipeline, LLC	Monte Pod 1	CT-2376	Campbell	7.93	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Monte Pod 2	CT-2377	Campbell	10.16	710.90	17.71	0.31	0.00	0.00	0.00	0.00
Rowdy Pipeline, LLC	Monte Pod 3	CT-2378	Campbell	10.16	710.90	17.71	0.31	0.00	0.00	0.00	0.00
Rowdy Pipeline, LLC	Monte Pod 4	CT-2379	Campbell	10.16	710.90	17.71	0.31	0.00	0.00	0.00	0.00
Rowdy Pipeline, LLC	Moore Pod 3	CT-2386	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Moore Pod 5	CT-2388	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Moore Pod 7	CT-2390	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Moore Pod 8	CT-2391	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	South Groves (Clarkellen 6)	CT-2363	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	South Groves (Clarkellen 6)	CT-2363A	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Wright Compressor Station	MD-851	Campbell	7.93	710.90	39.98	0.20	5.10	0.00	0.00	0.00
Rowdy Pipeline, LLC	Wright Compressor Station	CT-2381	Campbell	7.93	710.90	39.98	0.20	5.10	0.00	0.00	0.00
Saurus Resources Inc.	MH-1 Compressor Station	CT-2301	Sweetwater	9.05	509.82	12.50	0.76	12.30	0.00	0.00	0.00
Thunder Creek Gas Services	FB-1233 Compressor Station	CT-2515	Campbell	7.32	672.20	27.30	0.40	117.20	0.00	0.00	0.00
Thunder Creek Gas Services	FB-3525 Compressor Station	CT-2553	Campbell	9.75	603.15	35.99	0.31	194.00	0.00	0.00	0.00
Thunder Creek Gas Services	Pine Tree Compressor Station	MD-739	Campbell	9.75	616.50	30.90	0.30	53.80	0.00	0.00	0.00
Thunder Creek Gas Services	SC-0532 Compressor Station	CT-2546	Campbell	7.32	572.20	39.20	0.20	22.80	0.00	0.00	0.00
Thunder Creek Gas Services	SC-1115 Compressor Station	CT-2559	Campbell	7.32	532.60	19.99	0.25	32.40	0.00	0.00	0.00
Thunder Creek Gas Services	SC-2325 Compressor Station	CT-2551	Campbell	7.32	603.15	35.99	0.31	61.60	0.00	0.00	0.00
Thunder Creek Gas Services	SC-2732 Compressor Station	CT-3530	Campbell	7.33	572.20	39.20	0.25	15.20	0.00	0.00	0.00
Thunder Creek Gas Services	SC-3225 Compressor Station	CT-2552	Campbell	7.32	603.15	35.99	0.31	81.00	0.00	0.00	0.00
Thunder Creek Gas Services	SC-3543 Compressor Station	CT-2654	Campbell	7.32	572.20	39.20	0.20	24.90	0.00	0.00	0.00
Tom Brown Incorporated	Bravo Unit 02 Central Tank Battery	MD-617	Sweetwater	7.32	422.00	47.85	0.30	19.00	0.00	0.00	0.00
Tom Brown Incorporated	Frenchie Draw Graham Unit Central	CT-3436	Sweetwater	15.00	422.00	10.00	0.31	4.00	0.00	0.00	0.00
Tom Brown Incorporated	Fuller Compressor Station	CT-3449	Fremont	8.23	895.37	15.70	0.30	47.90	0.00	0.00	0.00
Umetco Minerals	Rattlesnake Quarry	MD-625	Natrona	11.68	326.21	15.37	0.73	0.00	0.00	9.30	9.30
Warren E & P, Inc.	Pacific Rim Generator Station #1	CT-3472	Sweetwater	9.05	509.82	12.50	0.76	10.50	0.00	0.00	0.00
Western Gas Resources	Butcher/Baker Springs C.S.	MD-834	Campbell	7.51	899.82	61.27	0.31	48.60	0.00	0.00	0.00
Western Gas Resources	Cloud Compressor Station	MD-690	Campbell	5.79	866.48	42.37	0.25	22.20	0.00	0.00	0.00
Western Gas Resources	Little Thunder Compressor Station	MD-691	Campbell	8.00	899.82	61.30	0.31	88.50	0.00	0.00	0.00
Western Gas Resources	Little Thunder Compressor Station	MD-597	Campbell	8.00	899.82	61.30	0.31	32.40	0.00	0.00	0.00
Western Gas Resources	Pronghorn/Oryx	CT-2700	Campbell	7.50	899.82	61.26	0.30	71.30	0.00	0.00	0.00
Western Gas Resources	Sioux/Jr. Reno Compressor Station	CT-2618	Campbell	8.06	866.48	42.37	0.25	75.10	0.00	0.00	0.00
Western Gas Resources, Inc.	Wild Rose Compressor Station	CT-3412	Sweetwater	6.70	903.70	32.90	0.38	120.60	0.00	0.00	0.00
Wexpro Company	Canyon Creek/Vermillion Complex	MD-605	Sweetwater	15.00	422.00	10.00	0.31	34.10	0.00	0.00	0.00
Williams Field Services	Big Piney Compressor Station	MD-677	Sublette	9.05	509.82	12.50	0.76	3.10	0.00	0.00	0.00
Williams Field Services	Echo Springs Gas Plant	MD-606	Carbon	10.67	560.93	24.43	1.72	119.90	0.00	0.00	0.00
Williams Field Services	LaBarge Compressor Station	MD-675	Lincoln	9.05	509.82	12.50	0.76	2.70	0.00	0.00	0.00
Williams Field Services	Opal Gas Plant	MD-917	Lincoln	16.69	742.00	1.37	34.17	(550.60)	0.00	0.00	0.00
Williams Field Services	Saddle Ridge Compressor Station	MD-676	Sublette	9.05	509.82	12.50	0.76	2.20	0.00	0.00	0.00
Wyoming Interstate Gas	Douglas Compressor Station	MD-637	Converse	12.50	755.00	38.40	1.22	27.50	0.00	0.00	0.00
							Total Wyoming State-Permitted Source Emissions	1,829.4	3.6	36.6	20.4

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Niobrara	Abraxas Petroleum Corporation	Sage Grouse 3H-15-38-67	CT-2715	Outside domain.
WY	Lincoln	AEC Oil & Gas (USA) Incorporated	JGGC/OTTCO Interconnect	MD-806	Permit expired.
WY	Platte	Alexander Construction	CT-2499	CT-2499	Outside domain.
WY	Big Horn	American Colloid Mineral Company	Lovell Plant	MD-289A	No change in emissions.
WY	Big Horn	American Colloid Mineral Company	Lovell Plant	MD-901	Outside domain.
WY	Carbon	Amoco Production Company	Baldy Butte 17-1	CT-2522	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Cabrito 10-30	CT-2532	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Cabrito 13-18 Well Site	CT-2688	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Cabrito 6-25	CT-2652	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Champlin 263 B5 Well Site	CT-2837	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Champlin 337 G4 Well Site	CT-2659	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Champlin 345 B2	CT-3007	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Champlin 345 B2	CT-3007A	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Corona 02-11	CT-2928	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Corona 02-19 Well Site	CT-2965	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Corona 11-30 Well Site	CT-2687	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Corona 8-19	CT-2531	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Crooks Gap Road 21-02	CT-3060	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Crooks Gap Road 24	CT-2396	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Frewen 15	CT-2526	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Frewen 19	CT-2523	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Monument 19-02	CT-2930	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Monument 29-01 Well Site	CT-2876	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Monument Lake 33-2 Well Site	CT-2640	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 04-22	CT-3004	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 06-22	CT-3000	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 10-22	CT-2943	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 16-14 Well Site	CT-2964	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 16-15	CT-2963	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 16-22	CT-2962	Production well with emissions < 3TPY.
WY	Sublette	Amoco Production Company	Stud Horse Butte 4-20	CT-2686	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Tierney II 29-5 Well Site	CT-2741	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Tierney II 33-2 Well Site	CT-2701	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Two Rim 03-01	CT-2878	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Two Rim 20-2	CT-2525	Production well with emissions < 3TPY.
WY	Sweetwater	Amoco Production Company	Wild Rose 13-01	CT-2925	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Brady 46F	CT-2713	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Chambers Federal 3-24	CT-2639	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Chambers Federal 4-24	CT-3135	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Chambers Federal 5-24	CT-3121	Production well with emissions < 3TPY.
WY	Carbon	Anadarko E&P Company, LP	Echo Springs 3-30	CT-3112	Production well with emissions < 3TPY.
WY	Carbon	Anadarko E&P Company, LP	Echo Springs State 4-16 Well Site	CT-2927	Production well with emissions < 3TPY.
WY	Carbon	Anadarko E&P Company, LP	Federal BF #1	MD-860	Production well with emissions < 3TPY.
WY	Carbon	Anadarko E&P Company, LP	Federal BF 2-30	CT-3043	Production well with emissions < 3TPY.
WY	Carbon	Anadarko E&P Company, LP	Federal BH-4	CT-2802	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Red Desert 10-1	CT-3161	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Red Desert 17-1	CT-2704	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Red Desert 17-2	CT-2982	Production well with emissions < 3TPY.
WY	Sweetwater	Anadarko E&P Company, LP	State I-4	CT-3068	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sweetwater	Anadarko E&P Company, LP	Table Rock Gas Plant	MD-649	Administrative change.
WY	Sweetwater	Anadarko E&P Company, LP	Table Rock Gas Plant	MD-767	Increase < 1 TPY.
WY	Sweetwater	Anadarko E&P Company, LP	Table Rock Gas Plant	MD-879	Reduction, not a PSD major source.
WY	Sweetwater	Anadarko E&P Company, LP	Wells Bluff 13-1	MD-869	Production well with emissions < 3TPY.
WY	Carbon	Anadarko Gathering Company	Blue Sky	CT-2168A	Administrative change.
WY	Carbon	Anadarko Gathering Company	Blue Sky	CT-2168A2	Reduction, not a PSD major source.
WY	Johnson	Anadarko Petroleum Company	County Line Central Compressor Station	CT-2574	Outside domain.
WY	Johnson	Anadarko Petroleum Company	County Line Central Compressor Station	MD-898	Outside domain.
WY	Johnson	Anadarko Petroleum Company	County Line Central Compressor Station	MD-833	Outside domain.
WY	Johnson	Anadarko Petroleum Company	County Line Central Compressor Station	CT-2357	Outside domain.
WY	Johnson	Anadarko Petroleum Company	Gary Pod Compressor Station	CT-3341	Outside domain.
WY	Johnson	Anadarko Petroleum Company	Jeff Pod Compressor Station	CT-2575	Outside domain.
WY	Johnson	Anadarko Petroleum Company	Neil Pod Compressor Station	CT-2576	Outside domain.
WY	Johnson	Anadarko Petroleum Company	Pat Pod Compressor Station	CT-3538	Outside domain.
WY	Johnson	Anadarko Petroleum Company	Tim Pod Compressor Station	CT-2577	Outside domain.
WY	Sublette	Anschutz Exploration Corporation	Mesa 6-27D CPF	CT-3056	Production well with emissions < 3TPY.
WY	Sublette	Anschutz Exploration Corporation	Mesa 9-21D	CT-3055	Production well with emissions < 3TPY.
WY	Fremont	B&B Aggregates	Big Bend Gravel Pit	CT-3549	Increase < 1 TPY.
WY	Campbell	Basin Electric Power Cooperative	Arvada Generation Station	CT-2689	Outside domain.
WY	Campbell	Basin Electric Power Cooperative	Barber Creek Generation Station	CT-2712	Outside domain.
WY	Campbell	Basin Electric Power Cooperative	Hartzog Generation Station	CT-2621	Outside domain.
WY	Sweetwater	BCCK Engineering, Inc.	Pretty Water Gas Plant	CT-2969A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	21 Mile Butte Main Compressor Station	CT-2690	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	21 Mile Butte Pod 1 Compressor Station	CT-2691	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	21 Mile Butte Pod 2 Compressor Station	CT-2692	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	21 Mile Butte Pod 3 Compressor Station	CT-2693	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Amos Draw Compressor Station	CT-2056A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	Amos Draw Compressor Station	MD-853	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Antelope Valley Compressor Station	MD-588A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	Antelope Valley Compressor Station	MD-916	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Antelope Valley Compressor Station	MD-588	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Barker Draw Prospect B Compressor Station	CT-2096A	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy Incorporated	Barker Draw Prospect Compressor Station	CT-2094A	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy Incorporated	Barker Draw Prospect Compressor Station	CT-2094A2	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy Incorporated	Clydesdale Main/Pod 2 Compressor System	MD-708	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Clydesdale Pod 1 Compressor Station	MD-709	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Clydesdale Pod 3 Compressor Station	MD-710	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Hoe Creek Pod 4	CT-2447	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	House Creek Main Station	MD-624	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	House Creek Main Station	MD-733	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Jameson Pod 1	CT-2782	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Jameson Pod 13	CT-2784	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Lone Tree Compressor Station	MD-523A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	Maverick Compressor Station	MD-728	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Meserve Compressor Station	MD-589	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Milne Station	MD-590	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Oriva Hills Compressor Station	CT-2673	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 1 Compressor Station	CT-2333	Permit expired.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 10 Compressor Station	MD-712	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 10 Compressor Station	CT-2342	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 11 Compressor Station	MD-715	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 12 Compressor Station	MD-720	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 12 Compressor Station	CT-2343	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 13 Compressor Station	MD-732	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 13 Compressor Station	CT-2344	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 13 Compressor Station	MD-732A	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 14 Compressor Station	CT-2345	Permit expired.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 15 Compressor Station	MD-730	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 15 Compressor Station	CT-2346	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 16 Compressor Station	CT-2347	Permit expired.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 17 Compressor Station	MD-726	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 17 Compressor Station	CT-2348	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 18 Compressor Station	CT-2349	Permit expired.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 19 Compressor Station	MD-717	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 2 Compressor Station	MD-713	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 2 Compressor Station	CT-2334	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 20 Compressor Station	MD-729	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 20 Compressor Station	CT-2350	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 21 Compressor Station	MD-734	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 21 Compressor Station	CT-2351	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 22 Compressor Station	MD-723	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 22 Compressor Station	CT-2352	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 23 Compressor Station	MD-727	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 23 Compressor Station	CT-2353	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 24 Compressor Station	MD-724	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 24 Compressor Station	CT-2354	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 24 Compressor Station	MD-794	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 25 Compressor Station	MD-725	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 25 Compressor Station	CT-2355	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 26	CT-2663	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 27	CT-2675	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 28	CT-2676	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 29	CT-2674	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 3 Compressor Station	CT-2335	Permit expired.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 30	CT-2737	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 31	CT-2740	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 4 Compressor Station	MD-731	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 4 Compressor Station	CT-2336	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 5 Compressor Station	MD-722	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 5 Compressor Station	CT-2337	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 6 Compressor Station	MD-721	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 6 Compressor Station	CT-2338	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 7 Compressor Station	MD-716	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 7 Compressor Station	CT-2339	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 8 Compressor Station	MD-718	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 8 Compressor Station	CT-2340	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 9 Compressor Station	MD-719	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Pennaco Pod 9 Compressor Station	CT-2341	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Gathering System - Pod A	CT-2150A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Gathering System - Pod B	CT-2151A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Gathering System - Pod C	CT-2152A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Gathering System - Pod D	CT-2153A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Gathering System - Pod E	CT-2154A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod EE Compressor Station	CT-3261A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod EE Compressor Station	CT-3261	Outside domain.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod F	CT-2322	Outside domain.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod I (Station 17)	CT-2185 Extension	Original permit was excluded.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod J (Formerly Station 21)	CT-2186A	Reduction, not a PSD major source.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod K (Formerly Station 28)	CT-2178A	No change in emissions.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod N	CT-2793	Outside domain.
WY	Sheridan	Bear Paw Energy Incorporated	Prairie Dog Pod P	CT-2794	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	RAG 24 Compressor Station	CT-2245	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	RAG 25 Compressor Station	CT-2246	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	South Jim Wolf Field Station	MD-467 Expired	Permit expired.
WY	Campbell	Bear Paw Energy Incorporated	South Meserve Compressor Station	CT-1902A	Permit Expired.
WY	Campbell	Bear Paw Energy Incorporated	South Ostlund/Daly Compressor Station	MD-521A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #1 Main Station	MD-765	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #1 Main Station	CT-2293	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #1 Pod 2 Station	MD-764	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #1 Pod 2 Station	CT-2295	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #1A	MD-766	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #1A	CT-2638	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #2 Prospect Compresso	CT-2506	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #2 Prospect Compresso	MD-763	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Spotted Horse Creek #2 Prospect Compresso	CT-2506A	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy Incorporated	Triangle U Main/Pod 1 Compressor Station	CT-2695	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Triangle U Main/Pod 1 Compressor Station	CT-2695 Extension	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Triangle U Pod 2 Compressor Station	CT-2696	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Triangle U Pod 2 Compressor Station	CT-2696 Extension	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Triangle U Pod 3 Compressor Station	CT-2697	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Triangle U Pod 3 Compressor Station	CT-2697 Extension	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Tripp Compressor Station	CT-2055A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	Twenty Mile Compressor Station	MD-524A	No change in emissions.
WY	Campbell	Bear Paw Energy Incorporated	Twenty Mile Compressor Station	MD-692	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Werner 13 Compressor Station	CT-2220A	Administrative change.
WY	Campbell	Bear Paw Energy Incorporated	Werner 13 Compressor Station	MD-678	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Werner 13 Compressor Station	CT-2220	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Werner 24 Compressor Station	CT-2221	Outside domain.
WY	Campbell	Bear Paw Energy Incorporated	Werner 24 Compressor Station	MD-679	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Barker Draw Pod 35 Compressor Station	CT-3379	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Box Draw Pod 1	CT-1623A	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy, L.L.C.	Box Draw Pod 2	CT-1624A	Reduction, not a PSD major source.
WY	Campbell	Bear Paw Energy, L.L.C.	Central Kitty Pod 1 Compressor Station	CT-2581A	Co-emission rate modification.
WY	Campbell	Bear Paw Energy, L.L.C.	Central Kitty Pod 1 Compressor Station	CT-2581	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Central Kitty Pod 2 Compressor Station	CT-2582A	Co-emission rate modification.
WY	Campbell	Bear Paw Energy, L.L.C.	Central Kitty Pod 2 Compressor Station	CT-2582	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	House Creek Pod Station 1	CT-1617A	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Bear Paw Energy, L.L.C.	Kingsbury Station	CT-3383	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Mustang Main Station	CT-1783A	No change in emissions.
WY	Campbell	Bear Paw Energy, L.L.C.	Mustang Main Station	MD-612	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Mustang Pod 1	MD-613	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Palomino Pod 2 Compressor Station	CT-2332	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Prima - Pod Site 1 Compressor Station	CT-2299	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Prima - Pod Site 2 Compressor Station	CT-2300	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Main Compressor Station	MD-683	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 1	MD-684	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 2	MD-685A	Increase < 1 TPY.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 2	MD-685	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 2	MD-611	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 35	CT-2620 Expired	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 35	CT-2620	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 4	MD-686	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 4	CT-1874A	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	South Kitty Pod 5	MD-687	Outside domain.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Main Compressor Station	CT-2281	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 1 Compressor Station	CT-2282	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 2 Compressor Station	CT-2283	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 3 Compressor Station	CT-2284	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 4 Compressor Station	CT-2285	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 5 Compressor Station	CT-2286	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 6 Compressor Station	CT-2287	Permit expired.
WY	Campbell	Bear Paw Energy, L.L.C.	Wolf Pack Pod 7 Compressor Station	CT-2288	Permit expired.
WY	Converse	Belle Fourche Pipeline Company	Well Draw	MD-662	No NOx, SO2, or PM10.
WY	Crook	Bentonite Performance Minerals	Colony Plant	MD-603A	Exclude based on WDEQ information.
WY	Crook	Bentonite Performance Minerals	Colony Plant	MD-603	Excluded, see MD-603A.
WY	Big Horn	Bentonite Performance Minerals	Lovell Plant	MD-849	Reduction, not a PSD major source.
WY	Campbell	Big Basin Petroleum, LLC	LX Bar West Compressor Station	CT-2160A	Reduction, not a PSD major source.
WY	Natrona	Bill Barrett Corporation	Cave Gulch #24	MD-580	Reduction, not a PSD major source.
WY	Natrona	Bill Barrett Corporation	Cave Gulch #7	MD-579	Production well with emissions < 3TPY.
WY	Natrona	Bill Barrett Corporation	Cave Gulch Gas Conditioning Plant	MD-626	Increase < 1 TPY.
WY	Sheridan	Bitter Creek Pipelines LLC	3149 Battery	CT-2774	Permit withdrawn.
WY	Sheridan	Bitter Creek Pipelines LLC	3349 East Battery	CT-2775	Permit withdrawn.
WY	Sheridan	Bitter Creek Pipelines LLC	3349 West Battery	CT-2776	Permit withdrawn.
WY	Sheridan	Bitter Creek Pipelines LLC	3449 Battery	CT-2777	Permit withdrawn.
WY	Sheridan	Bitter Creek Pipelines LLC	Beatty Gulch Central Compressor Station	CT-2325	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Bowen Battery	MD-632	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Chevron 19 Battery	CT-2054A	Administrative change.
WY	Sheridan	Bitter Creek Pipelines LLC	Chevron 20 Battery	CT-2051A	Administrative change.
WY	Sheridan	Bitter Creek Pipelines LLC	Chevron 30 Battery	CT-2052A	Administrative change.
WY	Sheridan	Bitter Creek Pipelines LLC	Clearmont Central/2949 Battery	CT-2773	Permit withdrawn.
WY	Sheridan	Bitter Creek Pipelines LLC	DeLapp 27 Compressor Station	CT-2514	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dewey 21 Battery	CT-2510	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dewey 21 Battery	MD-890	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dewey 27 Battery	MD-891	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dewey 27 Battery	CT-2511	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dewey 28 Battery	MD-892	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sheridan	Bitter Creek Pipelines LLC	Dewey 28 Battery	CT-2509	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dunning 32 Battery	MD-893	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Dunning 32 Battery	CT-2508	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	East Hall Battery	MD-897	No change in emissions.
WY	Campbell	Bitter Creek Pipelines LLC	East Hall Battery	MD-422A	Reduction, not a PSD major source.
WY	Sheridan	Bitter Creek Pipelines LLC	Gladewater Central Station	MD-670	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Gladewater Central Station	MD-670A	Reduction, not a PSD major source.
WY	Campbell	Bitter Creek Pipelines LLC	Hall Battery	MD-643	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Koltiska 31 Battery	CT-2864	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Koltiska 32 Battery	CT-2865	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Landeck Central Station	MD-630	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Landeck Central Station	MD-630A	Reduction, not a PSD major source.
WY	Sheridan	Bitter Creek Pipelines LLC	Mischke 24 Battery	MD-894A	No change in emissions.
WY	Sheridan	Bitter Creek Pipelines LLC	Mischke 24 Battery	MD-894	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Mischke 24 Battery	CT-2513	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	North Daly Battery	MD-622	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	North Landeck Compressor Station	MD-631	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Pineview Battery	MD-907	Increase < 1 TPY.
WY	Johnson	Bitter Creek Pipelines LLC	Piney Creek Central Station	MD-654	Outside domain.
WY	Johnson	Bitter Creek Pipelines LLC	Piney Creek Central Station	MD-654A	Reduction, not a PSD major source.
WY	Sheridan	Bitter Creek Pipelines LLC	Seven Brothers 1 Battery	CT-3182	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	South Landeck Battery	MD-646	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	State #26 Battery	CT-2326	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	State #36 Battery	CT-2327	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Taylor Battery	MD-623A	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Taylor Battery	MD-623	Outside domain.
WY	Johnson	Bitter Creek Pipelines LLC	Texaco 522 Battery	CT-3184	Outside domain.
WY	Johnson	Bitter Creek Pipelines LLC	Texaco 922 Battery	CT-3183	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Trembath 25 Battery	MD-895	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Trembath 25 Battery	CT-2512	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	West Bowen Battery	MD-621	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	West Cook Battery	MD-653	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	West Cook Battery	MD-653A	Reduction, not a PSD major source.
WY	Campbell	Bitter Creek Pipelines LLC	West Hill Compressor Station	MD-633	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Wrench Ranch #11 Battery	CT-2330	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Wrench Ranch #2 Battery	CT-2328	Outside domain.
WY	Sheridan	Bitter Creek Pipelines LLC	Wrench Ranch 49 Battery	CT-2329A	No change in emissions.
WY	Sheridan	Bitter Creek Pipelines LLC	Wrench Ranch 49 Battery	CT-2329A2	No change in emissions.
WY	Sheridan	Bitter Creek Pipelines LLC	Wrench Ranch 49 Battery	CT-2329	Outside domain.
WY	Campbell	Bitter Creek Pipelines LLC	Z 24 Battery	MD-906	Reduction, not a PSD major source.
WY	Natrona	Black Hills Bentonite	Mills Harry Thorson Plant	MD-239A	No change in emissions.
WY	Weston	Black Hills Bentonite	Moorcroft/Thorton Plant	CT-2408	Outside domain.
WY	Washakie	Black Hills Bentonite	Worland	MD-902	Reduction, not a PSD major source.
WY	Campbell	Black Hills Corporation	Neil Simpson Two	MD-604A	Not emissions related permit revision.
WY	Campbell	Black Hills Corporation	Neil Simpson Two	MD-850	Outside domain.
WY	Campbell	Black Hills Corporation	Neil Simpson Two	MD-604	Outside domain.
WY	Campbell	Black Hills Corporation	WYGEN 2	CT-3030	Outside domain.
WY	Campbell	Black Hills Corporation	WYGEN Unit 1	CT-1236A	Reduction, not a PSD major source.
WY	Uinta	BP America Production Company	Anschutz Ranch East	MD-779	No change in emissions.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Uinta	BP America Production Company	Anschutz Ranch East	MD-779A	No change in emissions.
WY	Sublette	BP America Production Company	Antelope 3-9	CT-3085	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 03-30 Well Site	CT-2835	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 06-30 Well Site	CT-2836	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 11-18	CT-2942	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 15-13	CT-2981	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 16-30	CT-2941	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 4-19	CT-3063	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 6-31 Well Site	CT-2615	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Cabrito 6-31 Well Site	MD-795	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Champlin 221 A4	CT-3187	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Champlin 261 A5	CT-2974	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	Champlin 278 E4	CT-3145	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Champlin 292 B3	CT-3210	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Champlin 336 G2	CT-2972	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Champlin 452 C5	CT-2934	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Champlin 452 E5	CT-2917	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	Coal Gulch F3	CT-3083	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap 10 S-3	CT-3107	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap 15-02	CT-3170	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap 15-4	CT-3189	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap 20-03	CT-3127	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap 25-05	CT-3186	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap 35-S1	CT-3066	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Raod 10-02	CT-3252	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 10 S-2	CT-3105	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 10-01	CT-3128	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 11-01	CT-3110	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 11-02	CT-3242	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 11-3	CT-3250	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 15-01	CT-3103	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 15-3	CT-3240	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 17-01	CT-2970	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 17-02	CT-3008	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 17-02	CT-3008A	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 17-03	CT-2975	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 21-01	CT-3014	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Crooks Gap Road 36-5	CT-3171	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Delaney Rim 36-02	CT-3080	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	Duck Lake 1-2	CT-3070	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	Duck Lake 23-2	CT-3294	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	Duck Lake 25-01	CT-2983	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Eight Mile 13-03	CT-3185	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Eight Mile Lake 11-2	CT-3150	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Five Mile Gulch 19-1	CT-3211	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Five Mile Gulch 29-01	CT-3137	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Fivemile 7-1	CT-3140	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 07-03	CT-2898	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 16-02	CT-2919	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sweetwater	BP America Production Company	Frewen 16-03	CT-3106	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 16-04	CT-3095	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 16-05	CT-3281	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 18-02	CT-3074	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 19-04	CT-2935	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 19-5	CT-3287	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 9-2	CT-3104	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 9-3	CT-3109	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Frewen 9-4	CT-3138	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Luman 9-1	CT-3307	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Monument 29-3	CT-3286	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Monument 31-01	CT-2971	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Monument Lake 29-02 Well Site	CT-2827	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	Muddy Creek 5-5	CT-3201	Production well with emissions < 3TPY.
WY	Uinta	BP America Production Company	Painter Reservoir Gas Complex	MD-768	No change in emissions.
WY	Sweetwater	BP America Production Company	Red Desert 15-1	CT-3314	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Red Wash 11-1	CT-3243	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Red Wash 3-1	CT-3292	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Siberia Ridge 1-3	CT-3251	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Sourdough Gulch 16-2	CT-3293	Production well with emissions < 3TPY.
WY	Carbon	BP America Production Company	South Rim 5-2	CT-3087	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	South Rim 5-3	CT-3188	Production well with emissions < 3TPY.
WY	Sublette	BP America Production Company	Stud Horse Butte 09-15	CT-3136	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 22-03	CT-3149	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 23-2	CT-3310	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 23-2	CT-3310	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 23-2	CT-3310	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 23-3	CT-3308	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 23-4	CT-3282	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 27-03	CT-3125	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 27-2	CT-3082	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 28-02	CT-3058	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 28-03	CT-3059	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 28-04	CT-3081	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 33-03	CT-2968	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 33-04	CT-2973	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Tierney II 33-5	CT-3270	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 20-03	CT-2966	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 20-04	CT-3006	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 21-04	CT-2979	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 30-03	CT-2936	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 3-2	CT-3313	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 36-02	CT-3160	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Two Rim 36-4	CT-3311	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Wamsutter Rim 34-2	CT-3309	Production well with emissions < 3TPY.
WY	Uinta	BP America Production Company	Whitney Canyon Gas Plant	MD-778	No change in emissions.
WY	Uinta	BP America Production Company	Whitney Canyon Gas Plant	MD-629	No change in emissions.
WY	Uinta	BP America Production Company	Whitney Canyon Gas Plant	MD-629A	No change in emissions.
WY	Uinta	BP America Production Company	Whitney Canyon Gas Plant	MD-629A2	No change in emissions.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sweetwater	BP America Production Company	Wild Rose 13-02	CT-2918	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Wild Rose 13-03	CT-2967	Production well with emissions < 3TPY.
WY	Sweetwater	BP America Production Company	Wild Rose 13-04	CT-2877	Production well with emissions < 3TPY.
WY	Sweetwater	BP Amoco Production Company	Champlin 292 A2	CT-2521	Increase < 1 TPY.
WY	Sweetwater	Bridger Coal Company	Jim Bridger Coal Mine	MD-876	No change in emissions.
WY	Fremont	Burlington Resources Oil and Gas Co	FEO 1-35 SWD	CT-3146	Production well with emissions < 3TPY.
WY	Fremont	Burlington Resources Oil and Gas Co	Lost Cabin Gas Plant	CT-1946A	No change in emissions.
WY	Fremont	Burlington Resources Oil and Gas Co	MBE Compressor	MD-960	DEQ unable to locate permit.
WY	Campbell	Caballo Coal Company	Caballo Mine/Rocky Butte Mine	MD-547 Extension	Extension for an operational facility.
WY	Campbell	Caballo Coal Company	Caballo Mine/Rocky Butte Mine	MD-923	Reduction, not a PSD major source.
WY	Carbon	Cabot Oil & Gas Corporation	D.S. Federal #14-4	CT-1817A	Production well with emissions < 3TPY.
WY	Carbon	Cabot Oil & Gas Corporation	Lookout Wash #1	CT-2760	Production well with emissions < 3TPY.
WY	Carbon	Cabot Oil & Gas Corporation	Lookout Wash 10-32-15-93	CT-2761	Production well with emissions < 3TPY.
WY	Carbon	Cabot Oil & Gas Corporation	Lookout Wash 40-5-14-93	CT-3099	Production well with emissions < 3TPY.
WY	Sweetwater	Cabot Oil & Gas Corporation	Wamsutter 30-26	CT-3241	Production well with emissions < 3TPY.
WY	Sweetwater	Cabot Oil & Gas Corporation	Wamsutter 40-24	CT-2978	Production well with emissions < 3TPY.
WY	Campbell	Cantera Natural Gas, Inc.	Collums Central Station	MD-526 Expired	Permit expired.
WY	Johnson	Cantera Natural Gas, Inc.	Crazy Woman Creek Prospect B Compressor	CT-3519	Outside domain.
WY	Johnson	Cantera Natural Gas, Inc.	Crazy Woman Creek Prospect Compressor S	CT-3518	Outside domain.
WY	Campbell	Cantera Natural Gas, Inc.	Lynde Draw Central	CT-3464	Outside domain.
WY	Campbell	Cantera Natural Gas, Inc.	Railroad Prospect Compressor Station	CT-3397	Outside domain.
WY	Campbell	Carbon County	CT-2443	CT-2443	Administrative change.
WY	Uinta	Carbon Fiber Technology LLC	Evanston Plant	CT-1313A	Reduction, not a PSD major source.
WY	Lincoln	Chevron USA, Inc.	Ballerina #20-10	CT-2716	Production well with emissions < 3TPY.
WY	Sublette	Chevron USA, Inc.	Birch Creek 134	CT-2997	Production well with emissions < 3TPY.
WY	Sublette	Chevron USA, Inc.	Birch Creek 186	CT-2997	Production well with emissions < 3TPY.
WY	Sublette	Chevron USA, Inc.	Birch Creek Compressor Station @ Battery A	MD-770A	Reduction, not a PSD major source.
WY	Lincoln	Chevron USA, Inc.	Ham's Fork 24-3	CT-2718	Production well with emissions < 3TPY.
WY	Lincoln	Chevron USA, Inc.	Mariposa Federal 3	CT-2717	Production well with emissions < 3TPY.
WY	Lincoln	Chevron USA, Inc.	Rim Rock 11-13	CT-3133	Production well with emissions < 3TPY.
WY	Sweetwater	Chevron USA, Inc.	Stagecoach Draw # 17A	CT-2926	Production well with emissions < 3TPY.
WY	Sweetwater	Chevron USA, Inc.	Table Rock Compressor Station	MD-953	Increase < 1 TPY.
WY	Natrona	Chevron USA, Inc.	Waltman # 57	CT-2897	Production well with emissions < 3TPY.
WY	Natrona	Chevron USA, Inc.	Waltman #55 South Field Compression Facili	CT-1941A	Reduction, not a PSD major source.
WY	Natrona	Chevron USA, Inc.	Waltman 44 Compression Facility	MD-973	Reduction, not a PSD major source.
WY	Campbell	Clear Creek Natural Gas, LLC	Bobcat Compressor Station	MD-887A	Reduction, not a PSD major source.
WY	Campbell	Clear Creek Natural Gas, LLC	PRFC #11 Station	MD-592A	No change in emissions.
WY	Campbell	Clear Creek Natural Gas, LLC	Skull Creek Gathering System	CT-2758	DEQ unable to locate permit.
WY	Uinta	Clear Creek Storage Company LLC	Clear Creek Gas Storage Facility	MD-594	Production well with emissions < 3TPY.
WY	Johnson	CMS Field Service	KHUN 35 Compressor Station	CT-3340	Outside domain.
WY	Campbell	CMS Field Service	Larey Draw	CT-2405A	No change in emissions.
WY	Campbell	CMS Field Service	MTG-Felix Central Compressor Station	CT-2298A	No change in emissions.
WY	Sheridan	CMS Field Services	Badger Creek A Compressor Station	CT-2609	Outside domain.
WY	Sheridan	CMS Field Services	Badger Creek B Compressor Station	CT-2610	Outside domain.
WY	Sheridan	CMS Field Services	Badger Creek C Compressor Station	CT-2611	Outside domain.
WY	Sheridan	CMS Field Services	Badger Creek D Compressor Station	CT-2612	Outside domain.
WY	Sheridan	CMS Field Services	Badger Creek E Compressor Station	CT-2613	Outside domain.
WY	Sheridan	CMS Field Services	Cottonwood Creek Prospect C Station	CT-2194A	No change in emissions.
WY	Sheridan	CMS Field Services	Cottonwood Creek Prospect F	CT-2446	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	CMS Field Services	Felix Central Station	MD-601	Outside domain.
WY	Campbell	CMS Field Services	Fitch Central Compressor Station	MD-602	Outside domain.
WY	Campbell	CMS Field Services	Fitch Central Compressor Station	MD-602A	Reduction, not a PSD major source.
WY	Sheridan	CMS Field Services	Hank Williams-Malli Compressor Station	MD-600A	Outside domain.
WY	Sheridan	CMS Field Services	Hank Williams-Malli Compressor Station	MD-600	Outside domain.
WY	Sheridan	CMS Field Services	Hey Joe Creek Prospect A Compressor Static	CT-2254	Outside domain.
WY	Sheridan	CMS Field Services	Hey Joe Creek Prospect D Compressor Static	CT-2257	Outside domain.
WY	Campbell	CMS Field Services	Ivy Creek Central	CT-2473	Outside domain.
WY	Sheridan	CMS Field Services	Ivy Creek Gibbs - 18	CT-2502	Outside domain.
WY	Campbell	CMS Field Services	Ivy Creek Gibbs 1	CT-2475	Outside domain.
WY	Campbell	CMS Field Services	Ivy Creek Gibbs 24	CT-2474	Outside domain.
WY	Campbell	CMS Field Services	Kingsbury Central Compressor Station	MD-828	Increase < 1 TPY.
WY	Sheridan	CMS Field Services	Kuhn #2 Compressor Station	CT-2683A	No change in emissions.
WY	Sheridan	CMS Field Services	Kuhn #2 Compressor Station	CT-2683	Outside domain.
WY	Johnson	CMS Field Services	Kuhn 27 Compressor Station	CT-2189A	No change in emissions.
WY	Campbell	CMS Field Services	Larey Draw	CT-2405	Outside domain.
WY	Sheridan	CMS Field Services	Meriwether Lewis A Compressor Station	CT-2644	Permit withdrawn.
WY	Sheridan	CMS Field Services	Meriwether Lewis B Compressor Station	CT-2645	Permit withdrawn.
WY	Sheridan	CMS Field Services	Meriwether Lewis C Compressor Station	CT-2646	Permit withdrawn.
WY	Sheridan	CMS Field Services	Meriwether Lewis D Compressor Station	CT-2647	Permit withdrawn.
WY	Sheridan	CMS Field Services	Meriwether Lewis E Compressor Station	CT-2648	Permit withdrawn.
WY	Sheridan	CMS Field Services	Meriwether Lewis F Compressor Station	CT-2649	Permit withdrawn.
WY	Sheridan	CMS Field Services	Meriwether Lewis G Compressor Station	CT-2650	Permit withdrawn.
WY	Campbell	CMS Field Services	Middle Prong Compressor Station	MD-802	Outside domain.
WY	Campbell	CMS Field Services	MTG-Felix Central Compressor Station	CT-2298	Outside domain.
WY	Campbell	CMS Field Services	North Felix Compressor Station	CT-1732A	Administrative change.
WY	Sheridan	CMS Field Services	OK Creek 25 Compressor Station	CT-2463	Outside domain.
WY	Sheridan	CMS Field Services	Prairie Dog A Compressor Station	CT-2629	Outside domain.
WY	Sheridan	CMS Field Services	Prairie Dog B Compressor Station	CT-2630	Outside domain.
WY	Sheridan	CMS Field Services	Prairie Dog C Compressor Station	CT-2631	Outside domain.
WY	Sheridan	CMS Field Services	Prairie Dog E Compressor Station	CT-2633	Outside domain.
WY	Sheridan	CMS Field Services	Prairie Dog F Compressor Station	CT-2634	Outside domain.
WY	Sheridan	CMS Field Services	Prairie Dog G Compressor Station	CT-2635	Outside domain.
WY	Sheridan	CMS Field Services	Rhoades Ranch Compressor Station	CT-3065	Outside domain.
WY	Sheridan	CMS Field Services	Wild Horse Compressor Station	MD-827	Outside domain.
WY	Laramie	Coastal Chemical	Cheyenne Nitrogenous Fertilizer Facility	CT-1099A2	Administrative change.
WY	Laramie	Coastal Chemical	Cheyenne Nitrogenous Fertilizer Facility	CT-1099A	No change in emissions.
WY	Sweetwater	Colorado Interstate Gas	Table Rock Compressor Station	MD-740	Increase < 1 TPY.
WY	Sweetwater	Colorado Interstate Gas	Table Rock Compressor Station	MD-740A	No change in emissions.
WY	Johnson	Comet Energy, LLC	Belus #28 CPF	CT-2869	Outside domain.
WY	Johnson	Comet Energy, LLC	Belus #28 CPF	MD-936	Outside domain.
WY	Johnson	Comet Energy, LLC	Belus #32	CT-3034	Outside domain.
WY	Johnson	Comet Energy, LLC	Belus #32	MD-937	Outside domain.
WY	Johnson	Comet Energy, LLC	Lawrence 28 Compressor Station	CT-2954	Outside domain.
WY	Johnson	Comet Energy, LLC	Lawrence 28 Compressor Station	MD-932	Outside domain.
WY	Johnson	Comet Energy, LLC	Lawrence 28 Compressor Station	CT-2954A	Reduction, not a PSD major source.
WY	Johnson	Comet Energy, LLC	Lawrence 33 CPF Compressor Station	CT-2955	Outside domain.
WY	Johnson	Comet Energy, LLC	Lawrence 33 CPF Compressor Station	MD-926	Outside domain.
WY	Natrona	ConocoPhillips Company	Casper Pump Station	MD-673	No NOx, SO2, or PM10.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Platte	ConocoPhillips Company	Guernsey Crude Station	MD-636	No NOx, SO2, or PM10.
WY	Sweetwater	ConocoPhillips Company	Rock Springs Terminal	MD-635	Reduction, not a PSD major source.
WY	Sheridan	ConocoPhillips Company	Sheridan Terminal	MD-634	Change to HAP limits only.
WY	Sheridan	ConocoPhillips Company	Sheridan Terminal	MD-634A	No change in emissions.
WY	Park	Dakota Coal Company	Frannie Lime Manufacturing	MD-929	Outside domain.
WY	Fremont	Daves Asphalt Company	Wyoming Pit	CT-3555	Increase < 1 TPY.
WY	Natrona	Defense Technology Corporation	Casper Facilities	MD-762	Increase < 1 TPY.
WY	Carbon	Devon Energy Production Company, L.P.	Blue Gap No. 4-7-14-92	CT-2830	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	East Echo Springs 14-26-19-92	CT-3164	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	East Echo Springs 16-22-19-92	CT-3166	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	East Echo Springs 3-26-19-92	CT-3163	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	East Esho Springs 1-34-19-92	CT-3305	Production well with emissions < 3TPY.
WY	Sweetwater	Devon Energy Production Company, L.P.	Five Mile Ditch 6-30-21-93	CT-3100	Production well with emissions < 3TPY.
WY	Sweetwater	Devon Energy Production Company, L.P.	Red Lakes 13-6-18-94	CT-3062	Production well with emissions < 3TPY.
WY	Sweetwater	Devon Energy Production Company, L.P.	Red Lakes No. 16-6-18-94	CT-2714	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	Standard Draw 1-18-18-93	CT-3079	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	Standard Draw 16-18-18-93	CT-3165	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	Standard Draw 16-18-18-93	CT-3165 (Corrected)	Production well with emissions < 3TPY.
WY	Carbon	Devon Energy Production Company, L.P.	Standard Draw 16-30-18-93	CT-3086	Production well with emissions < 3TPY.
WY	Sweetwater	Devon Energy Production Company, L.P.	Tierney 15-32-19-94	CT-2655	Production well with emissions < 3TPY.
WY	Sweetwater	Devon Energy Production Company, L.P.	Tierney 2-32-19-94	CT-3290	Production well with emissions < 3TPY.
WY	Big Horn	Devon Energy Production Company, L.P.	Worland Field Compressor Station	ct-2677a	Increase < 1 TPY.
WY	Big Horn	Devon Energy Production Company, L.P.	Worland Field Compressor Station	CT-2677	Outside domain.
WY	Sublette	Devon Energy Production Company, L.P.	Yellow Point No. 04-01-28-109	CT-2643	Production well with emissions < 3TPY.
WY	Sublette	Devon Energy Production Company, L.P.	Yellow Point No. 14-14-28-109	CT-2702	Production well with emissions < 3TPY.
WY	Sweetwater	Duke Energy Field Services, LP	Bitter Creek 21-4	CT-3289	No NOx, SO2, or PM10.
WY	Sweetwater	Duke Energy Field Services, LP	Black Butte 11-19-100 Compressor Station	CT-2605A	No change in emissions.
WY	Uinta	Duke Energy Field Services, LP	Emigrant Trail Gas Plant	MD-774	Increase < 1 TPY.
WY	Sweetwater	Duke Energy Field Services, LP	Iron Pipe 29-2	CT-3403	No NOx, SO2, or PM10.
WY	Sweetwater	Duke Energy Field Services, LP	Patrick Draw Gas Plant	MD-924	No change in emissions.
WY	Campbell	El Paso Corporation	Lazy B Station	CT-1847A	Reduction, not a PDS major source.
WY	Campbell	El Paso Corporation	PRFC #11 Station	MD-592	Outside domain.
WY	Sweetwater	El Paso Corporation	Redlakes #2	CT-2275	Increase < 1 TPY.
WY	Fremont	El Paso Field Services	Fee 1-8	CT-3035	Production well with emissions < 3TPY.
WY	Sweetwater	El Paso Field Services	Forest 1-4	CT-3021	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Forest 2-32	CT-3142	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Forest 3-4	CT-3047	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Forest 4-32	CT-3037	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Forest 9-32	CT-3020	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Forest 9-4	CT-3023	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Red Lakes 12-10	CT-2999	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Red Lakes 13-6-18-94	CT-3096	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Red Lakes 8-1	CT-3011	Increase < 1 TPY.
WY	Carbon	El Paso Field Services	Standard Draw 1-18-18-93	CT-3067	Production well with emissions < 3TPY.
WY	Carbon	El Paso Field Services	Standard Draw 16-18-18-93	CT-3122	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Tierney 2-32	CT-3209	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Wamsutter Regulator	MD-741A	No change in emissions.
WY	Sweetwater	El Paso Field Services	Wild Rose 11-18	CT-3239	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Wild Rose 1-26	CT-3048	Increase < 1 TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sweetwater	El Paso Field Services	Wild Rose 2-18	CT-3041	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Wild Rose Federal 1-6	CT-3221	Increase < 1 TPY.
WY	Sweetwater	El Paso Field Services	Wild Rose Federal 2-10	CT-3126	Increase < 1 TPY.
WY	Campbell	Emerald Operating Company	Lowery Lease Station	CT-3512	Outside domain.
WY	Campbell	Encoal Corporation	Liquid from Coal Facility (Buckskin)	MD-761	Outside domain.
WY	Campbell	Encoal Corporation	Liquid from Coal Facility (Buckskin)	MD-614	Outside domain.
WY	Park	EnRe LP	Skull Creek Pipeline	CT-2723	Outside domain.
WY	Sublette	EOG Resources	B Tank Battery	CT-1552A	Production well with emissions < 3TPY.
WY	Converse	EOG Resources	Crotalus 4-7 Tank Battery	CT-3420	Increase < 1 TPY.
WY	Lincoln	EOG Resources	Emigrant Springs 20-21	CT-3029	Production well with emissions < 3TPY.
WY	Lincoln	EOG Resources	Emigrant Springs 21-22	CT-3015	Production well with emissions < 3TPY.
WY	Lincoln	EOG Resources	ESU 20-21 & 26-21	MD-868	Production well with emissions < 3TPY.
WY	Lincoln	EOG Resources	GRBU 216-12	CT-3116	Production well with emissions < 3TPY.
WY	Sublette	EOG Resources	GRBU 301-7d	CT-2990	Production well with emissions < 3TPY.
WY	Sublette	EOG Resources	North LaBarge Shallow Unit Tract 16	CT-1553A	Reduction, not a PSD major source.
WY	Sweetwater	EOG Resources	North Ruger 35-29D	CT-3257	Production well with emissions < 3TPY.
WY	Johnson	Evans Construction	Jackson Yard	MD-745	Outside domain.
WY	Sheridan	Federated Oil and Gas	Box Elder Creek Main Compressor Station	CT-2289	Outside domain.
WY	Sheridan	Federated Oil and Gas	Box Elder Creek Main Compressor Station	CT-2289A	Reduction, not a PDS major source.
WY	Sheridan	Federated Oil and Gas	Box Elder Creek Pod 2 Compressor Station	CT-2291	Outside domain.
WY	Campbell	Federated Oil and Gas	Spotted Horse Creek #1 Pod 1 Station	CT-2294	Outside domain.
WY	Sheridan	Federated Oil and Gas	Wild Horse Creek Compressor Station	CT-1942A	No change in emissions.
WY	Sheridan	Federated Oil and Gas	Wild Horse Creek Compressor Station	CT-3208	Outside domain.
WY	Crook	First Energy Services Company, Inc.	CT-2411	CT-2411	Outside domain.
WY	Portable	First Energy Services Company, Inc.	Road Runner Screen Plant with Truss Stacke	CT-3218	Increase < 1 TPY.
WY	Campbell	First Sourcenergy Wyoming Incorporated	PRFC #14 Compressor Station	CT-2267	Permit expired.
WY	Campbell	First Sourcenergy Wyoming Incorporated	PRFC #21	CT-2372A	No change in emissions.
WY	Campbell	First Sourcenergy Wyoming Incorporated	PRFC #21	CT-2372	Permit expired.
WY	Weston	Fisher Sand and Gravel	CT-2875	CT-2875	Outside domain.
WY	Weston	Fisher Sand and Gravel	CT-2994	CT-2994	Outside domain.
WY	Sweetwater	FMC Wyoming Corporation	Soda Ash Facility - Green River Plant	MD-608	No change in emissions.
WY	Sublette	Forest Oil Corporation	Elm Federal No. 23-12	CT-2867	Production well with emissions < 3TPY.
WY	Sublette	Forest Oil Corporation	Elm Federal No. 23-22	CT-2547	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Forest 1-4-17-94	CT-3097	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Forest 2-32-18-94	CT-3172	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Forest 3-4-17-94	CT-3168	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Forest 9-32-18-94	CT-3108	Production well with emissions < 3TPY.
WY	Sublette	Forest Oil Corporation	Wild Rose 1-26	CT-3139	Production well with emissions < 3TPY.
WY	Sublette	Forest Oil Corporation	Wild Rose 1-26	CT-3139 (Corrected)	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Wild Rose Federal 11-18	CT-3303	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Wild Rose Federal 1-6	CT-3306	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Wild Rose Federal 2-18-17-94	CT-3147	Production well with emissions < 3TPY.
WY	Sweetwater	Forest Oil Corporation	Wild Rose Federal 9-18	CT-3317	Production well with emissions < 3TPY.
WY	Laramie	Frontier Oil and Refining Company	Frontier Refinery	MD-607	No change in emissions.
WY	Laramie	Frontier Oil and Refining Company	Frontier Refinery	MD-927A	No change in emissions.
WY	Laramie	Frontier Oil and Refining Company	Frontier Refinery	MD-839	No NOx, SO2, PM10.
WY	Laramie	Frontier Oil and Refining Company	Frontier Refinery	MD-798	Outside domain.
WY	Laramie	Frontier Oil and Refining Company	Frontier Refinery	MD-674	Outside domain.
WY	Laramie	Frontier Oil and Refining Company	Frontier Refinery	MD-927	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Platte	Guernsey Stone Company	Whalen Canyon Road Quarry	CT-2662	Outside domain.
WY	Portable	Harper Contracting, Incorporated	CT-3381	CT-3381	DEQ unable to locate permit.
WY	Campbell	Hettinger Welding, Inc.	Scoria Pit	CT-3275	Outside domain.
WY	Campbell	Hettinger Welding, Inc.	Scoria Pit	CT-3278	Outside domain.
WY	Washakie	Hiland Partners, L.L.C.	Cottonwood Compressor Station	MD-886	Outside domain.
WY	Washakie	Hiland Partners, L.L.C.	Hiland Gas Plant	MD-641	No change in emissions.
WY	Washakie	Hiland Partners, L.L.C.	Hiland Gas Plant	MD-641A	No change in emissions.
WY	Fremont	Howell Petroleum Corporation	Big Sand Draw Compressor Station	MD-885	Reduction, not a PSD major source.
WY	Platte	Imerys Marble, Inc.	Wheatland Marble Plant	MD-695	Reduction, not a PSD major source.
WY	Platte	Imerys Marble, Inc.	Wheatland Marble Plant	MD-905	Reduction, not a PSD major source.
WY	Campbell	Independent Production Company	Pronghorn North	CT-1889A	Increase < 1 TPY.
WY	Sheridan	Intermountain Construction and Materials	CT-1216	MD-610	No change in emissions.
WY	Sheridan	JM Huber	Beaver Creek Compressor Station	CT-3039	Outside domain.
WY	Sheridan	JM Huber	Buffalo Creek Compressor Station	CT-3152	Outside domain.
WY	Sheridan	JM Huber	Dutch Creek Compressor Station	CT-3040	Outside domain.
WY	Sheridan	JM Huber	Jones Draw Compressor Station	CT-3028	Outside domain.
WY	Campbell	JM Huber	Lynde Trust 3-13 Booster Facility	MD-777	Outside domain.
WY	Sheridan	JM Huber	Middle Creek Compressor Station	CT-3031	Outside domain.
WY	Sheridan	JM Huber	Roode Compressor Station	CT-3032	Outside domain.
WY	Campbell	JM Huber	Stones Throw Main/Pod 2 Station	MD-842	Outside domain.
WY	Campbell	JM Huber	Stones Throw North	CT-2694A	No change in emissions.
WY	Campbell	JM Huber	Stones Throw North	CT-2694	Outside domain.
WY	Campbell	JM Huber	Stones Throw Pod 1 Station	CT-1964A	No change in emissions.
WY	Campbell	JM Huber	Stones Throw Pod 5 Station	CT-1965A	No change in emissions.
WY	Campbell	JM Huber	Stones Throw Pod 6 Station	MD-705A	No change in emissions.
WY	Campbell	JM Huber	Stones Throw Pod 6 Station	MD-705	Outside domain.
WY	Campbell	JM Huber	Stones Throw Pod 6 Station	MD-846	Outside domain.
WY	Sheridan	JM Huber	Town Draw Compressor Station	CT-3148	Outside domain.
WY	Sheridan	JM Huber	Twin Buttes Compressor Station	CT-3153	Outside domain.
WY	Sheridan	JM Huber	Upper Spring Creek Compressor Station	CT-3038	Outside domain.
WY	Sheridan	JM Huber	Whitmeyer Compressor Station	CT-3154	Outside domain.
WY	Sheridan	JM Huber	Wyarno Compressor Station	CT-3027	Outside domain.
WY	Sublette	Joe's Concrete & Lumber Incorporated	Portable Concrete Batch Plant & Screening P	CT-2117	Increase < 1 TPY.
WY	Sublette	Jonah Gas Gathering Company	Bird Canyon/County Line Compressor Statior	CT-2252A	Location change.
WY	Lincoln	Jonah Gas Gathering Company	JGGC/OTTCO Interconnect	MD-806 (Never Issued)	Permit never issued.
WY	Sublette	Jonah Gas Gathering Company	Luman Compressor Station	MD-714	Increase < 1 TPY.
WY	Washakie	KCS Mountain Resources Incorporated	Manderson Gas Plant / Oil Battery	CT-1320A	Reduction, not a PSD major source.
WY	Big Horn	KCS Mountain Resources Incorporated	Manderson Sweet Gas Refrigeration	MD-900	Increase < 1 TPY.
WY	Natrona	Kinder Morgan	Cyclone Ridge (39 Mile) Compressor Station	MD-672	No change in emissions.
WY	Campbell	Kinder Morgan Operating L.P. "A"	Amos Draw Booster	MD-788	Reduction, not a PSD major source.
WY	Campbell	Kinder Morgan Operating L.P. "A"	Archibald Booster	MD-792	Reduction, not a PSD major source.
WY	Campbell	Kinder Morgan Operating L.P. "A"	HA Creek Booster	MD-789	Reduction, not a PSD major source.
WY	Campbell	Kinder Morgan Operating L.P. "A"	Hay Booster	MD-787	Reduction, not a PSD major source.
WY	Converse	Kinder Morgan Operating L.P. "A"	Hogs Draw Booster	MD-785	Reduction, not a PSD major source.
WY	Converse	Kinder Morgan Operating L.P. "A"	Irwin Ranch Station	MD-786	Reduction, not a PSD major source.
WY	Campbell	Kinder Morgan Operating L.P. "A"	Thunder Booster	CT-2781	Outside domain.
WY	Weston	Kinder Morgan Operating L.P. "A"	Todd Booster	MD-784	Reduction, not a PSD major source.
WY	Converse	Kinder Morgan Operating L.P. "A"	Well Draw Booster Station	MD-742	Reduction, not a PSD major source.
WY	Natrona	Kinder Morgan, Inc.	Casper Extraction Plant	MD-952	DEQ unable to locate permit.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Natrona	Kinder Morgan, Inc.	Casper Extraction Plant	MD-769	No change in emissions.
WY	Park	Marathon Oil Company	South Chugwater Booster	CT-2517	Outside domain.
WY	Sweetwater	Marathon Oil Company	Wamsutter 12-32	CT-2703	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Cabrito 12-19-29-107	CT-3222	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Cabrito 12-25-29-108	CT-2888	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Cabrito 14-25-29-108	CT-2938	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Cabrito 14-30-29-107	CT-3223	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Cabrito 7-30-29-107	CT-3072	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Corona SHB 10-30-29-108	CT-3277	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Corona-SHB 16-31-29-108	CT-3246	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Corona-Stud Horse Butte 6-30-29-108	CT-3297	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 11-7-28-108	CT-3194	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 12-7-28-108	CT-2914	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 1-5x-28-108	CT-2944	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 1-6X-28-108	CT-2937	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 1-7X-28-108	CT-2889	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 2-7-28-108	CT-2881	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 3-8x-28-108	CT-2957	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 4-18-28-108	CT-2911	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 4-4-28-108	CT-2912	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 4-6-28-109	CT-3026	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 5-4-28-108	CT-3167	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 5-8-28-108	CT-2956	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 6-5-28-108	CT-2891	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 6-6-28-108	CT-3022	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 6-7-28-108	CT-2913	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 7-5-28-108	CT-2959	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 7-6-28-108	CT-2819	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 8-6-28-108	CT-3078	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal 8-7-28-108	CT-2902	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Jonah Federal No. 4-7-28-108	CT-2907	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 10-26-29-108	CT-3053	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 10-28-29-108	CT-3092	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 10-33-29-108	CT-2807	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 10-34-29-108	CT-2906	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 10-35-29-108	CT-2882	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 11-22-29-108	CT-3017	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 11-33X-29-108	CT-3144	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 12-26-29-108	CT-2887	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 12-27-29-108	CT-3272	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 12-28-29-108	CT-3195	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 12-34-29-108	CT-2904	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 1-28-29-108	CT-3016	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 1-29-29-108	CT-3179	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 13-20-29-108	CT-2908	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 13-29-29-108	CT-2909	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 1-36-29-108	CT-2939	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 14-26-29-108	CT-2951	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 14-27-29-108	CT-3215	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sublette	McMurry Oil Company	Stud Horse Butte 14-28-29-108	CT-3213	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 14-33-29-108	CT-3267	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 14-34-29-108	CT-3120	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 14-35-29-108	CT-2949	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 15-19-29-108	CT-3025	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 16-18-29-108	CT-3573	Increase < 1 TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 16-26-29-108	CT-3217	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 16-28-29-108	CT-3156	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 16-33-29-108	CT-3280	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 16-35R-29-108	CT-3198	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-26-29-108	CT-2961	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-27-29-108	CT-3204	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-28-29-108	CT-3200	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-29-29-108	CT-3090	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-33-29-108	CT-3214	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-34-29-108	CT-2953	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 2-35-29-108	CT-2958	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 3-29-29-108	CT-3044	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 3-36-29-108	CT-3057	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 4-26-29-108	CT-2960	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 4-27-29-108	CT-3276	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 4-28-29-108	CT-3155	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 4-29-29-108	CT-3091	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 4-35-29-108	CT-2866	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 5-28-29-108	CT-3247	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 5-36-29-108	CT-2929	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 6-26-29-108	CT-3113	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 6-28-29-108	CT-3089	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 6-29-29-108	CT-3073	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 6-33-29-108	CT-3205	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 6-34-29-108	CT-2910	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 7-29-29-108	CT-3050	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 7-33-29-108	CT-2820	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 7-36A-29-108	CT-3230	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 8-26-29-108	CT-3071	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 8-27M-29-108	CT-3315	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 8-28-29-108	CT-3296	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 8-29-29-108	CT-3248	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 8-35-29-108	CT-2948	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 8-36-29-108	CT-2950	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 9-19-29-108	CT-2905	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte 9-29-29-108	CT-3051	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte No. 4-34-29-108	CT-2915	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Stud Horse Butte No. 8-34-29-108	CT-2803	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 10-11-28-109	CT-3193	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 10-13-28-109	CT-3203	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 10-14-28-109	CT-3197	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 11-14-28-109	CT-3202	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 12-13-28-109	CT-3052	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sublette	McMurry Oil Company	Yellow Point 14-13-28-109	CT-3180	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 16-11-28-109	CT-2808	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 2-12-28-109	CT-3019	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 2-1-28-109	CT-3249	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 4-12-28-109	CT-2945	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 6-12-28-109	CT-2952	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 8-12-28-109	CT-3075	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 8-13-28-108	CT-3119	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point 8-2-28-109	CT-2880	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point No. 10-12-28-109	CT-2890	Production well with emissions < 3TPY.
WY	Sublette	McMurry Oil Company	Yellow Point No. 12-12-28-109	CT-2903	Production well with emissions < 3TPY.
WY	Campbell	Medicine Bow Energy Corporation	UMC State 12-16 Battery	CT-3453	Outside domain.
WY	Campbell	Medicine Bow Energy Corporation	Wagstaff Battery	CT-3452	Outside domain.
WY	Sheridan	MegaEnergy Generating, LLC	Prairie Dog Gen Site 1	CT-2984	Outside domain.
WY	Sheridan	MegaEnergy Generating, LLC	Prairie Dog Gen Site 2	CT-2985	Outside domain.
WY	Sheridan	MegaEnergy Generating, LLC	Prairie Dog Gen Site 3	CT-2986	Outside domain.
WY	Sheridan	MegaEnergy Generating, LLC	Prairie Dog Gen Site 4	CT-2987	Outside domain.
WY	Laramie	Meridian Granite Company	Granite Canyon Quarry	MD-737	Outside domain.
WY	Carbon	Merit Energy Company	Jons/Ruth Sweezy Compressor Station	MD-941	Reduction, not a PSD major source.
WY	Converse	Merit Energy Company	Powell Pressure Maintenance Unit	MD-919	Reduction, not a PSD major source.
WY	Converse	Merit Energy Company	Sage Creek Gas Plant	MD-648	No change in emissions.
WY	Converse	Merit Energy Company	Sage Grouse Booster	MD-743	No change in emissions.
WY	Carbon	Merit Energy Company	Savery Compressor Station	MD-816	Reduction, not a PSD major source.
WY	Big Horn	M-I Drilling Fluids Company	Greybull Plant	MD-658	Outside domain.
WY	Campbell	MIGC Incorporated	Bonepile Compressor Station	MD-752	Outside domain.
WY	Campbell	MIGC Incorporated	Bonepile Compressor Station	MD-752A	Reduction, not a PSD major source.
WY	Albany	Mountain Cement Company	Laramie Cement Plant	MD-983	No change in emissions.
WY	Big Horn	Mountain Construction Company	CT-3302	CT-3302	Outside domain.
WY	Lincoln	Mountain Gas Resources	Ballerina 10-10	CT-2991	No NOx, SO2, or PM10.
WY	Sweetwater	Mountain Gas Resources	Blue Forest	MD-884	Reduction, not a PSD major source.
WY	Sweetwater	Mountain Gas Resources	Blue Forest 30-13F	CT-3115	No NOx, SO2, or PM10.
WY	Sweetwater	Mountain Gas Resources	Blue Forest 40-13 Well	CT-2924	No NOx, SO2, or PM10.
WY	Sweetwater	Mountain Gas Resources	Bruff 50-24	CT-2596	No NOx, SO2, or PM10.
WY	Sweetwater	Mountain Gas Resources	Fabian Ditch Compressor Station	MD-642A	Reduction, not a PSD major source.
WY	Lincoln	Mountain Gas Resources	Hailstone #10	CT-2977	No NOx, SO2, or PM10.
WY	Lincoln	Mountain Gas Resources	Helwig 10-8	CT-2562	No NOx, SO2, or PM10.
WY	Sweetwater	Mountain Gas Resources	Horse Shoe Unit 10-34	CT-3143	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Jonah Compressor Station	CT-2280 Extension	Operating prior to Jan 1, 2001.
WY	Sweetwater	Mountain Gas Resources	Lincoln Road Compressor Station	MD-650	Increase < 1 TPY.
WY	Sweetwater	Mountain Gas Resources	Lincoln Road Compressor Station	MD-829	Increase < 1 TPY.
WY	Sweetwater	Mountain Gas Resources	Sevenmile Gulch Compressor Station	CT-1471A	No change in emissions.
WY	Sweetwater	Mountain Gas Resources	Stagecoach Compressor Station	MD-372A	No change in emissions.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 10-21	CT-2586	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 10-23A	CT-2414	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 14-21	CT-2614	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 14-24	CT-2413	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 16-21	CT-2588	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 2-23	CT-2425	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 2-24	CT-2616	No NOx, SO2, or PM10.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sublette	Mountain Gas Resources	Stud Horse Butte 6-24	CT-2587	No NOx, SO2, or PM10.
WY	Sublette	Mountain Gas Resources	Stud Hourse Butte 12-24	CT-3337	Increase < 1 TPY.
WY	Sublette	Mountain Gas Resources	War Bonnett 15-23	CT-2667	Increase < 1 TPY.
WY	Lincoln	Mountain Gas Resources	Whiskey Butte 40-30	CT-2563	No NOx, SO2, or PM10.
WY	Sweetwater	Nance Petroleum Corporation	Red Lakes #2-32	CT-2374	Production well with emissions < 3TPY.
WY	Carbon	Nearburg Producing Company	Fillmore 1-19	CT-2885	Production well with emissions < 3TPY.
WY	Crook	Northern Improvement Company	CT-3271	CT-3271	Outside domain.
WY	Johnson	Northwest Energy, LLC	Box Elder Quinn Booster 1	CT-2829	Outside domain.
WY	Johnson	Northwest Energy, LLC	Box Elder Quinn Booster 2	CT-2828	Outside domain.
WY	Johnson	Northwest Energy, LLC	Box Elder Quinn Booster 3	CT-3130	Outside domain.
WY	Johnson	Northwest Energy, LLC	Box Elder Quinn Booster 4	CT-3206	Outside domain.
WY	Johnson	Northwest Energy, LLC	Box Elder Quinn CPF	CT-2846	Outside domain.
WY	Johnson	Northwest Energy, LLC	Box Elder Quinn CPF #2	CT-3102	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Borgelli Booster 1	CT-2847	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Esponda Booster 1	CT-2840	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Esponda Booster 2	CT-2848	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Esponda Booster 3	CT-2841	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Quinn CPF	CT-2842	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Texaco Booster 1	CT-2895	Outside domain.
WY	Johnson	Northwest Energy, LLC	Clear Creek Watt Booster 1	CT-2859	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B1	CT-2854	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B10	CT-2852	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B11	CT-2893	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B12	CT-2853	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B13	CT-2849	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B14	CT-2850	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B2	CT-2856	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B4-2	CT-2855	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B5	CT-2892	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B6	CT-2831	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B7	CT-2832	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney B8	CT-2857	Outside domain.
WY	Johnson	Northwest Energy, LLC	North Piney B9-2	CT-2894	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney C1	CT-2771	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney C2	CT-2772	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney C3	CT-2780	Outside domain.
WY	Sheridan	Northwest Energy, LLC	North Piney C4	CT-2851	Outside domain.
WY	Sheridan	Northwest Energy, LLC	Wild Horse	CT-2863A	Outside domain.
WY	Sheridan	Northwest Energy, LLC	Wild Horse	CT-2863	Outside domain.
WY	Sheridan	Northwest Energy, LLC	Wild Horse Creek Compressor Station	CT-3208A	Reduction, not a PSD major source.
WY	Lincoln	Northwest Pipeline Company	Muddy Creek Station	MD-844	Reduction, not a PSD major source.
WY	Campbell	Optigas, LLC	Barber Creek Compressor Station	CT-3389A	No change in emissions.
WY	Campbell	Optigas, LLC	Barber Creek Compressor Station	CT-3389	Outside domain.
WY	Johnson	Optigas, LLC	Big Mike Compressor Station	CT-3466	Outside domain.
WY	Campbell	Optigas, LLC	Black Fox Compressor Station	CT-3489	Outside domain.
WY	Johnson	Optigas, LLC	Black Kettle Compressor Station	CT-3454	Outside domain.
WY	Campbell	Optigas, LLC	Cheyenne Compressor Station	CT-3398	Outside domain.
WY	Campbell	Optigas, LLC	Kingsbury Land Compressor Station	CT-3388	Outside domain.
WY	Campbell	Optigas, LLC	Little Wolf Compressor Station	CT-3481	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Optigas, LLC	Montgomery Compressor Station	CT-3401	Outside domain.
WY	Johnson	Optigas, LLC	Powder River Compressor Station	CT-3406	Outside domain.
WY	Campbell	Optigas, LLC	Scott Compressor Station	CT-3400	Outside domain.
WY	Johnson	Optigas, LLC	White Antelope Compressor Station	CT-3480	Outside domain.
WY	Campbell	Optigas, LLC	Wildcat Compressor Station	CT-3450	Outside domain.
WY	Converse	Pacificorp	Dave Johnston	MD-682	No change in emissions.
WY	Campbell	Petroleum Development Corporation	LX Bar Pod 1 Station	MD-494A	Reduction, not a PSD major source.
WY	Campbell	Petroleum Development Corporation	LX Bar Pod 3 Station	MD-496 EXPIRED	Reduction, not a PSD major source.
WY	Campbell	Petroleum Development Corporation	LX Bar Pod 4 Station	MD-497A	Reduction, not a PSD major source.
WY	Lincoln	Pittsburg and Midway Coal Company	Kemmerer Mine	MD-566	Reduction, not a PSD major source.
WY	Platte	Platte County Concrete and Stone	Portable Crushing Plant	CT-2992	Outside domain.
WY	Natrona	Platte Pipe Line Company	Casper Tank farm	MD-803	No NOx, SO2, or PM10.
WY	Campbell	Powder River Coal Company	North Antelope/Rochelle Coal Mine	MD-657A	Included in MD-657.
WY	Campbell	Powder River Coal Company	Rawhide Mine	MD-703	Reduction, not a PSD major source.
WY	Campbell	Prima Oil & Gas Company	Cedar Draw Pod A Compressor Station	CT-3511	Outside domain.
WY	Campbell	Prima Oil & Gas Company	Hensley Draw Compressor Station	CT-2672	Outside domain.
WY	Campbell	Prima Oil & Gas Company	Kingsbury Pod A Compressor Station	CT-3510	Outside domain.
WY	Campbell	Prima Oil & Gas Company	Kingsbury Pod B Compressor Station	CT-3506	Outside domain.
WY	Campbell	Prima Oil & Gas Company	North Shell Draw Main Compressor Station	CT-3492	Outside domain.
WY	Campbell	Prima Oil & Gas Company	North Shell Draw Pod B Compressor Station	CT-3509	Outside domain.
WY	Campbell	Prima Oil & Gas Company	North Shell Draw Pod D Compressor Station	CT-3505	Outside domain.
WY	Campbell	Prima Oil & Gas Company	North Shell Draw Pod E Compressor Station	CT-3504	Outside domain.
WY	Johnson	Quaneco LLC	Walker Draw Low Pressure Compressor Stati	CT-2449	Outside domain.
WY	Johnson	Quaneco LLC	Walker Draw Main Compressor Station	CT-2451	Outside domain.
WY	Johnson	Quaneco LLC	Wallows Creek Low Pressure Compressor St	CT-2450	Outside domain.
WY	Sweetwater	Questar Exploration & Production Co.	Federal Well 19-1	CT-2976	Production well with emissions < 3TPY.
WY	Sublette	Questar Exploration & Production Co.	Mesa 5-21	CT-3254	Production well with emissions < 3TPY.
WY	Sublette	Questar Exploration & Production Co.	Mesa Well 16-16	CT-3219	Production well with emissions < 3TPY.
WY	Sublette	Questar Exploration & Production Co.	Mesa Well 7-7 & Mesa 3-7	CT-3192	Production well with emissions < 3TPY.
WY	Sublette	Questar Exploration & Production Co.	Mesa Well 7-7 & Mesa 3-7	CT-3192 (Corrected)	Production well with emissions < 3TPY.
WY	Sublette	Questar Exploration & Production Co.	Stewart Point 15-17	CT-3283	Production well with emissions < 3TPY.
WY	Sweetwater	Questar Exploration & Production Co.	Wedge Unit 8	CT-2736	Production well with emissions < 3TPY.
WY	Uinta	Questar Gas Management Company	Blacks Fork Gas Plant	MD-873	Reduction, not a PSD major source.
WY	Sweetwater	Questar Gas Management Company	Dripping Rock Area Project	MD-943	No change in emissions.
WY	Campbell	RAG Coal West Incorporated	Eagle Butte Mine	MD-957	Reduction, not a PSD major source.
WY	Laramie	Recycled Materials Company, Inc.	portable crushing and screening plant	CT-3093	Outside domain.
WY	Big Horn	Red Butte Pipe Line Company	Byron Station	MD-273A	No NOx, SO2, or PM10.
WY	Washakie	Red Butte Pipe Line Company	Chatham Station	MD-275A	No NOx, SO2, or PM10.
WY	Natrona	Rissler and McMurry Company	Eagle Creek Ranch Quarry	CT-2874	Increase < 1 TPY.
WY	Johnson	Riverside Contracting, Inc.	Portable Hot Mix Plant CT-3009	CT-3009	Outside domain.
WY	Campbell	Rocky Mountain Gas, Inc.	Bobcat Compressor Station	MD-887	Outside domain.
WY	Campbell	Rocky Mountain Gas, Inc.	Bobcat Compressor Station	CT-2274	Outside domain.
WY	Campbell	Rocky Mountain Gas, Inc.	Bobcat Compressor Station	CT-2274A	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Main Compressor Station	CT-2269A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Main Compressor Station	CT-2269	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Pod A Compressor Station	CT-2270A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Pod A Compressor Station	CT-2270	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Pod B Compressor Station	CT-2271A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Pod B Compressor Station	CT-2271	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Pod C Compressor Station	CT-2272A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Bluebird Pod C Compressor Station	CT-2272	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bridger Compressor Station	CT-2406	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Creek Compressor Station	MD-681	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Creek Compressor Station	MD-681 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Creek Compressor Station	CT-2273	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 1 Compressor Station	CT-2565	Permit expired.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 10 Compressor Station	CT-2567A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 10 Compressor Station	CT-2567	Permit expired.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 11 Compressor Station	CT-2636	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 12 Compressor Station	CT-2637	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 12 Compressor Station	CT-2637 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 13 Compressor Station	CT-2608	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 13 Compressor Station	CT-2608 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 2 Compressor Station	CT-2589	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 3 Compressor Station	CT-2590	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 4 Compressor Station	CT-2591	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 5 Compressor Station	CT-2592	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 6 Compressor Station	CT-2593	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 7 Compressor Station	CT-2594	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 8 Compressor Station	CT-2595	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Bucko Satellite 9 Compressor Station	CT-2566	Permit expired.
WY	Johnson	Rowdy Pipeline, LLC	Burger Draw Central Compressor Station	CT-3327	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Burger Draw Satellite 1	CT-3298	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Burger Draw Satellite 2	CT-3279	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Central Compressor Station	MD-656A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Central Compressor Station	MD-656	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Central Compressor Station	CT-2230	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Pod 1 Station	CT-2231	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Pod 2 Station	CT-2232	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Pod 3 Station	CT-2233	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Pod 4 Station	CT-2234A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Carson State Pod 4 Station	CT-2234	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Church Central	CT-2427A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Church Pod 5	CT-2432A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Clarkellen Central Compressor Station	MD-825A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Clarkellen Central Compressor Station	MD-825A2	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Clarkellen Satellite 3 Station	CT-2360A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Clarkellen Satellite 3 Station	CT-2360	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Collums Compressor Station	MD-757	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Collums Compressor Station	CT-2247	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Cosner Satellite 2 Compressor Station	CT-2454A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Cosner Satellite 3 Compressor Station	CT-2455A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Felix Compressor Station	CT-2187	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Felix Compressor Station	CT-2187A	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Felix Compressor Station	CT-2187A2	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Felix Satellite 1 Compressor Station	CT-2538	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Felix Satellite 2 Compressor Station	CT-2540	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Felix Satellite 2 Compressor Station	MD-750	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Rowdy Pipeline, LLC	Felix Satellite 2 Compressor Station	MD-750 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Felix Satellite 3 Compressor Station	CT-2539	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Felix Satellite 4 Compressor Station	CT-2518	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Central Compressor Station	CT-2484A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Central Compressor Station	CT-2484	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 1 Compressor Station	CT-2485	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 2 Compressor Station	CT-2486A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 2 Compressor Station	CT-2486	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 3 Compressor Station	CT-2487A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 3 Compressor Station	CT-2487	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 4 Compressor Station	CT-2488A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 4 Compressor Station	CT-2488	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 5 Compressor Station	CT-2489A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Gabrielle Satellite 5 Compressor Station	CT-2489	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Greasewood Compressor Station	CT-3409	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Central Compressor Station	CT-2490A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Central Compressor Station	CT-2490	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 1 Compressor Station	CT-2491	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 2 Compressor Station	CT-2492	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 3 Compressor Station	CT-2493A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 3 Compressor Station	CT-2493	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 4 Compressor Station	CT-2494	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 5 Compressor Station	CT-2495	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 6 Compressor Station	CT-2496A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 6 Compressor Station	CT-2496	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 7 Compressor Station	CT-2497	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hanslip Satellite 8 Compressor Station	CT-2498	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Harper Draw	CT-2477	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Harper Draw	MD-748	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hen Compressor Station	CT-2505	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hen Compressor Station	MD-756	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hen Compressor Station	MD-756 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hoe Creek Central Compressor Station	CT-2170	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hoe Creek Satellite #1 Compressor Station	CT-2171	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hoe Creek Satellite #2 Compressor Station	CT-2172	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Hoe Creek Satellite #2 Compressor Station	CT-2172A	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Horse Creek Compressor Station	CT-2462	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Horse Creek Compressor Station	CT-2462A	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	House Creek Compressor Station	CT-2542	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Interstate 1 Compressor Station	CT-3568	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Interstate 2 Compressor Station	CT-3575	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Interstate A Compressor Station	CT-3567	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Interstate B Compressor Station	CT-3576	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Central Compressor Station	CT-2235	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Central Compressor Station	CT-2235A	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 1 Station	CT-2236A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 1 Station	CT-2236	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 2 Station	CT-2237A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 2 Station	CT-2237	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 3 Station	CT-2238A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 3 Station	CT-2238	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 4 Station	CT-2239A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 4 Station	CT-2239	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 6 Station	MD-847	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 6 Station	MD-977	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Kline Draw Satellite 6 Station	CT-2241	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	LX Bar Compressor Station	CT-2240A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	LX Bar Compressor Station	CT-2240	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Central Compressor Station	MD-835	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Central Compressor Station	MD-749	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Central Compressor Station	CT-2478	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 1 Compressor Station	CT-2479A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 1 Compressor Station	CT-2479	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 2 Compressor Station	CT-2480A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 2 Compressor Station	CT-2480	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 3 Compressor Station	CT-2481A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 3 Compressor Station	CT-2481	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 4 Compressor Station	CT-2482A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 4 Compressor Station	CT-2482	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 5 Compressor Station	CT-2483A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Middle Prong Satellite 5 Compressor Station	CT-2483	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Monte Central	CT-2375A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 1	CT-2384A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 1	CT-2384	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 2	CT-2385A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 2	CT-2385	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 3	CT-2386A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 4	CT-2387A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 4	CT-2387	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 5	MD-861 Revoked	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Moore Pod 8	CT-2391A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Muley Compressor Station	CT-2572A2	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Compressor Station	CT-2268A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Compressor Station	CT-2268	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 1	CT-2416	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 2	CT-2417	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 2	MD-944	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 3	CT-2418	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 4	CT-2419	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 6	CT-2421	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 6	CT-3421	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 7	CT-2422	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Niles Hill Pod 8	CT-2423	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Pine Tree Central Compressor Station	CT-2599 Expiration	Permit expired.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Central Compressor Station	MD-751A	No change in emissions.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Central Compressor Station	CT-2242	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Central Compressor Station	MD-751	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Pod 1 Station	CT-2243	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Pod 2 Station	CT-2244 Expired	Permit expired.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Pod 2 Station	CT-3387	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Pod 2 Station	CT-2244	Outside domain.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Satellite 1	CT-2243 (Expired)	Permit expired.
WY	Johnson	Rowdy Pipeline, LLC	Pumpkin Creek Satellite 1	CT-3377	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Central Compressor Station	CT-2569A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Central Compressor Station	CT-2569	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 1 Compressor Station	CT-2570	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 1 Compressor Station	CT-2570 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 2 Compressor Station	CT-2571	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 2 Compressor Station	CT-2571 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 3 Compressor Station	CT-2572A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 3 Compressor Station	CT-2572	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Riverbend Satellite 4 Compressor Station	CT-2573	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Savageton Compressor Station	CT-2549	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Savageton Compressor Station	MD-754	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Soukup Compressor Station	CT-2503	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Soukup Compressor Station	MD-694	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Spotted Horse Central Compressor Station	MD-880A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Spotted Horse Central Compressor Station	MD-880	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Spotted Horse Central Compressor Station	CT-2173	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Spotted Horse Central Compressor Station	CT-2173A	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Spotted Horse Satellite #1 Compressor Statio	CT-2174	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Spotted Horse Satellite #2 Compressor Statio	CT-2175	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Store Draw	MD-753A	No change in emissions.
WY	Campbell	Rowdy Pipeline, LLC	Store Draw	CT-2476	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Store Draw	MD-753	Outside domain.
WY	Sheridan	Rowdy Pipeline, LLC	Sukey Compressor Station	CT-3502	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	TD Southwest Compressor Station	CT-2504	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	TD Southwest Compressor Station	MD-758	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	TD Southwest Compressor Station	MD-758 Extension	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Topper	CT-2444	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	Vineyard	CT3513	Outside domain.
WY	Campbell	Rowdy Pipeline, LLC	West Kitty Compressor Station	CT-2074A	Reduction, not a PSD major source.
WY	Campbell	Rowdy Pipeline, LLC	Wright Compressor Station	CT-2381A	No change in emissions.
WY	Johnson	Rowdy Pipeline, LLC	Yoko Compressor Station	CT-3413	Outside domain.
WY	Park	Saga Petroleum LLC	YU Bench Compressor Station	MD-651	Outside domain.
WY	Sweetwater	SF Phosphates Limited	Phosphate Fertilizer Plant	MD-384A	No change in emissions.
WY	Sublette	Shell Rocky Mountain Production Co	Jensen 10-11D	CT-3196	Increase < 1 TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Antelope #11-4	CT-2980	Production well with emissions < 3TPY.
WY	Sheridan	Shell Rocky Mountain Production Co.	Antelope 1-9 & Antelope 2-9	MD-836	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Falcon 1-36	MD-864	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Falcon 8-36	MD-864	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Jensen 1A	CT-3123	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Mesa 13-26-32-109	CT-3285	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Mesa 6-28D-32-109 & Mesa 11-28-32-109	CT-3134	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Mesa 7-27-32-109	CT-3132	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	New Fork 7-3-31-109	CT-3141	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	New Fork 7-3-31-109	CT-3141 (Corrected)	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sublette	Shell Rocky Mountain Production Co.	Rainbow 11-31-30-107	CT-3231	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Rainbow 7-31	CT-3124	Production well with emissions < 3TPY.
WY	Sublette	Shell Rocky Mountain Production Co.	Riverside 2-14-31-109	CT-3284	Production well with emissions < 3TPY.
WY	Natrona	Sinclair Oil Company	Casper Refinery	MD-697	No change in emissions.
WY	Natrona	Sinclair Oil Company	Casper Station	MD-700	No NOx, SO2, or PM10.
WY	Carbon	Sinclair Oil Company	Sinclair Refinery	MD-701	No change in emissions.
WY	Sheridan	SRW, Inc.	Ellenwood, Krezelok, & Ruzila CPF Compres	CT-3151	Outside domain.
WY	Sheridan	SRW, Inc.	Ellenwood, Krezelok, & Ruzila Pod 1 Compre	CT-3157	Outside domain.
WY	Sheridan	SRW, Inc.	Ellenwood, Krezelok, & Ruzila Pod 2 Compre	CT-3158	Outside domain.
WY	Sheridan	SRW, Inc.	Ellenwood, Krezelok, & Ruzila Pod 3	CT-3159	Outside domain.
WY	Sheridan	Taylor Quarry	Quarry	MD-775	Increase < 1 TPY.
WY	Platte	Thomas McGuire	Sybille Creek Road Pit	CT-2993	Outside domain.
WY	Campbell	Thunder Basin Coal Company LLC	Black Thunder Mine	MD-877	Administrative change.
WY	Converse	Thunder Creek Gas Services	Buckshot Treating Facility	MD-855	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	FB-0443 Compressor Station	CT-2545	Outside domain.
WY	Campbell	Thunder Creek Gas Services	FB-1156	MD-586	Outside domain.
WY	Campbell	Thunder Creek Gas Services	FB-1233 Compressor Station	CT-2515 (Corrected)	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	FB-1913	CT-2445	Outside domain.
WY	Campbell	Thunder Creek Gas Services	FB-3464 Compressor Station	CT-2516	Outside domain.
WY	Campbell	Thunder Creek Gas Services	FB-3464 Compressor Station	CT-2516 Extension	Outside domain.
WY	Campbell	Thunder Creek Gas Services	FB-3525 Compressor Station	CT-2553 (Corrected)	Included under FB-3525
WY	Campbell	Thunder Creek Gas Services	House Creek Compressor Station	MD-627	Outside domain.
WY	Campbell	Thunder Creek Gas Services	House Creek Compressor Station	MD-735	Outside domain.
WY	Campbell	Thunder Creek Gas Services	House Creek Compressor Station	MD-627A	Reduction, not a PSD major source.
WY	Johnson	Thunder Creek Gas Services	Juniper Draw Compressor Station	CT-2507	Outside domain.
WY	Johnson	Thunder Creek Gas Services	Juniper Draw Compressor Station	CT-2507A	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	MTG Compressor Station	MD-773A	Administrative change.
WY	Campbell	Thunder Creek Gas Services	MTG Compressor Station	MD-773A Corrected	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	MTG Compressor Station	MD-661	Outside domain.
WY	Campbell	Thunder Creek Gas Services	MTG Compressor Station	MD-773	Outside domain.
WY	Campbell	Thunder Creek Gas Services	MTG Compressor Station	MD-618	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	North Kitty Booster Station	MD-665	Outside domain.
WY	Campbell	Thunder Creek Gas Services	North Kitty Booster Station	MD-591	Outside domain.
WY	Campbell	Thunder Creek Gas Services	North Kitty Booster Station	MD-858	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	SC-0113	MD-481A2	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-0156 Compressor Station	MD-640 (Expired)	Permit expired.
WY	Campbell	Thunder Creek Gas Services	SC-0156 Compressor Station	MD-985	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-0156 Compressor Station	MD-640	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-0513	MD-667	DEQ unable to locate permit.
WY	Campbell	Thunder Creek Gas Services	SC-0513	MD-582	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-0532 Compressor Station	CT-2546A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-0943 Compressor Station	CT-2550A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-0943 Compressor Station	CT-2550A Extension	Original permit was excluded.
WY	Campbell	Thunder Creek Gas Services	SC-0943 Compressor Station	CT-2550	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-1003	CT-1844A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-1003	MD-584	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-1115 Compressor Station	CT-2559A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-1244 Compressor Station	CT-2558A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-1244 Compressor Station	CT-2558	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Thunder Creek Gas Services	SC-1413	MD-573	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-1413	MD-573A	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	SC-1613	MD-585	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-1632 Compressor Station	CT-2548A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-1632 Compressor Station	CT-2548A Extension	Original permit was excluded.
WY	Campbell	Thunder Creek Gas Services	SC-1643 Compressor Station	CT-2557A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-1643 Compressor Station	CT-2557	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-2325 Compressor Station	CT-2551A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-2414	MD-583A	Administrative change.
WY	Campbell	Thunder Creek Gas Services	SC-2414	MD-666	DEQ unable to locate permit.
WY	Campbell	Thunder Creek Gas Services	SC-2414	MD-583	DEQ unable to locate permit.
WY	Campbell	Thunder Creek Gas Services	SC-2414	MD-666A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-2613	CT-1945A2	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	SC-2932 Compressor Station	CT-2543A	No change in emissions.
WY	Sheridan	Thunder Creek Gas Services	SC-2956	CT-2392A	No change in emissions.
WY	Sheridan	Thunder Creek Gas Services	SC-2956	CT-2392	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-3053 Compressor Station	CT-2544A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-3053 Compressor Station	CT-2544	Outside domain.
WY	Campbell	Thunder Creek Gas Services	SC-3225 Compressor Station	CT-2552A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	SC-3225 Compressor Station	CT-2552A Extension	Original permit was excluded.
WY	Campbell	Thunder Creek Gas Services	SC-3543 Compressor Station	CT-2654A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	South Kitty (Kitty South #2)	MD-581A	No change in emissions.
WY	Campbell	Thunder Creek Gas Services	South Kitty (Kitty South #2)	MD-581	Outside domain.
WY	Campbell	Thunder Creek Gas Services	South Kitty (Kitty South #2)	MD-859	Reduction, not a PSD major source.
WY	Campbell	Thunder Creek Gas Services	Spotted Horse (FB-2055)	MD-639	DEQ unable to locate permit.
WY	Sweetwater	Tom Brown Incorporated	Bravo Unit 02 Central Tank Battery	MD-688	Increase < 1 TPY.
WY	Fremont	Tom Brown Incorporated	Frenchie Draw Satellite Station	CT-2058A	Permit expired.
WY	Sweetwater	Tom Brown Incorporated	Great Divide #14	CT-2922	Production well with emissions < 3TPY.
WY	Sweetwater	Tom Brown Incorporated	Haven Unit #10-4	CT-2940	Production well with emissions < 3TPY.
WY	Sweetwater	Tom Brown Incorporated	Hay Reservior Unit #76	CT-2661	Production well with emissions < 3TPY.
WY	Sweetwater	Tom Brown Incorporated	Hay Reservoir 78	CT-2998	Production well with emissions < 3TPY.
WY	Sweetwater	Tom Brown Incorporated	Hay Reservoir Unit #77	CT-2660	Production well with emissions < 3TPY.
WY	Natrona	Tom Brown Incorporated	West Cave Gulch 4-36	CT-2900	Increase < 1 TPY.
WY	Fremont	Tom Brown Incorporated	West Pavillion Compressor Station	MD-680	Increase < 1 TPY.
WY	Campbell	TOP Gathering LLC	Buff Compressor Station	MD-837	Outside domain.
WY	Campbell	TOP Gathering LLC	Buff Compressor Station	CT-2598	Outside domain.
WY	Campbell	Triton Coal Company LLC	Buckskin Mine	MD-707	Reduction, not a PSD major source.
WY	Campbell	Triton Coal Company LLC	Buckskin Mine	MD-598	See period reduction under MD-707.
WY	Campbell	Triton Coal Company LLC	North Rochelle Mine	MD-790	Administrative change.
WY	Campbell	Triton Coal Company LLC	North Rochelle Mine	MD-790A	Administrative change.
WY	Sublette	Ultra Resources Incorporated	Boulder 5-19	CT-3175	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Boulder 7-19	CT-3304	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Mesa 9-34	CT-3288	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Riverside 1-4	CT-3064	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Riverside 2-2	CT-3046	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Riverside 4-10	CT-3268	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Stud Horse Butte 10-21	CT-2720	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Stud Horse Butte 12-23	CT-2698	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Stud Horse Butte 16-21	CT-2719	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Sublette	Ultra Resources Incorporated	Stud Horse Butte 2-24	CT-3176	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Stud Horse Butte 6-24	CT-2721	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Stud Horse Butte 8-24	CT-3173	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	War Bonnet 6-23	CT-3162	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Warbonnet 4-25	CT-3181	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Warbonnet 4-26	CT-3169	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Warbonnet 5-23	CT-3178	Production well with emissions < 3TPY.
WY	Sublette	Ultra Resources Incorporated	Warbonnet 7-4	CT-3174	Production well with emissions < 3TPY.
WY	Uinta	Union Tank Car Company	Evanston Facility	MD-881	No change in emissions.
WY	Campbell	Western Fuels-Wyoming, Inc.	Dry Fork Coal Mine	MD-933	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Arthur Compressor Station	CT-2403	Outside domain.
WY	Campbell	Western Gas Resources	Arthur Compressor Station	CT-2403A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Badger Station	MD-782	Outside domain.
WY	Campbell	Western Gas Resources	Belle Creek Compressor Station	CT-1898 corrected	Administrative change.
WY	Campbell	Western Gas Resources	Black Thunder Compressor Station	MD-492A3	No change in emissions.
WY	Campbell	Western Gas Resources	Black Thunder Compressor Station	MD-492A2	Reduction, not a PDS major source.
WY	Campbell	Western Gas Resources	Black Thunder Compressor Station	MD-492A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Black Thunder Compressor Station	MD-862	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Bud Station	MD-843	Increase < 1 TPY.
WY	Campbell	Western Gas Resources	Bud Station	MD-577	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Butte Compressor Station	CT-2461	Outside domain.
WY	Campbell	Western Gas Resources	Butte Compressor Station	CT-2461A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Charles/Henry Compressor Station (formerly	MD-820	Outside domain.
WY	Campbell	Western Gas Resources	Charles/Henry Compressor Station (formerly	CT-2371	Outside domain.
WY	Campbell	Western Gas Resources	Charles/Henry Compressor Station (formerly	CT-2371A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Chicken Compressor Station	CT-3084	Outside domain.
WY	Campbell	Western Gas Resources	Coal Creek Compressor Station	MD-711	Outside domain.
WY	Campbell	Western Gas Resources	Comet Station	MD-571	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Comet Station	MD-832	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Crag Compressor Station	CT-2597	Outside domain.
WY	Campbell	Western Gas Resources	Cumulus Station	MD-812	Outside domain.
WY	Campbell	Western Gas Resources	Cumulus Station	MD-689	Outside domain.
WY	Campbell	Western Gas Resources	Dead Horse Compressor Station	CT-3129	Outside domain.
WY	Johnson	Western Gas Resources	Deer Gulch Compressor Station	CT-2368	Outside domain.
WY	Campbell	Western Gas Resources	Dopplebach Compressor Station	MD-468 EXPIRED	Permit expired.
WY	Campbell	Western Gas Resources	Dopplebach Compressor Station	MD-402A2	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	East Fork Compressor Station	CT-3131	Outside domain.
WY	Campbell	Western Gas Resources	Echeta/Croton	CT-2868	Outside domain.
WY	Campbell	Western Gas Resources	Echeta/Croton	CT-2868A	Reduction, not a PSD major source.
WY	Johnson	Western Gas Resources	Flying Creek/Bridge Draw Compressor Statio	CT-2369	Outside domain.
WY	Campbell	Western Gas Resources	Gibbon Compressor Station	CT-2785	Outside domain.
WY	Campbell	Western Gas Resources	Gotham Compressor Station	CT-2871	Outside domain.
WY	Campbell	Western Gas Resources	Hay Creek Station	MD-738	Outside domain.
WY	Campbell	Western Gas Resources	Hilight Gas Plant	MD-664	No change in emissions.
WY	Johnson	Western Gas Resources	Hollywood Compressor Station	CT-3207	Outside domain.
WY	Campbell	Western Gas Resources	Horse Creek/Gas Draw Compressor Station	MD-854	Outside domain.
WY	Campbell	Western Gas Resources	Horse Creek/Gas Draw Compressor Station	MD-587	Permit withdrawn.
WY	Campbell	Western Gas Resources	Jack Compressor Station	CT-2783	Outside domain.
WY	Sheridan	Western Gas Resources	Joe Compressor Station	CT-2931	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Johnson	Western Gas Resources	Juniper/Aspen Compressor Station	CT-2367	Outside domain.
WY	Campbell	Western Gas Resources	Kestrel Station	MD-574	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	King/Queen Compressor Station	CT-2769	Outside domain.
WY	Campbell	Western Gas Resources	Krypton Station	MD-652	Outside domain.
WY	Campbell	Western Gas Resources	Lane Station	MD-824	Outside domain.
WY	Campbell	Western Gas Resources	Lane Station	MD-572	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Lariat Compressor Station	CT-3033	Outside domain.
WY	Campbell	Western Gas Resources	Little Thunder Compressor Station	MD-691 (corrected)	Included in MD-691.
WY	Campbell	Western Gas Resources	Malibu/Surfer Compressor Station	CT-2110A	No change in emissions.
WY	Campbell	Western Gas Resources	Malibu/Surfer Compressor Station	CT-2110A2	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Meteor Station	MD-568	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Meteor Station	MD-831	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Metropolis Compressor Station	CT-2468	Outside domain.
WY	Campbell	Western Gas Resources	Metropolis Compressor Station	CT-2468A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Montgomery/Tabatha Compressor Station	CT-2131A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Moon Station	MD-840	Outside domain.
WY	Campbell	Western Gas Resources	Moon Station	MD-569	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Morgan Draw/Crenshaw Hill	CT-3299	Outside domain.
WY	Campbell	Western Gas Resources	Penguin Compressor Station	CT-2800	Outside domain.
WY	Campbell	Western Gas Resources	Penguin Compressor Station	MD-823	Outside domain.
WY	Campbell	Western Gas Resources	Pinto/Spotted Horse	MD-704	Outside domain.
WY	Campbell	Western Gas Resources	Porcupine Compressor Station	MD-353A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Porter Station	MD-564 Expired	Permit expired.
WY	Campbell	Western Gas Resources	Pronghorn/Oryx	CT-2700A	No change in emissions.
WY	Johnson	Western Gas Resources	Pumpkin/Bruno	CT-2472	Outside domain.
WY	Johnson	Western Gas Resources	Pumpkin/Bruno	CT-2472A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Rainbow Pod Screw Compressor	MD-599	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Red Spring Compressor Station	MD-817	Outside domain.
WY	Campbell	Western Gas Resources	Red Spring Compressor Station	CT-2680	Outside domain.
WY	Campbell	Western Gas Resources	Richard Compressor Station	CT-2814	Outside domain.
WY	Campbell	Western Gas Resources	Riddler Compressor Station	MD-818	Outside domain.
WY	Campbell	Western Gas Resources	Riddler Compressor Station	CT-2801	Outside domain.
WY	Campbell	Western Gas Resources	Robin Compressor Station	CT-2916	Outside domain.
WY	Campbell	Western Gas Resources	Rocky Station	MD-698	Outside domain.
WY	Campbell	Western Gas Resources	Rocky Station	MD-578	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Sager Compressor Station	MD-693	Outside domain.
WY	Johnson	Western Gas Resources	SG Palo/Big Mike	CT-3010	Outside domain.
WY	Campbell	Western Gas Resources	Sioux/Jr. Reno Compressor Station	CT-2618A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	South Prong/Pearson Draw	CT-3177	Outside domain.
WY	Campbell	Western Gas Resources	Spring Creek Compressor Station (formerly P	MD-776	Increase < 1 TPY.
WY	Campbell	Western Gas Resources	Spring Creek Compressor Station (formerly P	CT-2265	Outside domain.
WY	Campbell	Western Gas Resources	Spring Creek Compressor Station (formerly P	CT-2265A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Spring Creek Compressor Station (formerly P	CT-2265A2	Reduction, not a PSD major source.
WY	Carbon	Western Gas Resources	Standard Draw 16-30-18-93	CT-3069	Production well with emissions < 3TPY.
WY	Campbell	Western Gas Resources	Star Station	MD-570	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Star Station	MD-830	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Stone Draw Station	MD-706	Outside domain.
WY	Campbell	Western Gas Resources	Stone Draw Station	MD-800	Outside domain.
WY	Campbell	Western Gas Resources	Stout Compressor Station	MD-551	Outside domain.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Campbell	Western Gas Resources	Stout Compressor Station	MD-551A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources	Summit/Ridge Compressor Station	CT-2658	Outside domain.
WY	Campbell	Western Gas Resources	Tessmocker Station	MD-826	Outside domain.
WY	Campbell	Western Gas Resources	Vail/Winter Park Compressor Station	CT-3262	Outside domain.
WY	Campbell	Western Gas Resources	Wallaby Station	MD-655	Outside domain.
WY	Campbell	Western Gas Resources	Washout Compressor Station	CT-2770	Outside domain.
WY	Campbell	Western Gas Resources	Werner Compressor Station	MD-596	No change in emissions.
WY	Campbell	Western Gas Resources	West Fork Compressor Station	CT-2682A	No change in emissions.
WY	Campbell	Western Gas Resources	West Fork Compressor Station	CT-2682	Outside domain.
WY	Campbell	Western Gas Resources	West Fork Compressor Station	MD-822	Outside domain.
WY	Johnson	Western Gas Resources	Whiskey Draw/Jack Daniels Compressor Stat	CT-3266A	No change in emissions.
WY	Johnson	Western Gas Resources	Whiskey Draw/Jack Daniels Compressor Stat	CT-3266	Outside domain.
WY	Sheridan	Western Gas Resources	Wild Ho/Middle Prong Compressor Station	CT-2656	Outside domain.
WY	Campbell	Western Gas Resources	Wild Horse/Oliver	CT-2872	Outside domain.
WY	Sweetwater	Western Gas Resources	Wild Rose 9-18	CT-3291	Increase < 1 TPY.
WY	Campbell	Western Gas Resources	Wolf Compressor Station	MD-781	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Beadsman Compressor Station	MD-918	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Blohm Compressor Station	CT-3529	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Cedar Draw/Maple Compressor Station	CT-3479	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Cherry Compressor Station	CT-3438	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Clarkellen Compressor Station	CT-1830 Extension	Original permit was excluded.
WY	Campbell	Western Gas Resources, Inc.	Dead Horse Compressor Station	MD-979	Outside domain.
WY	Johnson	Western Gas Resources, Inc.	Deer Gulch Compressor Station	MD-968	Outside domain.
WY	Johnson	Western Gas Resources, Inc.	Dewars Compressor Station	CT-3402	Outside domain.
WY	Johnson	Western Gas Resources, Inc.	Flying Creek/Bridge Draw Compressor Statio	MD-969	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Gotham Compressor Station	CT-2871A Corrected	No change in emissions.
WY	Campbell	Western Gas Resources, Inc.	Gotham Compressor Station	CT-2871A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources, Inc.	Hail Compressor Station	MD-555 Extension	Extension for an operational facility.
WY	Campbell	Western Gas Resources, Inc.	Hermit Compressor Station	MD-909	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Hickory Compressor Station	CT-3439	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Horse Creek/Gas Draw Compressor Station	MD-854A	No change in emissions.
WY	Campbell	Western Gas Resources, Inc.	Jim Beam Compressor Station	CT-3378	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Loner Compressor Station	MD-910	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Mahogany/Oak Compressor Station	CT-3478	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Outsider/Recluse Compressor Station	MD-915	Outside domain.
WY	Johnson	Western Gas Resources, Inc.	Pumpkin/Bruno Compressor Station	MD-922	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Quarter Horse Compressor Station	MD-908	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Sioux/Jr. Reno Compressor Station	CT-2618A	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources, Inc.	Solitude Compressor Station	CT-2076 Expired	Permit expired.
WY	Campbell	Western Gas Resources, Inc.	Solitude Compressor Station	CT-3491	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	South Prong/Pearson Draw	MD-982	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Spring Creek Compressor Station (formerly P	MD-978	Outside domain.
WY	Campbell	Western Gas Resources, Inc.	Spring Creek Compressor Station (formerly P	CT-2265A2	Reduction, not a PSD major source.
WY	Campbell	Western Gas Resources, Inc.	Tuit Compressor Station	MD-903	No change in emissions.
WY	Johnson	Western Gas Resources, Inc.	Walker Compressor Station	CT-3408	Outside domain.
WY	Johnson	Western Gas Resources, Inc.	Wild Turkey Compressor Station	CT-3367	Outside domain.
WY	Lincoln	Westport Oil and Gas Company, L.P.	Champlin 288 C-4	CT-2401	Production well with emissions < 3TPY.
WY	Lincoln	Westport Oil and Gas Company, L.P.	Grynberg Fed 1-31 #4	CT-2394	Production well with emissions < 3TPY.
WY	Lincoln	Westport Oil and Gas Company, L.P.	Rocky Crossing 1-24	CT-3018	Production well with emissions < 3TPY.

Table C.8
State-Permitted Source Inventory - WDEQ-AQD Permitted Sources - Table of Excluded Sources

State	County	Company	Facility	Permit Number	Reason for Exclusion
WY	Carbon	Westport Oil and Gas Company, L.P.	Standard Draw 4-6-18-93	CT-3001	Production well with emissions < 3TPY.
WY	Uinta	Wexpro Company	Church Buttes Gas Plant	MD-866	Reduction, not a PDS major source.
WY	Sweetwater	Wexpro Company	Church Buttes Unit 40	CT-2743	Production well with emissions < 3TPY.
WY	Uinta	Wexpro Company	Church Buttes Unit Well 154	CT-3013	Production well with emissions < 3TPY.
WY	Sweetwater	Wexpro Company	Church Buttes Unit Well 155	CT-3012	Production well with emissions < 3TPY.
WY	Carbon	Wexpro Company	Creston Federal Well 22-4	CT-2996	Production well with emissions < 3TPY.
WY	Sublette	Wexpro Company	Mesa 14-16	CT-3245	Production well with emissions < 3TPY.
WY	Sublette	Wexpro Company	Mesa 15-16	CT-3253	Production well with emissions < 3TPY.
WY	Sublette	Wexpro Company	Mesa 9-16 pad	CT-3220	Production well with emissions < 3TPY.
WY	Sublette	Wexpro Company	Mesa Well 11-16	CT-2901	Production well with emissions < 3TPY.
WY	Sweetwater	Wexpro Company	Trail Unit Well 15	CT-3258	Production well with emissions < 3TPY.
WY	Carbon	Williams Field Services	Eight Mile Lake Station	MD-810	No change in emissions.
WY	Carbon	Williams Field Services Company	Duck Lake 23-1	CT-3002	Increase < 1 TPY.
WY	Carbon	Williams Field Services Company	Echo Springs Federal 4-6	CT-2811	Increase < 1 TPY.
WY	Sweetwater	Williams Field Services Company	Janet Federal 10-34	CT-2812	Increase < 1 TPY.
WY	Sweetwater	Williams Field Services Company	Wamsutter 12-32	CT-2813	Increase < 1 TPY.
WY	Sublette	Williams Production Company	Riley Ridge 14-33F	CT-3232	Production well with emissions < 3TPY.
WY	Sheridan	Wolverine Operations, LLC	Box Elder Creek Main Compressor Station	CT-2289A(Expired)	Permit expired.
WY	Sheridan	Wolverine Operations, LLC	Box Elder Creek Main Compressor Station	CT-3577	Outside domain.
WY	Sheridan	Wolverine Operations, LLC	Box Elder Creek NE Pod	CT-3560	Outside domain.
WY	Sheridan	Wolverine Operations, LLC	Box Elder Creek NW Pod	CT-3561	Outside domain.
WY	Sheridan	Wolverine Operations, LLC	Little No. 1 Compressor Station	CT-3517	Outside domain.
WY	Johnson	Woodrow Barstad	Barstad Pit	CT-2711	Outside domain.
WY	Johnson	Woodrow Barstad	Barstad Pit	CT-2699	Permit Expired.
WY	Campbell	Wyodak Resources Development Corp.	Wyodak Mine	MD-593	No NOx, SO2, or PM10.
WY	Park	Wyoming Department of Transportation	Clark Pit	CT-2331	Outside domain.
WY	Sheridan	Wyoming Department of Transportation	crushing, hot mix plant, stockpiling site	CT-2225	Outside domain.
WY	Johnson	Wyoming Department of Transportation	Gosney Pit	CT-3569	Increase < 1 TPY.
WY	Park	Wyoming Department of Transportation	Loeper Pit	CT-3562	Outside domain.
WY	Fremont	Wyoming Department of Transportation	Lost Cabin Pit	CT-3550	Increase < 1 TPY.
WY	Sweetwater	Wyoming Department of Transportation	MP 28 Pit	CT-2410	Increase < 1 TPY.
WY	Johnson	Wyoming Department of Transportation	Piney Creek #2	CT-2766	Outside domain.
WY	Laramie	Wyoming Department of Transportation	Portable Hot Mix Plant	CT-2303	Outside domain.
WY	Laramie	Wyoming Department of Transportation	Pryor Pit	CT-3399	Outside domain.
WY	Campbell	Wyoming Department of Transportation	Swansong Pit	CT-2722	Outside domain.
WY	Park	Wyoming Department of Transportation	Windy Flat Pit	CT-2932	Outside domain.
WY	Goshen	Wyoming Ethanol Company	Torrington Plant	MD-759	Outside domain.
WY	Goshen	Wyoming Ethanol Company	Torrington Plant	MD-989	Reduction at a PSD minor source.
WY	Natrona	Wyoming Medical Center	Hospital Waste Incinerator	MD-645	Permitted in 2001 but began operation in 1992. Exclude because assumed in background.
WY	Weston	Wyoming Refining Company	Newcastle Refinery	MD-433A	Administrative change.
WY	Lincoln	XTO Energy Inc	Fontenelle Compressor Station 14-27	MD-958	DEQ unable to locate permit.
WY	Lincoln	XTO Energy Inc	Fontenelle West Compressor Station	MD-852	No change in emissions.
WY	Sublette	Yates Petroleum Corporation	Blue Rim State #1	CT-3114A	Reduction, not a PSD major source.
WY	Sublette	Yates Petroleum Corporation	Highway Federal 4-Y Production Facility	CT-3061	Production well with emissions < 3TPY.
WY	Sweetwater	Yates Petroleum Corporation	Steamboat Station Pipeline	CT-2810	Production well with emissions < 3TPY.
WY	Sweetwater	Yates Petroleum Corporation	Trestle Federal #1 Production Facility	CT-2862	Production well with emissions < 3TPY.

Table C.9 State-Permitted Source Inventory - WOGCC and Utah Oil and Gas, Division of Oil - Table of Wells by State Permitted after January 1, 2001

State	County	Total NO_x Emissions per County	Percent of County within the Atlantic Rim/Seminoe Road Cumulative Modeling Domain	Total NO_x Emissions Modeled per County
		(tpy)	(%)	(tpy)
Wyoming[1]	Albany	0.30	100.00%	0.30
	Campbell	16.62	17.98%	2.99
	Carbon	33.78	100.00%	33.78
	Converse	2.70	84.59%	2.28
	Fremont	50.28	94.99%	47.76
	Hot Springs	5.04	74.22%	3.74
	Johnson	0.00	26.96%	0.00
	Laramie	0.6	5.33%	0.03
	Lincoln	3.06	100.00%	3.06
	Natrona	26.58	100.00%	26.58
	Platte	0.00	17.54%	0.00
	Sublette	7.38	100.00%	7.38
	Sweetwater	56.28	100.00%	56.28
	Teton	0.00	38.87%	0.00
	Uinta	6.06	100.00%	6.06
	Washakie	3.78	28.42%	1.07
		212.46		
	Total Emissions Modeled for Wyoming Counties			191.32
Utah[1]	Box Elder	0.00	--	0.00
	Cache	0.00	--	0.00
	Daggett[2]	0.00	--	0.00
	Davis	0.00	--	0.00
	Duchesne	25.26	57.99%	14.65
	Morgan	0.00	--	0.00
	Rich	0.00	--	0.00
	Salt Lake	0.00	--	0.00
	Summit[2]	0.00	--	0.00
	Tooele	0.00	--	0.00
	Uintah	126.90	40.31%	51.15
	Utah	0.00	--	0.00
	Wasatch	0.00	--	0.00
	Weber	0.00	--	0.00
	Total Emissions Modeled for Utah Counties			65.80
	Total Emissions Modeled for all counties			257.12

[1] Counties shown only if they are within Jonah modeling domain.

[2] Emissions from these counties added into Duchesne and Uintah County area sources for modeling.

Table C.10
RFFA - Table of Included Sources by State

State	Company	Facility Name	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
WY	71 Construction	487 Pit	CT-2756	Natrona	11.68	326.21	15.37	0.73	0.00	0.00	2.40	2.40
WY	71 Construction	71 Pitt	CT-3094	Natrona	11.68	326.21	15.37	0.73	0.00	0.00	0.60	0.60
WY	71 Construction	Fetterman Pit	CT-2920	Converse	11.68	326.21	15.37	0.73	0.00	0.00	2.40	2.40
WY	71 Construction	Henrie Pit	CT-2896	Natrona	11.68	326.21	15.37	0.73	0.00	0.00	0.60	0.60
WY	71 Construction	Portable Screening Plant	CT-2738	Natrona	11.68	326.21	15.37	0.73	1.30	0.00	0.60	0.60
WY	71 Construction	Wills Pit	CT-2641	Converse	11.68	326.21	15.37	0.73	0.00	0.00	1.70	1.70
WY	Ames Construction Company	CT-2469	CT-2469	Carbon	11.68	326.21	15.37	0.73	64.90	8.90	6.10	6.10
WY	Ames Construction Company	CT-2470	CT-2470	Carbon	11.68	326.21	15.37	0.73	35.00	4.60	2.70	2.70
WY	Anadarko Gathering Company	Blue Sky	MD-950	Carbon	11.00	730.00	71.60	0.25	17.50	0.00	0.00	0.00
WY	Anadarko Gathering Company	Doty Mountain Compressor Station	CT-3349	Carbon	11.00	730.40	71.60	0.25	46.70	0.00	0.00	0.00
WY	Anadarko Gathering Company	Muddy Mountain Compressor Station	CT-3352	Carbon	11.00	730.40	71.60	0.25	46.70	0.00	0.00	0.00
WY	Anadarko Gathering Company	Red Rim Compressor Station	CT-3393	Carbon	11.00	730.40	71.60	0.25	53.00	0.00	0.00	0.00
WY	Anadarko Gathering Compnay	Big Robbie Compressor Station	CT-3326	Sweetwater	9.05	509.82	12.50	0.76	17.70	0.00	0.00	0.00
WY	Bill Barrett Corporation	Cave Gulch Gas Conditioning Plant	MD-874	Natrona	14.40	734.80	41.15	0.30	40.20	0.00	0.00	0.00
WY	Bill Barrett Corporation	Cooper Reservoir Unit	CT-2467	Natrona	9.05	509.82	12.50	0.76	11.80	0.00	0.00	0.00
WY	Bill Barrett Corporation	Cooper Reservoir Unit Compressor Station	MD-904	Natrona	5.80	648.70	45.84	0.30	25.40	0.00	0.00	0.00
WY	BP America Production Company	Anschutz Ranch East	MD-878	Uinta	15.00	422.00	10.00	0.31	(300.70)	0.00	0.00	0.00
WY	Carbon County Concrete Incorporated	Portable Crushing and Screening Plant	CT-2933	Carbon	11.68	326.21	15.37	0.73	3.00	0.20	0.70	0.70
WY	Chevron USA, Inc.	Waltman #23	MD-668	Natrona	11.77	450.54	9.51	0.82	11.60	0.00	0.00	0.00
WY	Connell	CT-3360	CT-3360	Albany	14.12	350.04	10.03	0.91	51.40	6.70	27.90	27.90
WY	Dudley & Associates, LLC	Seminoe Compressor Station	CT-2833	Carbon	7.32	422.00	27.31	0.40	0.00	0.00	0.00	0.00
WY	Duke Energy Field Services, LP	Black Butte 11-19-100 Compressor Station	CT-2605	Sweetwater	9.14	422.00	39.62	0.25	7.70	0.00	0.00	0.00
WY	Duke Energy Field Services, LP	Yates Bicycle Federal Compressor #18	CT-3477	Sweetwater	9.05	509.82	12.50	0.76	6.30	0.00	0.00	0.00
WY	Duke Energy Field Services, LP	Yates Bicycle Federal Compressor #6	CT-3507	Sweetwater	9.05	509.82	12.50	0.76	6.30	0.00	0.00	0.00
WY	Duke Energy Field Services, LP	Yates Huffy State Compressor #16	CT-3508	Sweetwater	9.05	509.82	12.50	0.76	6.30	0.00	0.00	0.00
WY	El Paso Field Services	Wamsutter Regulator	MD-741	Sweetwater	9.05	509.82	12.50	0.76	2.50	0.00	0.00	0.00
WY	Enterprise NGL Pipelines, LLC	Granger Station	MD-811	Sweetwater	9.05	509.82	12.50	0.76	7.90	0.00	0.00	0.00
WY	EOG Resources	Crotalus 1-19	CT-3005	Converse	15.00	422.00	10.00	0.31	1.40	0.00	0.00	0.00
WY	EOG Resources	North LaBarge Shallow Unit Tract 16	MD-696	Sublette	9.05	509.82	12.50	0.76	1.70	0.00	0.00	0.00
WY	Evans Construction	Asphalt Plant	MD-813	Teton	14.12	350.04	10.03	0.91	6.90	7.30	3.70	3.70
WY	Exxon Mobil Corporation	Shute Creek Treating Facility	MD-771	Lincoln	60.66	608.00	19.34	2.10	141.30	(1,566.00)	71.60	71.60
WY	Exxon Mobil Corporation	Shute Creek Treating Facility	MD-913	Lincoln	60.66	355.00	54.78	1.83	(33.20)	(0.06)	(3.20)	(3.20)
WY	FMC Wyoming Corporation	Soda Ash Facility - Green River Plant	MD-964	Sweetwater	25.49	361.71	17.29	1.04	24.30	0.00	6.10	6.10
WY	Infinity Oil & Gas of Wyoming	Riley Ridge Compressor Facility #1 and Pod C.S.	MD-808	Sublette	7.32	797.20	45.20	0.30	20.60	0.00	0.00	0.00
WY	Infinity Oil & Gas of Wyoming	Thompson Compressor Station	CT-3300	Sublette	7.32	403.00	33.90	0.20	12.60	0.00	0.00	0.00
WY	Jonah Gas Gathering Company	Bird Canyon/County Line Compressor Station	MD-856	Sublette	12.19	691.48	23.11	0.10	2.40	0.00	0.00	0.00
WY	Jonah Gas Gathering Company	JGGC/OTTCO Interconnect	MD-925	Lincoln	15.00	422.00	10.00	0.31	4.10	0.00	0.00	0.00
WY	Jonah Gas Gathering Company	Luman Compressor Station	MD-857	Sublette	12.19	726.48	29.75	0.71	3.30	0.00	0.00	0.00
WY	Jonah Gas Gathering Company	Pioneer Dew Point Depression Plant	CT-3117	Lincoln	15.00	422.00	10.00	0.31	19.60	0.00	0.00	0.00
WY	Kiewit Western Company	Portable Hot Mix Asphalt Plant	CT-3301	Teton	7.09	422.00	30.05	0.10	33.80	5.70	12.90	12.90
WY	Kinder Morgan Operating L.P. "A"	Ross Booster Station	MD-814	Converse	9.05	509.82	12.50	0.76	40.60	0.00	0.00	0.00
WY	KLT Gas Incorporated	Jepsen Compressor Station	MD-755	Johnson	6.86	729.80	47.71	0.31	6.10	0.00	0.00	0.00
WY	KLT Gas Incorporated	Jepsen Compressor Station	MD-565A	Johnson	9.05	509.82	12.50	0.76	3.70	0.00	0.00	0.00
WY	KLT Gas Incorporated	Jepsen Compressor Station	MD-565	Johnson	9.05	509.82	12.50	0.76	15.70	0.00	0.00	0.00
WY	LaFarge	Portable Crusher/Screener	MD-56A	Albany	11.68	326.21	15.37	0.73	30.70	2.00	13.20	13.20
WY	Lee Excavation , Inc.	Crushing and Screening Plant	CT-3225	Natrona	11.68	326.21	15.37	0.73	8.70	0.60	0.60	0.60
WY	LeGrand Johnson	Asphalt Plant CT-1310	CT-1310A	Lincoln	14.12	350.04	10.03	0.91	0.00	39.00	0.00	0.00
WY	LeGrand Johnson	Asphalt Plant CT-771	CT-771A	Sublette	14.12	350.04	10.03	0.91	0.00	29.60	0.00	0.00
WY	LeGrand Johnson	Hot Mix Asphalt Plant CT-3416	CT-3416	Uinta	14.12	350.04	10.03	0.91	65.20	24.70	12.70	12.70
WY	Lincoln County Wyoming	Municipal Solid Waste Combustor	MD-809	Lincoln	9.10	422.00	8.20	0.98	(3.80)	2.30	5.70	5.70
WY	McMurry Ready Mix	Hot Mix Asphalt Plant	MD-899	Carbon	14.12	350.04	10.03	0.91	23.50	15.10	8.50	8.50
WY	Merit Energy Company	Porcupine Compressor Station	CT-3353	Campbell	8.24	730.40	47.70	0.31	78.60	0.00	0.00	0.00
WY	Merit Energy Company	Porcupine Compressor Station	MD-972	Campbell	8.24	730.37	47.70	0.31	19.40	0.00	0.00	0.00
WY	Merit Energy Company	Sage Creek Gas Plant	MD-920	Converse	15.00	422.00	10.00	0.31	3.10	0.00	0.00	0.00
WY	Merit Energy Company	South Baggs Compressor Station	CT-3542	Carbon	9.05	509.82	12.50	0.76	16.20	0.00	0.00	0.00
WY	Merit Energy Company	Tuit Draw CBM Compressor Station	CT-3473	Campbell	8.24	730.40	47.70	0.31	59.20	0.00	0.00	0.00
WY	Mountain Gas Resources	Hay Reservoir Central Compressor Station	CT-3101	Sweetwater	6.10	422.00	42.03	0.30	29.00	0.00	0.00	0.00
WY	Mountain Gas Resources	Red Desert Gas Plant	MD-669	Sweetwater	7.62	422.00	28.96	0.41	16.00	0.00	0.00	0.00
WY	Natrona County International Airport	Airport	MD-760	Natrona	11.62	357.93	9.45	0.76	0.70	0.20	22.60	22.60
WY	Nearburg Producing Company	Fillmore 3-19	CT-2884	Carbon	11.77	450.54	9.51	0.82	6.40	0.00	0.00	0.00
WY	Nearburg Producing Company	Fillmore 3-29	CT-3191	Carbon	11.77	450.54	9.51	0.82	3.70	0.00	0.00	0.00
WY	Nearburg Producing Company	Fillmore Federal 2-19	CT-3190	Carbon	11.77	450.54	9.51	0.82	3.30	0.00	0.00	0.00
WY	Nearburg Producing Company	Fillmore Federal 2-20	CT-3265	Carbon	11.77	450.54	9.51	0.82	3.40	0.00	0.00	0.00
WY	Nearburg Producing Company	Fillmore Federal 4-19	CT-3263	Carbon	11.77	450.54	9.51	0.82	4.80	0.00	0.00	0.00
WY	Nearburg Producing Company	Fillmore Federal 4-20	CT-3264	Carbon	11.77	450.54	9.51	0.82	3.40	0.00	0.00	0.00
WY	NERD Gas Company, LLC	Mesa Road Mine	CT-3274	Sublette	11.68	326.21	15.37	0.73	0.00	0.00	4.80	4.80

Table C.10
RFFA - Table of Included Sources by State

State	Company	Facility Name	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
WY	New Mexico Resources, LLC	Bitter Creek Zeolite Mine/Processing Plant	CT-3490	Sweetwater	15.00	422.00	10.00	0.31	38.00	7.90	9.80	9.80
WY	Northwest Pipeline Company	Kemmerer	MD-702	Lincoln	9.14	422.00	31.22	1.12	14.90	0.40	0.90	0.90
WY	Pacificorp	Jim Bridger Plant	MD-883	Sweetwater	60.21	431.59	16.68	2.74	0.00	0.00	(59.50)	(29.75)
WY	Pacificorp	Naughton Plant	MD-867	Lincoln	60.21	431.59	16.68	2.74	0.00	0.00	(1,338.10)	(669.05)
WY	Pathfinder Mines	Burnett Quarry	CT-2899	Albany	11.68	326.21	15.37	0.73	0.00	0.00	1.00	1.00
WY	Pittsburg and Midway Coal Company	Kemmerer Mine	MD-845	Lincoln	1.00	294.00	0.10	0.10	0.00	0.00	3.70	1.11
WY	Powder River Coal Company	North Antelope/Rochelle Coal Mine	MD-657	Campbell	22.38	308.09	7.77	0.67	1,614.90	0.00	275.06	82.52
WY	Questar Exploration Production Co.	Stewart Pt Wells 9-29 &16-29 Pad	CT-3321	Sublette	11.77	450.54	9.51	0.82	3.60	0.00	0.00	0.00
WY	Questar Gas Management Company	JL 84 Compressor Station	CT-2501	Lincoln	9.05	509.82	12.50	0.76	12.50	0.00	0.00	0.00
WY	Questar Gas Management Company	Mesa 1 Compressor Station	CT-2464	Sublette	15.24	711.00	53.95	0.46	62.90	0.00	0.00	0.00
WY	Questar Gas Management Company	Mesa 2 Compressor Station	CT-2465	Sublette	15.24	711.00	53.95	0.46	31.50	0.00	0.00	0.00
WY	Rees's Enterprise	CT-3465	CT-3465	Uinta	11.68	326.21	15.37	0.73	98.20	8.00	51.90	51.90
WY	Rissler and McMurry Company	CT-2426	CT-2426	Natrona	11.68	326.21	15.37	0.73	15.60	2.60	5.20	5.20
WY	Rowdy Pipeline, LLC	Church Central	CT-2427	Campbell	10.06	674.80	49.68	0.31	44.30	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 1	CT-2428	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 2	CT-2429	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 3	CT-2430	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 4	CT-2431	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 5	CT-2432	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 6	CT-2433	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 7	CT-2434	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Church Pod 8	CT-2435	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Central Compressor Station	CT-2452	Campbell	10.07	742.59	49.68	0.31	44.40	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 1 Compressor Station	CT-2453	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 2 Compressor Station	CT-2454	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 3 Compressor Station	CT-2455	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 4 Compressor Station	CT-2456	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 5 Compressor Station	CT-2457	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 6 Compressor Station	CT-2458	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 7 Compressor Station	CT-2459	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Cosner Satellite 8 Compressor Station	CT-2460	Campbell	10.01	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Drake (formerly Moore Pod 6)	MD-928	Campbell	10.06	721.50	46.60	0.20	18.40	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Ickes Satellite 1 Compressor Station	CT-2436	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Ickes Satellite 2 Compressor Station	CT-2437	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Ickes Satellite 4 Compressor Station	CT-2439	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Ickes Satellite 5 Compressor Station	CT-2440	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Ickes Satellite 6 Compressor Station (Removed)	CT-2441	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Ickes Satellite 7 Compressor Station	CT-2442	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Moore Pod 5	MD-861(co	Campbell	10.06	710.90	17.71	0.31	23.50	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Moore Pod 5	MD-861	Campbell	0.00	0.00	0.00	0.00	18.40	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Niles Hill Pod 5	CT-2420	Campbell	10.07	710.90	17.17	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Pine Tree Central Compressor Station	CT-2599	Campbell	7.32	532.60	19.99	0.25	95.30	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Pine Tree Satellite 1 Compressor Station	CT-2600	Campbell	10.06	742.60	49.68	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Pine Tree Satellite 2 Compressor Station	CT-2601	Campbell	10.06	742.60	49.68	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Pine Tree Satellite 3 Compessor Station	CT-2602	Campbell	10.06	742.60	49.68	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Pine Tree Satellite 4 Compressor Station	CT-2603	Campbell	10.06	742.60	49.68	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Pine Tree Satellite 5 Compressor Station	CT-2604	Campbell	10.06	742.60	49.68	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	RoushCompressor Station	CT-2438	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	RoushCompressor Station	MD-865	Campbell	10.06	710.90	17.71	0.31	5.10	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Central Compressor Station	CT-2622	Campbell	10.07	742.59	49.68	0.31	95.30	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Satellite 1 Compressor Station	CT-2623	Campbell	10.07	742.59	49.68	0.31	56.00	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Satellite 2 Compressor Station	CT-2624	Campbell	10.07	721.50	20.53	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Satellite 3 Compressor Station	CT-2625	Campbell	10.07	721.50	20.53	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Satellite 4 Compressor Station	CT-2626	Campbell	10.07	721.50	20.53	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Satellite 5 Compressor Station	CT-2627	Campbell	10.07	721.50	20.53	0.31	0.00	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	South All Night Creek Satellite 6 Compressor Station	CT-2628	Campbell	10.07	721.50	20.53	0.31	12.20	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Thunder Basin Compressor Station	CT-3054	Campbell	10.06	742.60	48.18	0.31	41.90	0.00	0.00	0.00
WY	Rowdy Pipeline, LLC	Wright Compressor Station	MD-981	Campbell	8.84	721.50	46.60	0.20	12.40	0.00	0.00	0.00
WY	RST Excavation	Temporary Jackson Gravel Operation	MD-647	Teton	11.68	326.21	15.37	0.73	9.20	0.40	0.20	0.20
WY	Saurus Resources Incorporated	MH-1 Compressor Station	MD-660	Sweetwater	9.05	509.82	12.50	0.76	20.00	0.00	0.00	0.00
WY	Shell Rocky Mountain Production Co.	Rainbow 11-32-30-107D, 12-32-30-107D & 13-32-30-107	CT-3269	Sublette	11.77	450.54	9.51	0.82	3.20	0.00	0.00	0.00
WY	Sinclair Oil Company	Sinclair Refinery	MD-976	Carbon	17.77	389.37	5.24	1.83	(85.70)	4.30	0.40	0.40
WY	STC Construction Co., Inc.	CT-156	CT-156A	Albany	14.12	350.04	10.03	0.91	6.60	1.30	3.50	3.50
WY	Thunder Creek Gas Services	Buckshot Treating Facility	MD-959	Converse	9.14	730.40	45.50	0.25	29.00	0.00	0.00	0.00
WY	Thunder Creek Gas Services	Independent Station	CT-2765	Campbell	7.32	672.00	27.30	0.40	38.80	0.00	0.00	0.00
WY	Thunder Creek Gas Services	Pine Tree Compressor Station	CT-2409	Campbell	9.15	616.50	30.99	0.30	54.50	0.00	0.00	0.00

Table C.10
RFFA - Table of Included Sources by State

State	Company	Facility Name	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
WY	Thunder Creek Gas Services	SC-1632 Compressor Station	CT-2548	Campbell	7.32	644.30	31.30	0.30	22.40	0.00	0.00	0.00
WY	Thunder Creek Gas Services	SC-2932 Compressor Station	CT-2543	Campbell	7.33	572.20	39.20	0.20	15.30	0.00	0.00	0.00
WY	Tom Brown Incorporated	Frenchie Draw Satellite/Graham West Station	MD-980	Fremont	9.05	509.82	12.50	0.76	18.00	0.00	0.00	0.00
WY	Tom Brown Incorporated	Frenchie Draw/Graham Unit #5	CT-3467	Fremont	9.05	509.82	12.50	0.76	36.00	0.00	0.00	0.00
WY	Warren E & P, Inc.	Pacific Rim Compressor Station #1	CT-3471	Sweetwater	9.05	509.82	12.50	0.76	17.10	0.00	0.00	0.00
WY	Western Gas Resources	All Night Creek/Owl Compressor Station	MD-838	Campbell	7.51	866.48	42.37	0.25	16.20	0.00	0.00	0.00
WY	Western Gas Resources	Alley Oop Compressor Station	CT-3236	Campbell	7.51	866.48	42.37	0.25	30.40	0.00	0.00	0.00
WY	Western Gas Resources	BC Compressor Station	CT-3235	Campbell	7.51	866.48	42.37	0.25	30.40	0.00	0.00	0.00
WY	Western Gas Resources	Black Thunder Compressor Station	MD-799	Campbell	7.50	899.82	61.27	0.31	48.80	0.00	0.00	0.00
WY	Western Gas Resources	Bullwacker/Pine Ridge Compressor Station	MD-801	Johnson	7.50	866.48	42.37	0.25	32.40	0.00	0.00	0.00
WY	Western Gas Resources	Bullwacker/Pine Ridge Compressor Station	CT-2448	Johnson	8.00	899.82	54.86	0.30	68.80	0.00	0.00	0.00
WY	Western Gas Resources	Button Compressor Station	CT-3227	Campbell	7.51	866.48	42.37	0.25	38.50	0.00	0.00	0.00
WY	Western Gas Resources	Cloud Compressor Station	MD-804	Campbell	7.51	866.48	42.37	0.25	16.20	0.00	0.00	0.00
WY	Western Gas Resources	Dilbert Compressor Station	CT-3228	Campbell	7.51	866.48	42.37	0.25	22.30	0.00	0.00	0.00
WY	Western Gas Resources	Gazelle Compressor Station	CT-2681	Campbell	6.00	867.00	42.00	0.25	22.20	0.00	0.00	0.00
WY	Western Gas Resources	Herman Compressor Station	CT-3260	Campbell	7.51	866.48	42.37	0.25	30.40	0.00	0.00	0.00
WY	Western Gas Resources	Hoot Compressor Station	CT-3238	Campbell	7.51	866.48	42.37	0.25	38.50	0.00	0.00	0.00
WY	Western Gas Resources	Hurricane Compressor Station	CT-3259	Campbell	7.51	899.82	61.27	0.31	97.70	0.00	0.00	0.00
WY	Western Gas Resources	Impala Compressor Station	CT-2679	Campbell	6.00	867.00	42.00	0.25	22.20	0.00	0.00	0.00
WY	Western Gas Resources	Moose Compressor Station	CT-2678	Campbell	6.00	867.00	42.00	0.25	22.40	0.00	0.00	0.00
WY	Western Gas Resources	Snoopy Compressor Station	CT-3233	Campbell	7.51	866.48	42.37	0.25	22.30	0.00	0.00	0.00
WY	Western Gas Resources	Thor Compressor Station	CT-3234	Campbell	7.51	899.82	61.27	0.31	97.70	0.00	0.00	0.00
WY	Western Gas Resources	Wizard of Id Compressor Station	CT-3237	Campbell	7.51	866.48	42.37	0.25	22.30	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Baker Springs/Butcher Compressor Station	MD-966	Campbell	7.51	899.82	61.27	0.31	59.80	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Black Thunder Compressor Station	MD-967	Campbell	7.51	899.82	61.27	0.31	49.20	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Button Compressor Station	CT-3503	Campbell	7.51	866.50	42.37	0.25	38.50	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Impala Compressor Station	CT-2679 E	Campbell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Pronghorn/Oryx	MD-965	Campbell	7.51	899.80	61.26	0.30	59.00	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Sand Dunes Plant	MD-931	Converse	10.90	710.93	59.99	0.20	13.30	0.00	0.00	0.00
WY	Western Gas Resources, Inc.	Sioux/Jr. Reno Compressor Station	MD-988	Campbell	7.51	742.59	26.57	0.41	64.30	0.00	0.00	0.00
WY	Williams Field Services	Echo Springs Gas Plant	MD-606 Ex	Carbon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WY	Wyoming Department of Transportation	Farris #2/Lester's Nest Pit	CT-3516	Carbon	11.68	326.21	15.37	0.73	0.00	0.00	2.50	2.50
WY	Wyoming Department of Transportation	Rabbit Pit	CT-3036	Hot Springs	11.68	326.21	15.37	0.73	0.00	0.00	2.50	2.50
WY	Wyoming Department of Transportation	TZ Pit	CT-3475	Carbon	11.68	326.21	15.37	0.73	0.00	0.00	2.40	2.40
WY	Yates Petroleum Corporation	Blue Rim State #1	CT-3114	Sublette	9.05	509.82	12.50	0.76	2.40	0.00	0.00	0.00
								Total RFFA State-Permitted Source Emissions	4,568.80	(1,394.26)	(833.64)	(329.97)

Table C.11 RFD - Table of Sources
Includes NEPA Projects Through March 2004.

EA/EIS Listed by Field Office	Atlantic Rim/Seminoe Road Include/Exclude	Total NO_x Remaining per Project Area (tpy)	Total SO_2 Remaining per Project Area (tpy)	Total PM_{10} Remaining per Project Area (tpy)	Total $PM_{2.5}$ Remaining per Project Area (tpy)
Bridger-Teton National Forest					
Cliff Creek - MA 22	Include.	1.80			
Cottonwood Creek - MA 25	Include.	1.80			
Horse Creek - MA 24	Include.	1.80			
LaBarge Creek - MA 12	Include.	1.80			
Little Greys River - MA 31	Include.	1.80			
Lower Greys River - MA 32	Include.	1.80			
Piney Creeks - MA 26	Include.	1.80			
Upper Hoback - MA 23	Include.	1.80			
Willow Creek - MA 49	Include.	1.80			
Buffalo Field Office					
Burnt Hollow Management Plan EA	Exclude - RMP Revision.	--			
Drainage POD-Torch E&P Corp.	Included as part of PRB.	--			
Other POD projects	Included as part of PRB.	--			
Powder River Basin	Include.	3,008.79			
Casper Field Office					
Cave Gulch	Include.	71.15			
Cooper Reservoir	Include.	20.35			
Cody Field Office					
See Worland Office.					
Kemmerer Field Office					
Cutthroat Gas Processing Plant	Exclude - developed.	--			
Eighth Granger Gas Plant Expansion	Include.	1.60			
Ham's Fork Pipeline	Include.	18.25			
Hickey Mountain-Table Mountain	Include.	14.10			
Horse Trap	Include.	25.71			
Moxa Arch	Include.	190.46			
Pioneer Gas Plant	Include.	19.60	--	0.02	0.02
Riley Ridge	Include.	1.62			
Road Hollow Gas Plant	Include.	88.01	54.95	0.85	0.85
Lander Field Office					
Wind River	Include.	486.06		0.12	0.12
Newcastle Field Office					
CBM POD	Included as part of PRB.	--			
Thundercloud approval CBM	Included as part of PRB.	--			
Pinedale Field Office					
Big Piney-LaBarge	Include.	2.52			
Burley	Include	5.10			
Castle Creek	Exclude - Not given by FO as project area to include in RFD analysis.	--			
Fogarty Creek Unit 2524 Pipeline Production Facilities	Exclude - Carol Kruse 9/16/03.	--			
Hoback Basin	Exclude - Carol Kruse 9/16/03.	--			
Jonah II EIS	Exclude - developed.	--			
Jonah Infill	Include.	143.40			
Merna Pipeline	Exclude - developed.	--			
Moccasin Basin	Exclude - Carol Kruse 9/16/03.	--			
Pinedale Anticline Project	Include.	5.82			
Soda Unit	Include.	2.16			
South Piney	Include.	720.60	0.57	47.09	47.09
Tank Battery #5 - Enron	Included Big Piney/LaBarge CAP.	--			
Union Pass	Exclude - Carol Kruse 9/16/03.	--			
Upper Green River	Exclude - Carol Kruse 9/16/03.	--			
Williams - Compressor Station and Pipeline	Include.	17.19			
Yellow Point, road, Pipeline- MOC	Included in Jonah or Jonah II.	--			
Rawlins Field Office					

Continental Divide/Wamsutter II	Include.	173.52			
Creston-Blue Gap	Include.	12.06			
Desolation Flats	Include.	320.00			
Dripping Rock/Cedar Breaks	Exclude - John Spehar Rawlins FO.	--			
Hanna Draw CBNG Pilot Project EA and Development EIS	Exclude - no emissions quantified.	--			
Hay Reservoir	Exclude - developed.	--			
Mulligan Draw	Include.	4.14			
Scotty Lake CBNG Pilot Project EA	Exclude - no emissions quantified.	--			
Sierra Madre	Include.	6.90			
South Baggs	Include.	31.73			
Wind Dancer Natural Gas Development EA	Exclude - no emissions quantified.	--			
Rock Springs Field Office					
Bird Canyon	Exclude - included in Bird Opal Loop Pipeline.	--			
Bird-Opal Loop Pipeline	Exclude - developed.	--			
Bitter Creek Shallow Gas Development Project	Exclude- no emissions quantified.	--			
BTA Bravo	Include.	48.22			
Burlington Little Monument	Include.	17.75			
Copper Ridge Shallow Gas Proj.	Include.	193.08			
East LaBarge	Exclude - Renee Dana 9/16/03.	--			
Essex Mountain	Exclude - Renee Dana 9/16/03.	--			
Fontenelle Natural Gas Infill Drilling	Include.	204.68			
Jack Morrow Hills	Include.	65.16			
Lower Bush Creek CBM	Include.	1.80			
Monell CO2 Pipeline	Exclude - pipeline construction only.	--			
Opal-Loop Pipeline	Exclude - developed.	--			
Pacific Rim Shallow Gas Project	Include.	189.54			
Stage Coach	Include.	89.39			
Vermillion Basin	Include.	7.56			
Worland Field Office					
No projects or project areas within FO district.					
Utah					
Salt Creek	Exclude - Outside RFD inventory area	--			
	Total Emissions Remaining	**6,224.2**	**55.5**	**48.1**	**48.1**

APPENDIX D1:

ATLANTIC RIM NEAR-FIELD MODELING,
SOURCE EMISSIONS AND MODELING PARAMETERS

Appendix D1 – Atlantic Rim Near-Field Modeling -
Source Emissions and Modeling Parameters

The following is a list of the tables included within this appendix.

Table D1.1
Atlantic Rim Near-Field Modeling
PM_{10} Source Emissions and Modeling Parameters

PM_{10} Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Area Source Release Height	Area Source X_{init}	Area Source Y_{init}	Volume Source Release Height	Volume Source σy_{init}	Volume Source σz_{init}
	(lb/hr)	(m^2)	($g/s/m^2$)	(g/s)			(m)	(m)	(m)	(m)		
Well Pad Construction	5.82	--	--	0.733	Volume	Volume source centered around well pad.				2.29	20.92	2.13
Road Construction	0.25	--	--	0.0403	Volume	23 volume sources over the length of newly constructed road (0.25 miles). Information listed for one volume source. Emissions include road construction, heavy equipment tailpipe, and traffic.	--	--	--	2.29	8.51	2.13
Construction Traffic	0.08	--	--	0.0104	Volume	176 volume sources over a representative length of road (2 miles). Emissions include traffic.	--	--	--	2.29	8.51	2.13
Well Pad Wind Erosion	28.60	8,094.00	4.45E-04	--	Area	Area source centered around the well pad.	0.00	89.97	89.97	--	--	--
Access Road Wind Erosion	26.00	3,680.84	8.90E-04	--	Area	Divided into 5 equal area sources over length of newly constructed road. Information listed is total emissions for all 5 sources.	0.00	80.47	9.15	--	--	--

Table D1.2
Atlantic Rim Near-Field Modeling
$PM_{2.5}$ Source Emissions and Modeling Parameters

$PM_{2.5}$ Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Area Source Release Height	Area Source X_{init}	Area Source Y_{init}	Volume Source Release Height	Volume Source $\sigma\ y_{init}$	Volume Source $\sigma\ z_{init}$
	(lb/hr)	(m^2)	(g/s)			(m)	(m)	(m)	(m)		
Well Pad Construction	1.58	--	0.199	Volume	Volume source centered around well pad.				2.29	20.92	2.13
Road Construction	0.081	--	1.02E-02	Volume	23 volume sources over the length of newly constructed road (0.25 miles). Information listed for one volume source. Emissions include road construction, heavy equipment tailpipe, and traffic.	--	--	--	2.29	8.51	2.13
Construction Traffic	0.012	--	1.56E-03	Volume	176 volume sources over a representative length of road (2 miles). Emissions include traffic.	--	--	--	2.29	8.51	2.13
Well Pad Wind Erosion	11.44	8,094.00	1.78E-04	Area	Area source centered around the well pad.	0.00	89.97	89.97	--	--	--
Access Road Wind Erosion	10.46	3,680.84	3.58E-04	Area	Divided into 5 equal area sources over length of newly constructed road. Information listed is total emissions for all 5 sources.	0.00	80.468	9.15	--	--	--

Table D1.3
Atlantic Rim Near-Field Modeling
SO_2 Source Emissions and Modeling Parameters

SO_2 Source	Modeled Emission Rate	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Stack Height	Stack Temperature	Stack Velocity	Stack Diameter
	(lb/hr)	(g/s)			(m)	(K)	(g/s)	(m)
Drilling Rigs	2.21	0.278	Point	Located in the Center of the Well Pad.	5.00	675.00	30.00	0.20

Table D1.4
Atlantic Rim Near-Field Modeling
NO_x Source Emissions and Modeling Parameters

NO_x Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Release Height	X_{init}	Y_{init}	Angle	σz_{init}
	(lb/hr)	(m^2)	($g/s/m^2$)			(m)	(m)	(m)		(m)
Brown Cow Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Blue Sky Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Cow Creek Area Source	0.85	7,043,130	1.51E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.502 km by 2.815 km.	5.00	1,000.00	1,000.00	0.00	4.65
Doty Mountain Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Jolly Rogers Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Muddy Mountain Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Red Rim Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Sun Dog Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #1 Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #2 Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #3 Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #4 Area Source	0.85	5,760,000	1.85E-08	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65

Compression - please see Table D1.6 Atlantic Rim Compression Modeling Summary.

Table D1.5
Atlantic Rim Near-Field Modeling
CO Source Emissions and Modeling Parameters

CO Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Release Height	X_{init}	Y_{init}	Angle	σZ_{init}
	(lb/hr)	(m^2)	($g/s/m^2$)			(m)	(m)	(m)		(m)
Brown Cow Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Blue Sky Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Cow Creek Area Source	0.19	7,043,130	3.41E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2502 m by 2815 m.	5.00	1,000.00	1,000.00	0.00	4.65
Doty Mountain Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Jolly Rogers Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Muddy Mountain Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Red Rim Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Sun Dog Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #1 Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #2 Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #3 Area Source	0.19	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65
Unpermitted C.S. #4 Area Source	1.90E-01	5,760,000	4.17E-09	Area	Includes heavy equipment tailpipe and separator emissions. Centered around compressor station, 2.4 km square.	5.00	1,000.00	1,000.00	0.00	4.65

Compression - please see Table D1.6 Atlantic Rim Compression Modeling Summary.

Table D1.6
Atlantic Rim Near-Field Modeling
Compression Modeling Summary

Facility	Unit Description	Horsepower	Stack ID	Source Type	Source Location UTM Zone 13 Easting	Source Location UTM Zone 13 Northing	Stack Parameters Height (m)	Stack Parameters Temperature (K)	Stack Parameters Velocity (m/s)	Stack Parameters Diameter (m)	Stack Parameter Source	Permitted Emissions NO_x (tpy)	Permitted Emissions CO (tpy)	Permitted Emissions Formaldehyde (tpy)	Emissions Source	Modeled Emissions NO_x (g/s)	Modeled Emissions CO (g/s)	Modeled Emissions Formaldehyde (g/s)
Blue Sky C.S.	compressor engine	1,206	BluSkyC1	point	277287.5	4574028.3	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	compressor engine	1,206	BluSkyC2	point	277279.2	4574035.6	11.00	730.40	71.60	0.254	Blue Sky Permit Application	17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	BluSkyG1	point	277287.9	4574097.4	11.00	762.00	38.60	0.254		11.10	16.70	0.78	Blue Sky Permit	0.320	0.480	0.022
	generator engine	1,206	BluSkyG2	point	277291.8	4574070.4	11.00	762.00	38.60	0.254		11.10	16.70	0.78		0.320	0.480	0.022
	dehydrator		BluSkyDH	volume	277303.9	4574065.6	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Brown Cow C.S.	compressor engine	1,206	BrnCowC1	point	283311.4	4563568.2	11.00	730.40	71.60	0.254	Assumed to be identical most common compressor station configuration.	17.50	5.80	0.82	Assumed to be identical as the most commonly permitted compressor station emissions.	0.503	0.167	0.024
	compressor engine	1,206	BrnCowC2	point	283317.1	4563556.7	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	BrnCowG1	point	283306.8	4563577.0	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	BrnCowG2	point	283322.8	4563545.2	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	dehydrator		BrnCowDH	volume	283310.7	4563550.0	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Cow Creek C.S.	compressor engine	1,089	CowCrkC1	point	274714.0	4583443.0	7.62	749.00	71.60	0.3048		15.80	5.30	0.74		0.4545	0.1525	0.0212
	compressor engine	394	CowCrkC2	point	274714.0	4583415.0	7.62	749.00	71.60	0.3048	Cow Creek Permit Application	3.80	3.80	0.23	Cow Creek Permit MD-951	0.1093	0.1093	0.0066
	compressor engine	607	CowCrkC3	point	274714.0	4583435.0	7.62	749.00	71.60	0.3048		5.90	5.90	0.35		0.1697	0.1697	0.0101
	dehydrator		CowCrkDH	volume	274692.0	4583410.0	Please see footnote number 1.					0.10	0.10			0.00288	0.00288	--
Doty Mountain C.S.	compressor engine	1,206	DtyMtnC1	point	281342.9	4590669.0	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	compressor engine	1,206	DtyMtnC2	point	281340.4	4590658.0	11.00	730.40	71.60	0.254	Doty Mountain Permit Application	17.50	5.80	0.82	Doty Mountain Permit CT-3349	0.503	0.167	0.024
	generator engine	1,206	DtyMtnG1	point	281345.2	4590679.4	11.00	762.00	38.60	0.254		11.70	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	DtyMtnG2	point	281334.0	4590651.3	11.00	762.00	38.60	0.254		11.70	17.50	0.70		0.335	0.503	0.020
	dehydrator		DtyMtnDH	volume	281346.1	4590646.5	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Jolly Rogers C.S.	compressor engine	1,206	JlyRgsC1	point	287289.6	4603589.5	11.00	730.40	71.60	0.254		17.50	5.80	0.8		0.503	0.167	0.023
	compressor engine	1,206	JlyRgsC2	point	287292.6	4603578.6	11.00	730.40	71.60	0.254	Jolly Rogers Permit Application	17.50	5.80	0.8	Jolly Rogers Permit Application	0.503	0.167	0.023
	generator engine	1,206	JlyRgsG1	point	287286.8	4603599.8	11.00	762.00	38.60	0.254		11.60	17.50	0.6		0.335	0.670	0.017
	generator engine	1,206	JlyRgsG2	point	287284.3	4603609.5	11.00	762.00	38.60	0.254		11.60	17.50	0.6		0.335	0.670	0.017
	dehydrator		JlyRgsDH	volume	287286.2	4603571.9	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Muddy Mountain C.S.	compressor engine	1,206	MdyMtnC1	point	283559.5	4553604.3	11.00	730.40	71.60	0.254		17.50	5.80	0.81		0.503	0.167	0.023
	compressor engine	1,206	MdyMtnC2	point	283565.2	4553592.8	11.00	730.40	71.60	0.254	Muddy Mountain Permit Application	17.50	5.80	0.81	Muddy Mountain Permit CT-3352	0.503	0.167	0.023
	generator engine	1,206	MdyMtnG1	point	283554.9	4553613.1	11.00	762.00	38.60	0.254		11.60	17.50	0.7		0.335	0.503	0.020
	generator engine	1,206	MdyMtnG2	point	283570.9	4553581.3	11.00	762.00	38.60	0.254		11.60	17.50	0.7		0.335	0.503	0.020
	dehydrator		MdyMtnDH	volume	283558.8	4553586.1	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Red Rim C.S.	compressor engine	1,206	RedRimC1	point	298540.2	4617889.4	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	compressor engine	1,206	RedRimC2	point	298535.0	4617899.5	11.00	730.40	71.60	0.254	Red Rim Permit Application	17.50	5.80	0.82	Red Rim Permit CT-3393	0.503	0.167	0.024
	generator engine	637	RedRimG1	point	298610.8	4617919.0	11.00	762.00	38.60	0.254		6.20	3.10	0.43		0.178	0.089	0.012
	generator engine	1,206	RedRimG2	point	298615.3	4617910.5	11.00	762.00	38.60	0.254		11.70	17.50	0.7		0.337	0.503	0.020
	dehydrator		RedRimDH	volume	298614.7	4617892.0	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Sun Dog C.S.	compressor engine	1,206	SunDogC1	point	277230.7	4580968.6	11.00	730.40	71.60	0.254	Assumed to be identical most common compressor station configuration.	17.50	5.80	0.82	Assumed to be identical as the most commonly permitted compressor station emissions.	0.503	0.167	0.024
	compressor engine	1,206	SunDogC2	point	277228.2	4580957.6	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	SunDogG1	point	277233.0	4580979.0	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	SunDogG2	point	277233.9	4580946.1	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.355	0.503	0.020
	dehydrator		SunDogDH	volume	277221.8	4580950.9	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Unpermitted C.S. #1	compressor engine	1,206	upcs1C1	point	302737.6	4620846.5	11.00	730.40	71.60	0.254	Assumed to be identical most common compressor station configuration.	17.50	5.80	0.82	Assumed to be identical as the most commonly permitted compressor station emissions.	0.503	0.167	0.024
	compressor engine	1,206	upcs1C2	point	302743.3	4620835.0	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	upcs1G1	point	302733.0	4620855.3	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	upcs1G2	point	302749.0	4620823.5	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.355	0.503	0.020
	dehydrator		upcs1DH	volume	302736.9	4620828.3	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Unpermitted C.S. #2	compressor engine	1,206	upcs2C1	point	291870.1	4609063.2	11.00	730.40	71.60	0.254	Assumed to be identical most common compressor station configuration	17.50	5.80	0.82	Assumed to be identical as the most commonly permitted compressor station	0.503	0.167	0.024
	compressor engine	1,206	upcs2C2	point	291875.8	4609051.7	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	upcs2G1	point	291865.5	4609072.0	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	upcs2G2	point	291881.5	4609040.2	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.355	0.503	0.020

Table D1.6
Atlantic Rim Near-Field Modeling
Compression Modeling Summary

Facility	Unit Description	Horsepower	Stack ID	Source Type	Source Location UTM Zone 13 Easting	Source Location UTM Zone 13 Northing	Stack Parameters Height (m)	Stack Parameters Temperature (K)	Stack Parameters Velocity (m/s)	Stack Parameters Diameter (m)	Stack Parameter Source	Permitted Emissions NO_x (tpy)	Permitted Emissions CO (tpy)	Permitted Emissions Formaldehyde (tpy)	Emissions Source	Modeled Emissions NO_x (g/s)	Modeled Emissions CO (g/s)	Modeled Emissions Formaldehyde (g/s)
	dehydrator		upcs2DH	volume	291869.4	4609045.0	Please see footnote number 1.				station configuration.	0.10	0.10	--	emissions.	2.88E-03	2.88E-03	--
Unpermitted C.S. #3	compressor engine	1,206	upcs3C1	point	284449.4	4596750.4	11.00	730.40	71.60	0.254	Assumed to be identical most common compressor station configuration.	17.50	5.80	0.82	Assumed to be identical as the most commonly permitted compressor station emissions.	0.503	0.167	0.024
	compressor engine	1,206	upcs3C2	point	284449.4	4596750.4	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	upcs3G1	point	284451.7	4596760.8	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	upcs3G2	point	284440.5	4596732.7	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.355	0.503	0.020
	dehydrator		upcs3DH	volume	284452.6	4596727.9	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--
Unpermitted C.S. #4	compressor engine	1,206	upcs4C1	point	280970.3	4568733.5	11.00	730.40	71.60	0.254	Assumed to be identical most common compressor station configuration.	17.50	5.80	0.82	Assumed to be identical as the most commonly permitted compressor station emissions.	0.503	0.167	0.024
	compressor engine	1,206	upcs4C2	point	280976.0	4568722.0	11.00	730.40	71.60	0.254		17.50	5.80	0.82		0.503	0.167	0.024
	generator engine	1,206	upcs4G1	point	280965.7	4568742.3	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.335	0.503	0.020
	generator engine	1,206	upcs4G2	point	280981.7	4568710.5	11.00	762.00	38.60	0.254		11.60	17.50	0.70		0.355	0.503	0.020
	dehydrator		upcs4DH	volume	280969.6	4568715.3	Please see footnote number 1.					0.10	0.10	--		2.88E-03	2.88E-03	--

[1] Dehydrators modeled as a volume source, 5m x 5m x 5m.

Emission rate (g/s)	Release Height	$\sigma\ y_{init}$	$\sigma\ z_{init}$
2.88E-03	2.50	1.16	2.33

Table D1.7
Atlantic Rim Near-Field Modeling
HAPs Source Emissions and Modeling Parameters

HAP Sources	Modeled Emission Rate (lb/hr)	Modeled Emission Rate (g/s)	Source Type	Source Exit Characteristics and Layout	Release Height (m)	σ y_{init}	σ z_{init}
Benzene	2.89	0.36	Volume	Includes gas dehydration emissions and condensate storage tank emissions.	2.50	1.16	2.33
Toluene	4.36	0.55	Volume	Includes gas dehydration emissions and condensate storage tank emissions.	2.50	1.16	2.33
Ethylbenzene	0.47	0.06	Volume	Includes gas dehydration emissions and condensate storage tank emissions.	2.50	--	2.33
Xylenes	2.54	0.32	Volume	Includes gas dehydration emissions and condensate storage tank emissions.	2.50	1.16	2.33
n-Hexane	11.83	1.49	Volume	Includes gas dehydration emissions and condensate storage tank emissions.	2.50	1.16	2.33
Formaldehyde	No sources in addition to compression. Please see Table D1.6 Atlantic Rim Compression Modeling Summary						

APPENDIX D2:

SEMINOE ROAD NEAR-FIELD MODELING,
SOURCE EMISSIONS AND MODELING PARAMETERS

Appendix D2 – Seminoe Road Near-Field Modeling -
Source Emissions and Modeling Parameters

The following is a list of the tables included within this appendix.

Table D2.1
Seminoe Road Near-Field Modeling
PM_{10} Source Emissions and Modeling Parameters

PM_{10} Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Area Source Release Height	Area Source X_{init}	Area Source Y_{init}	Volume Source Release Height	Volume Source σ y_{init}	Volume Source σ z_{init}
	(lb/hr)	(m^2)	($g/s/m^2$)	(g/s)			(m)	(m)	(m)	(m)		
Well Pad Construction	6.52	--	--	0.821	Volume	Volume source centered around well pad. Includes well pad construction emissions and heavy equipment tailpipe.	--	--	--	2.29	21.95	2.13
Road Construction	0.11	--	--	0.0139	Volume	87 volume sources over the length of newly constructed road (0.58 miles). Information listed for one volume source. Emissions include road construction, heavy equipment tailpipe, and traffic.	--	--	--	2.29	4.96	2.13
Construction Traffic	0.026	--	--	3.33E-03	Volume	302 volume sources over a representative length of road (2 miles). Emissions include traffic.	--	--	--	2.29	4.96	2.13
Well Pad Wind Erosion	31.47	8,903.09	4.45E-04	--	Area	Area source centered around the well pad.	0.00	94.40	94.40	--	--	--
Access Road Wind Erosion	35.19	4,981.41	8.90E-04	--	Area	Divided into 18 equal area sources over length of newly constructed road. Information listed is total emissions for all 18 area sources.	0.00	51.86	5.34	--	--	--

Table D2.2
Seminoe Road Near-Field Modeling
$PM_{2.5}$ Source Emissions and Modeling Parameters

$PM_{2.5}$ Sources	**Modeled Emission Rate**	**Modeled Area Source**	**Modeled Emission Rate**	**Modeled Emission Rate**	**Source Type**	**Source Exit Characteristics and Layout**	**Area Source Release Height**	**Area Source X_{init}**	**Area Source Y_{init}**	**Source Release Height**	**Volume Source $\sigma\ y_{init}$**	**Volume Source $\sigma\ z_{init}$**
	(lb/hr)	(m^2)	($g/s/m^2$)	(g/s)			(m)	(m)	(m)	(m)		
Well Pad Construction	1.85	--	--	0.233	Volume	Volume source centered around well pad. Includes well pad construction emissions and heavy equipment tailpipe.	--	--	--	2.29	21.95	2.13
Road Construction	0.028	--	--	0.00352	Volume	87 volume sources over the length of newly constructed road (0.58 miles). Information listed for one volume source. Emissions include road construction, heavy equipment tailpipe, and traffic.	--	--	--	2.29	4.96	2.13
Construction Traffic	4.05E-03	--	--	5.10E-04	Volume	302 volume sources over a representative length of road (2 miles). Emissions include traffic.	--	--	--	2.29	4.96	2.13
Well Pad Wind Erosion	12.59	8,903.09	1.78E-04	--	Area	Area source centered around the well pad.	0.00	94.40	94.40	--	--	--
Access Road Wind Erosion	14.08	4,981.41	3.56E-04	--	Area	Divided into 18 equal area sources over length of newly constructed road. Information listed is total emissions for all 18 area sources.	0.00	51.86	5.34	--	--	--

Table D2.3
Seminoe Road Near-Field Modeling
SO_2 Source Emissions and Modeling Parameters

SO_2 Source	Modeled Emission Rate	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Stack Height	Stack Temperature	Stack Velocity	Stack Diameter
	(lb/hr)	(g/s)			(m)	(K)	(g/s)	(m)
Drilling Rigs	1.82	0.229	Point	Located in the Center of the Well Pad.	5.00	675.00	30.00	0.20

Table D2.4
Seminoe Road Near-Field Modeling
NO_x Source Emissions and Modeling Parameters

NO_x Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Release Height	Number of Vertices
	(lb/hr)	(m^2)	($g/s/m^2$)			(m)	
Field-Wide Area Source	248.00	581,573,171.00	5.37E-08	Areapoly	Includes heavy equipment tailpipe and down-hole pump emissions. Polygon shaped area source covers entire field.	5.00	10
Compression - please see Table D2.7 Seminoe Road Compression Modeling Summary.							

Table D2.5
Seminoe Road Near-Field Modeling
CO Source Emissions and Modeling Parameters

CO Sources	Modeled Emission Rate	Modeled Area Source	Modeled Emission Rate	Source Type	Source Exit Characteristics and Layout	Release Height	Number of Vertices
	(lb/hr)	(m^2)	($g/s/m^2$)			(m)	
Field-Wide Area Source	868.00	581,573,171.00	1.88E-07	Areapoly	Includes heavy equipment tailpipe and down-hole pump emissions. Polygon shaped area source covers entire field.	5.00	10

Compression - please see Table D2.7 Seminoe Road Compression Modeling Summary.

Table D2.6
Seminoe Road Near-Field Modeling
Formaldehyde Source Emissions and Modeling Parameters

Formaldehyde Sources	**Modeled Emission Rate**	**Modeled Area Source**	**Modeled Emission Rate**	**Source Type**	**Source Exit Characteristics and Layout**	**Release Height**	**Number of Vertices**
	(lb/hr)	(m^2)	($g/s/m^2$)			(m)	
Field-wide Area Source	1.24	581,573,171.00	2.69E-10	Areapoly	Includes heavy equipment tailpipe and down-hole pump emissions. Polygon shaped area source covers entire field.	5.00	10

Compression - please see Table D2.7 Seminoe Road Compression Modeling Summary.

Table D2.7
Seminoe Road Near-Field Modeling
Compression Modeling Summary

Facility	Unit Description	Horsepower	Stack ID	Source Type	Source Location UTM Zone 13 Easting	Northing	Stack Parameters Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	Stack Parameter Source	Permitted Emissions NO_x (tpy)	CO (tpy)	Formaldehyde (tpy)	Emissions Source	Modeled Emissions NO_x (g/s)	CO (g/s)	Formaldehyde (g/s)
Seminoe Road C. S.	compressor engine	1,340	CS1_1	point	335509	4650305	7.32	672.20	27.30	0.40	Seminoe Road C.S. Permit Application	19.30	6.60	0.90	Seminoe Road C.S. Permit CT-2833	0.555	0.190	0.026
	compressor engine	1,206	CS1_2	point	335505	4650294	7.32	672.20	27.30	0.40		19.30	6.60	0.90		0.555	0.190	0.026
Unpermitted C.S. #1	compressor engine	1,340	CS2_1	point	337953	4636609	7.32	672.20	27.30	0.40	Assumed to be identical to the permitted compressor station.	19.30	6.60	0.90	Assumed to be identical to the permitted compressor station.	0.555	0.190	0.026
	compressor engine	1,206	CS2_2	point	337950	4636598	7.32	672.20	27.30	0.40		19.30	6.60	0.90		0.555	0.190	0.026
Unpermitted C.S. #2	compressor engine	1,340	CS3_1	point	335966	4642112	7.32	672.20	27.30	0.40	Assumed to be identical to the permitted compressor station.	19.30	6.60	0.90	Assumed to be identical to the permitted compressor station.	0.555	0.190	0.026
	compressor engine	1,206	CS3_2	point	335962	4642101	7.32	672.20	27.30	0.40		19.30	6.60	0.90		0.555	0.190	0.026

APPENDIX E:

SURFACE AND UPPER AIR METEOROLOGICAL STATIONS
AND PRECIPITATION STATIONS USED IN THE ANALYSIS

Appendix E CALMET Input Data

Table E.1 Surface Meteorolgical Stations Used in the Development of the CALMET Wind Fields

Station Name	Station Type	X (Lambert Conformal km)	Y (Lambert Conformal km)	Model ID
Amoco	Industrial	-188.837	-117.730	1001
Ande	RAWS	-31.013	-12.050	2001
Baggs	Zirkel	74.785	-166.360	4001
Beaver	WYDOT	20.818	4.010	3001
BitterCreek	WYDOT	-2.654	-97.240	3002
Burr	RAWS	-141.055	140.200	2002
Camp	RAWS	79.256	-21.460	2003
Casper	NWS	163.698	41.900	6007
Centennial	NDDN	194.065	-130.500	5002
Cheyenne	NWS	329.457	-149.820	6004
Cody	NWS	-35.984	211.760	26700
Con	WYDOT	68.278	-89.450	2004
Cow	RAWS	78.342	-137.150	4002
Craig	Zirkel	78.747	-225.580	2005
Denver	NWS	335.813	-324.410	6001
Denver	NWS	335.813	-324.410	6002
Elkhorn	RAWS	-82.435	121.920	7001
Evan	NWS	-200.631	-133.530	1002
Exxon	Industrial	-128.247	-75.080	3004
FirstDivide	WYDOT	-179.798	-132.420	1003
GenC	Industrial	-97.396	-102.530	2006
Getc	RAWS	-213.753	-23.290	2007
Grac	RAWS	-261.735	4.030	2008
Grand Teton	RAWS	-167.686	128.380	7002
Grand Juction	NWS	18.459	-376.040	6003
Hayden	NWS	115.118	-241.220	3005
Hiland	WYDOT	96.447	59.000	7004
I-25 Divide	WYDOT	147.707	151.128	90001
Idaho Falls	NWS	-274.135	110.280	6005
Jackson	NWS	-169.576	115.150	1004
Jun	Zirkel	42.655	-225.920	1005
Lander	NWS	-14.192	29.040	3006
Meeteetsee	WYDOT	-24.607	184.857	90002
Naughton	Industrial	-163.727	-82.890	2009
OCI	Industrial	-89.941	-87.570	2010
Ogden	NWS	-245.962	-154.600	7006
Pat	WYDOT	134.381	2.500	2011
Pine	NDDN	-97.579	41.610	7005
Pole	RAWS	-259.041	42.350	6008
Rasp	RAWS	-114.350	100.160	2012
Rawlins	NWS	108.284	-79.760	7007
Riley	RAWS	-152.455	-5.340	1006
Riverton	NWS	3.930	48.370	7008
RockSprings	NWS	-41.850	-102.050	2013
Salt Lake City	NWS	-247.589	-219.230	26865
Snider	RAWS	-156.708	-4.430	25785
SodaSprings	NWS	-222.333	-13.320	26764
TG	Industrial	-107.679	-91.600	26763
Vernal	NWS	-62.525	-245.160	26664
Wind	RAWS	-44.560	46.200	90002
Worland	NWS	46.380	152.760	24029

Table E.2 Upper Air Meteorolgical Stations Used in the Development of the CALMET Wind Fields

Station Name	X (Lambert Conformal km)	Y (Lambert Conformal km)	Model ID
Denver	321.444	-281.130	23062
Grand Juntion	2.012	-369.260	23066
Lander	-14.429	28.720	24021
Salt Lake City	-278.983	-185.610	24127

Table E.3 Precipitation Stations Used in the Development of the CALMET Wind Fields

Model ID	X (Lambert Conformal km)	Y (Lambert Conformal km)	Station Code
P001	248.371	-246.495	50183
P002	271.071	-265.462	50843
P003	-34.328	-249.360	52286
P004	263.892	-222.585	52354
P005	283.687	-205.576	53005
P006	272.352	-196.997	53007
P007	221.009	-251.138	53500
P008	279.732	-241.676	55121
P009	49.568	-272.559	55484
P010	180.395	-171.510	55982
P011	231.323	-193.186	57296
P012	244.992	-266.480	57648
P013	192.658	-268.213	59096
P014	-210.422	143.269	109065
P015	-211.549	-170.572	421590
P016	-70.554	-173.625	422864
P017	-181.985	-228.924	423624
P018	-159.634	-211.499	425815
P019	-124.262	-215.930	426127
P020	-219.022	-191.884	426374
P021	-116.548	-243.027	427395
P022	-213.999	-245.975	428371
P023	-124.144	-0.613	480697
P024	28.642	93.249	481000
P025	163.942	41.585	481570
P026	249.931	26.445	482693
P027	266.059	48.621	482696
P028	-84.349	106.216	482715
P029	143.111	-141.842	483050
P030	-194.548	-146.643	483100
P031	-172.801	102.667	484910
P032	205.589	-154.599	484930
P033	-14.429	28.720	485390
P034	235.892	-130.187	485420
P035	188.160	-67.147	486120
P036	-157.462	141.698	486440
P037	-144.286	-136.431	486555
P038	-29.676	-132.586	486597
P039	29.069	0.067	486875
P040	134.830	-7.493	487105
P041	123.092	53.124	487375
P042	108.284	-79.755	487533
P043	13.119	51.934	487760
P044	-41.609	-102.056	487845
P045	142.439	-111.382	487995
P046	130.212	-41.687	488070
P047	194.627	-16.699	488192
P048	91.687	136.832	488858
P049	27.206	118.275	488875

Table E.3 Precipitation Stations Used in the Development of the CALMET Wind Fields

Model ID	X (Lambert Conformal km)	Y (Lambert Conformal km)	Station Code
P050	-11.646	125.423	488888
P051	-210.000	62.000	31084
P052	-210.000	10.000	31071
P053	-210.000	-30.000	31061
P054	-210.000	-78.000	31049
P055	-210.000	-110.000	31041
P056	-210.000	-150.000	31031
P057	-210.000	-218.000	31014
P058	-190.000	122.000	36099
P059	-190.000	90.000	36091
P060	-190.000	10.000	36071
P061	-190.000	-10.000	36066
P062	-190.000	-110.000	36041
P063	-190.000	-190.000	36021
P064	-178.000	142.000	39104
P065	-170.000	50.000	41081
P066	-170.000	-10.000	41066
P067	-170.000	-50.000	41056
P068	-170.000	-158.000	41029
P069	-162.000	22.000	43074
P070	-154.000	114.000	45097
P071	-150.000	-90.000	46046
P072	-150.000	-182.000	46023
P073	-138.000	82.000	49089
P074	-130.000	118.000	51098
P075	-130.000	30.000	51076
P076	-110.000	-190.000	56021
P077	-90.000	82.000	61089
P078	-90.000	50.000	61081
P079	-90.000	2.000	61069
P080	-90.000	-70.000	61051
P081	-90.000	-190.000	61021
P082	-70.000	130.000	66101
P083	-70.000	90.000	66091
P084	-70.000	50.000	66081
P085	-70.000	10.000	66071
P086	-58.000	-222.000	69013
P087	-50.000	130.000	71101
P088	-50.000	30.000	71076
P089	-50.000	-198.000	71019
P090	-30.000	90.000	76091
P091	-30.000	10.000	76071
P092	-30.000	-222.000	76013
P093	-10.000	-30.000	81061
P094	-10.000	-70.000	81051
P095	-10.000	-222.000	81013
P096	10.000	-130.000	86036
P097	30.000	-50.000	91056
P098	30.000	-98.000	91044

Table E.3 Precipitation Stations Used in the Development of the CALMET Wind Fields

Model ID	X (Lambert Conformal km)	Y (Lambert Conformal km)	Station Code
P099	30.000	-178.000	91024
P100	50.000	-250.000	96006
P101	70.000	50.000	101081
P102	70.000	-30.000	101061
P103	70.000	-70.000	101051
P104	90.000	-110.000	106041
P105	90.000	-150.000	106031
P106	90.000	-230.000	106011
P107	102.000	94.000	109092
P108	102.000	-190.000	109021
P109	106.000	22.000	110074
P110	106.000	-30.000	110061
P111	106.000	-258.000	110004
P112	122.000	-130.000	114036
P113	130.000	130.000	116101
P114	130.000	-154.000	116030
P115	130.000	-218.000	116014
P116	150.000	70.000	121086
P117	150.000	-38.000	121059
P118	150.000	-178.000	121024
P119	154.000	-198.000	122019
P120	154.000	-238.000	122009
P121	162.000	-38.000	124059
P122	170.000	-18.000	126064
P123	182.000	22.000	129074
P124	182.000	-122.000	129038
P125	182.000	-190.000	129021
P126	182.000	-230.000	129011
P127	210.000	130.000	136101
P128	210.000	62.000	136084
P129	210.000	-190.000	136021
P130	230.000	-18.000	141064
P131	230.000	-178.000	141024
P132	230.000	-230.000	141011
P133	250.000	-70.000	146051
P134	262.000	-118.000	149039

APPENDIX F1:
ATLANTIC RIM FAR-FIELD MODELING RESULTS

Appendix F1 – Atlantic Rim Far-Field Modeling Results

The following is a list of the tables included within this appendix.

Table F1.1.1 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	Bridger WA	0.0000	0.10[1]	2.50	3.40	3.40	100	100	--
		Dinosaur NM	0.0022	1.00	25.00	3.40	3.40	100	--	100
		Fitzpatrick WA	0.0000	0.10[1]	2.50	3.40	3.40	100	100	--
		Popo Agie WA	0.0000	1.00	25.00	3.40	3.40	100	100	--
		Rawah WA	0.0018	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0006	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0054	0.10[1]	2.50	3.40	3.41	100	100	--
		Wind River RA	0.0018	1.00	25.00	3.40	3.40	100	100	--
		Mt. Zirkel WA	0.0039	0.10[1]	2.50	3.40	3.40	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.1.2 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
NO_2	Annual	Bridger WA	0.0936	0.10[1]	2.50	3.40	3.49	100	100	--
		Dinosaur NM	0.0166	1.00	25.00	3.40	3.42	100	--	100
		Fitzpatrick WA	0.0145	0.10[1]	2.50	3.40	3.41	100	100	--
		Popo Agie WA	0.0392	1.00	25.00	3.40	3.44	100	100	--
		Rawah WA	0.0028	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0013	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0082	0.10[1]	2.50	3.40	3.41	100	100	--
		Wind River RA	0.0346	1.00	25.00	3.40	3.43	100	100	--
		Mt. Zirkel WA	0.0070	0.10[1]	2.50	3.40	3.41	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.1.3 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	Bridger WA	0.0936	0.10[1]	2.50	3.40	3.49	100	100	--
		Dinosaur NM	0.0177	1.00	25.00	3.40	3.42	100	--	100
		Fitzpatrick WA	0.0145	0.10[1]	2.50	3.40	3.41	100	100	--
		Popo Agie WA	0.0393	1.00	25.00	3.40	3.44	100	100	--
		Rawah WA	0.0046	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0019	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0137	0.10[1]	2.50	3.40	3.41	100	100	--
		Wind River RA	0.0346	1.00	25.00	3.40	3.43	100	100	--
		Mt. Zirkel WA	0.0109	0.10[1]	2.50	3.40	3.41	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.2.1 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
SO_2	Annual	Bridger WA	0.0000	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	0.0002	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	0.0000	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	0.0000	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	0.0002	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	0.0001	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	0.0005	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	0.0002	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	0.0003	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0010	0.20[1]	5.00	43.00	43.00	365	260	--
		Dinosaur NM	0.0042	5.00	91.00	43.00	43.00	365	--	100
		Fitzpatrick WA	0.0012	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0010	5.00	91.00	43.00	43.00	365	260	--
		Rawah WA	0.0019	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0011	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0043	0.20[1]	5.00	43.00	43.00	365	260	--
		Wind River RA	0.0035	5.00	91.00	43.00	43.00	365	260	--
		Mt. Zirkel WA	0.0036	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.0026	1.00[1]	25.00	132.00	132.00	1300	1300	--
		Dinosaur NM	0.0174	25.00	512.00	132.00	132.02	1300	--	700
		Fitzpatrick WA	0.0026	1.00[1]	25.00	132.00	132.00	1300	1300	--
		Popo Agie WA	0.0028	25.00	512.00	132.00	132.00	1300	1300	--
		Rawah WA	0.0063	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0039	1.00[1]	25.00	132.00	132.00	1300	--	700
		Savage Run WA	0.0153	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Wind River RA	0.0125	25.00	512.00	132.00	132.01	1300	1300	--
		Mt. Zirkel WA	0.0115	1.00[1]	25.00	132.00	132.01	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.2.2 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
SO_2	Annual	Bridger WA	(0.0016)	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	(0.0017)	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	(0.0014)	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	(0.0031)	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	(0.0013)	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	(0.0007)	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	(0.0023)	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	(0.0015)	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	(0.0018)	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0522	0.20[1]	5.00	43.00	43.05	365	260	--
		Dinosaur NM	0.0135	5.00	91.00	43.00	43.01	365	--	100
		Fitzpatrick WA	0.0045	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0071	5.00	91.00	43.00	43.01	365	260	--
		Rawah WA	0.0036	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0011	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0045	0.20[1]	5.00	43.00	43.00	365	260	--
		Wind River RA	0.0083	5.00	91.00	43.00	43.01	365	260	--
		Mt. Zirkel WA	0.0029	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.2618	1.00[1]	25.00	132.00	132.26	1300	1300	--
		Dinosaur NM	0.0362	25.00	512.00	132.00	132.04	1300	--	700
		Fitzpatrick WA	0.0182	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Popo Agie WA	0.0229	25.00	512.00	132.00	132.02	1300	1300	--
		Rawah WA	0.0084	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0045	1.00[1]	25.00	132.00	132.00	1300	--	700
		Savage Run WA	0.0118	1.00[1]	25.00	132.00	132.01	1300	1300	--
		Wind River RA	0.0742	25.00	512.00	132.00	132.07	1300	1300	--
		Mt. Zirkel WA	0.0079	1.00[1]	25.00	132.00	132.01	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.2.3 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
SO_2	Annual	Bridger WA	(0.0015)	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	(0.0016)	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	(0.0014)	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	(0.0030)	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	(0.0012)	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	(0.0006)	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	(0.0019)	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	(0.0015)	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	(0.0016)	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0522	0.20[1]	5.00	43.00	43.05	365	260	--
		Dinosaur NM	0.0149	5.00	91.00	43.00	43.01	365	--	100
		Fitzpatrick WA	0.0045	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0071	5.00	91.00	43.00	43.01	365	260	--
		Rawah WA	0.0036	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0016	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0067	0.20[1]	5.00	43.00	43.01	365	260	--
		Wind River RA	0.0089	5.00	91.00	43.00	43.01	365	260	--
		Mt. Zirkel WA	0.0038	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.2618	1.00[1]	25.00	132.00	132.26	1300	1300	--
		Dinosaur NM	0.0386	25.00	512.00	132.00	132.04	1300	--	700
		Fitzpatrick WA	0.0182	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Popo Agie WA	0.0229	25.00	512.00	132.00	132.02	1300	1300	--
		Rawah WA	0.0089	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0060	1.00[1]	25.00	132.00	132.01	1300	--	700
		Savage Run WA	0.0222	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Wind River RA	0.0742	25.00	512.00	132.00	132.07	1300	1300	--
		Mt. Zirkel WA	0.0129	1.00[1]	25.00	132.00	132.01	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.3.1 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
PM_{10}	Annual	Bridger WA	0.000	0.20[1]	4.00	16.00	16.00	50	50	--
		Dinosaur NM	0.003	1.00	17.00	16.00	16.00	50	--	50
		Fitzpatrick WA	0.000	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.000	1.00	17.00	16.00	16.00	50	50	--
		Rawah WA	0.003	0.20[1]	4.00	16.00	16.00	50	--	50
		Rocky Mountain NP	0.001	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.006	0.20[1]	4.00	16.00	16.01	50	50	--
		Wind River RA	0.002	1.00	17.00	16.00	16.00	50	50	--
		Mt. Zirkel WA	0.004	0.20[1]	4.00	16.00	16.00	50	--	50
PM_{10}	24-hr	Bridger WA	0.013	0.30[1]	8.00	33.00	33.01	150	150	--
		Dinosaur NM	0.252	5.00	30.00	33.00	33.25	150	--	150
		Fitzpatrick WA	0.016	0.30[1]	8.00	33.00	33.02	150	150	--
		Popo Agie WA	0.010	5.00	30.00	33.00	33.01	150	150	--
		Rawah WA	0.030	0.30[1]	8.00	33.00	33.03	150	--	150
		Rocky Mountain NP	0.022	0.30[1]	8.00	33.00	33.02	150	--	150
		Savage Run WA	0.061	0.30[1]	8.00	33.00	33.06	150	150	--
		Wind River RA	0.102	5.00	30.00	33.00	33.10	150	150	--
		Mt. Zirkel WA	0.049	0.30[1]	8.00	33.00	33.05	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.3.2 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
PM_{10}	Annual	Bridger WA	0.014	0.20[1]	4.00	16.00	16.01	50	50	--
		Dinosaur NM	0.011	1.00	17.00	16.00	16.01	50	--	50
		Fitzpatrick WA	0.004	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Rawah WA	0.003	0.20[1]	4.00	16.00	16.00	50	--	50
		Rocky Mountain NP	0.002	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.006	0.20[1]	4.00	16.00	16.01	50	50	--
		Wind River RA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Mt. Zirkel WA	0.009	0.20[1]	4.00	16.00	16.01	50	--	50
PM_{10}	24-hr	Bridger WA	0.481	0.30[1]	8.00	33.00	33.48	150	150	--
		Dinosaur NM	0.368	5.00	30.00	33.00	33.37	150	--	150
		Fitzpatrick WA	0.127	0.30[1]	8.00	33.00	33.13	150	150	--
		Popo Agie WA	0.283	5.00	30.00	33.00	33.28	150	150	--
		Rawah WA	0.038	0.30[1]	8.00	33.00	33.04	150	--	150
		Rocky Mountain NP	0.022	0.30[1]	8.00	33.00	33.02	150	--	150
		Savage Run WA	0.073	0.30[1]	8.00	33.00	33.07	150	150	--
		Wind River RA	0.247	5.00	30.00	33.00	33.25	150	150	--
		Mt. Zirkel WA	0.097	0.30[1]	8.00	33.00	33.10	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.3.3 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
PM_{10}	Annual	Bridger WA	0.014	0.20[1]	4.00	16.00	16.01	50	50	--
		Dinosaur NM	0.014	1.00	17.00	16.00	16.01	50	--	50
		Fitzpatrick WA	0.004	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Rawah WA	0.006	0.20[1]	4.00	16.00	16.01	50	--	50
		Rocky Mountain NP	0.003	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.011	0.20[1]	4.00	16.00	16.01	50	50	--
		Wind River RA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Mt. Zirkel WA	0.012	0.20[1]	4.00	16.00	16.01	50	--	50
PM_{10}	24-hr	Bridger WA	0.481	0.30[1]	8.00	33.00	33.48	150	150	--
		Dinosaur NM	0.368	5.00	30.00	33.00	33.37	150	--	150
		Fitzpatrick WA	0.127	0.30[1]	8.00	33.00	33.13	150	150	--
		Popo Agie WA	0.283	5.00	30.00	33.00	33.28	150	150	--
		Rawah WA	0.061	0.30[1]	8.00	33.00	33.06	150	--	150
		Rocky Mountain NP	0.038	0.30[1]	8.00	33.00	33.04	150	--	150
		Savage Run WA	0.125	0.30[1]	8.00	33.00	33.13	150	150	--
		Wind River RA	0.247	5.00	30.00	33.00	33.25	150	150	--
		Mt. Zirkel WA	0.106	0.30[1]	8.00	33.00	33.11	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F1.4.1 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS[1] (ug/m^3)	CAAQS (ug/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.000	---	---	5.00	5.00	15	15	--
		Dinosaur NM	0.003	---	---	5.00	5.00	15	--	--
		Fitzpatrick WA	0.000	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.000	---	---	5.00	5.00	15	15	--
		Rawah WA	0.003	---	---	5.00	5.00	15	--	--
		Rocky Mountain NP	0.001	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.006	---	---	5.00	5.01	15	15	--
		Wind River RA	0.002	---	---	5.00	5.00	15	15	--
		Mt. Zirkel WA	0.004	---	---	5.00	5.00	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.013	---	---	13.00	13.01	65	65	--
		Dinosaur NM	0.110	---	---	13.00	13.11	65	--	--
		Fitzpatrick WA	0.016	---	---	13.00	13.02	65	65	--
		Popo Agie WA	0.010	---	---	13.00	13.01	65	65	--
		Rawah WA	0.030	---	---	13.00	13.03	65	--	--
		Rocky Mountain NP	0.022	---	---	13.00	13.02	65	--	--
		Savage Run WA	0.061	---	---	13.00	13.06	65	65	--
		Wind River RA	0.052	---	---	13.00	13.05	65	65	--
		Mt. Zirkel WA	0.049	---	---	13.00	13.05	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F1.4.2 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS[1] (ug/m^3)	CAAQS (ug/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.016	---	---	5.00	5.02	15	15	--
		Dinosaur NM	0.009	---	---	5.00	5.01	15	--	--
		Fitzpatrick WA	0.005	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.010	---	---	5.00	5.01	15	15	--
		Rawah WA	0.004	---	---	5.00	5.00	15	--	--
		Rocky Mountain NP	0.002	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.007	---	---	5.00	5.01	15	15	--
		Wind River RA	0.010	---	---	5.00	5.01	15	15	--
		Mt. Zirkel WA	0.007	---	---	5.00	5.01	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.458	---	---	13.00	13.46	65	65	--
		Dinosaur NM	0.248	---	---	13.00	13.25	65	--	--
		Fitzpatrick WA	0.127	---	---	13.00	13.13	65	65	--
		Popo Agie WA	0.270	---	---	13.00	13.27	65	65	--
		Rawah WA	0.039	---	---	13.00	13.04	65	--	--
		Rocky Mountain NP	0.023	---	---	13.00	13.02	65	--	--
		Savage Run WA	0.074	---	---	13.00	13.07	65	65	--
		Wind River RA	0.238	---	---	13.00	13.24	65	65	--
		Mt. Zirkel WA	0.071	---	---	13.00	13.07	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F1.4.3 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m³)	Significance Level (ug/m³)	PSD Increment (ug/m³)	Background Concentration (ug/m³)	Total Concentration (ug/m³)	NAAQS (ug/m³)	WAAQS[1] (ug/m³)	CAAQS (ug/m³)
$PM_{2.5}$	Annual	Bridger WA	0.016	---	---	5.00	5.02	15	15	--
		Dinosaur NM	0.012	---	---	5.00	5.01	15	--	--
		Fitzpatrick WA	0.005	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.010	---	---	5.00	5.01	15	15	--
		Rawah WA	0.007	---	---	5.00	5.01	15	--	--
		Rocky Mountain NP	0.003	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.013	---	---	5.00	5.01	15	15	--
		Wind River RA	0.011	---	---	5.00	5.01	15	15	--
		Mt. Zirkel WA	0.009	---	---	5.00	5.01	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.458	---	---	13.00	13.46	65	65	--
		Dinosaur NM	0.248	---	---	13.00	13.25	65	--	--
		Fitzpatrick WA	0.128	---	---	13.00	13.13	65	65	--
		Popo Agie WA	0.270	---	---	13.00	13.27	65	65	--
		Rawah WA	0.064	---	---	13.00	13.06	65	--	--
		Rocky Mountain NP	0.038	---	---	13.00	13.04	65	--	--
		Savage Run WA	0.127	---	---	13.00	13.13	65	65	--
		Wind River RA	0.238	---	---	13.00	13.24	65	65	--
		Mt. Zirkel WA	0.109	---	---	13.00	13.11	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F1.5.1 Maximum Predicted Pollutant Impacts Within the ARPA from Proposed Action Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	15.52	3.4	18.9	100	100
SO_2	3-Hour	8.82	132.0	140.8	1,300	1,300
	24-Hour	1.64	43.0	44.6	365	260
	Annual	0.14	9.0	9.1	80	60
PM_{10}	24-Hour	34.25	33.0	67.2	150	150
	Annual	3.98	16.0	20.0	50	50
$PM_{2.5}$	24-Hour	10.68	13.0	23.7	65[1]	65[1]
	Annual	0.72	5.0	5.7	15[1]	15[1]

[1] Proposed standard.

Table F1.5.2 Maximum Predicted Pollutant Impacts Within the ARPA from No Action and Regional Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	1.13	3.4	4.5	100	100
SO_2	3-Hour	1.36	132.0	133.4	1,300	1,300
	24-Hour	0.21	43.0	43.2	365	260
	Annual	0.01	9.0	9.0	80	60
PM_{10}	24-Hour	0.32	33.0	33.3	150	150
	Annual	0.03	16.0	16.0	50	50
$PM_{2.5}$	24-Hour	0.26	13.0	13.3	65[1]	65[1]
	Annual	0.04	5.0	5.0	15[1]	15[1]

[1] Proposed standard.

Table F1.5.3 Maximum Predicted Pollutant Impacts Within the ARPA from Proposed Action and Regional Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	15.77	3.4	19.2	100	100
SO_2	3-Hour	8.82	132.0	140.8	1,300	1,300
	24-Hour	1.65	43.0	44.7	365	260
	Annual	0.13	9.0	9.1	80	60
PM_{10}	24-Hour	34.24	33.0	67.2	150	150
	Annual	3.99	16.0	20.0	50	50
$PM_{2.5}$	24-Hour	10.67	13.0	23.7	65[1]	65[1]
	Annual	0.74	5.0	5.7	15[1]	15[1]

[1] Proposed standard.

Table F1.6.1 Maximum Predicted Nitrogen Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Project and Regional Sources - Direct and Total.

Receptor Area	Proposed Action Sources	No Action and Regional Sources	Proposed Action and Regional Sources	No Action Total[1]	Proposed Action Total[1]	Deposition Analysis Threshold for Project Alone[2]	Deposition Analysis Level of Concern for Cumulative Impacts[3]
	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)
Bridger WA	0.00027	0.02288	0.02306	1.42288	1.42306	0.005	3.00
Dinosaur NM	0.00089	0.00552	0.00622	1.40552	1.40622	0.005	3.00
Fitzpatrick WA	0.00025	0.00577	0.00598	1.40577	1.40598	0.005	3.00
Popo Agie WA	0.00030	0.01540	0.01570	1.41540	1.41570	0.005	3.00
Rawah WA	0.00140	0.00337	0.00477	2.70337	2.70477	0.005	3.00
Rocky Mountain NP	0.00082	0.00245	0.00327	2.70245	2.70327	0.005	3.00
Savage Run WA	0.00307	0.00606	0.00913	2.70606	2.70913	0.005	3.00
Wind River RA	0.00081	0.01292	0.01320	1.41292	1.41320	0.005	3.00
Mt. Zirkel WA	0.00265	0.00592	0.00857	2.70592	2.70857	0.005	3.00

[1] Total impacts include N Deposition values of 1.4 kg/ha-yr measured at Pinedale (2003, CASTNET) for Bridger, Dinosaur, Fitzpatrick, Popo Agie, and Wind River sensitive areas and 2.7 kg/ha-yr measured near Centennial (2002, CASTNET) for Rawah, Rocky Mountain, Savage Run and Mt. Zirkel sensitive areas.
[2] National Park Service (2001)
[3] Fox et al. (1989)

Table F1.6.2 Maximum Predicted Sulfur Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Project and Regional Sources - Direct and Total.

Receptor Area	Proposed Action Sources	No Action and Regional Sources	Proposed Action and Regional Sources	No Action Total[1]	Proposed Action Total[1]	Deposition Analysis Threshold for Project Alone[2]	Deposition Analysis Level of Concern for Cumulative Impacts[3]
	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)
Bridger WA	0.00003	(0.00100)	(0.00098)	0.64900	0.64902	0.005	5.00
Dinosaur NM	0.00010	(0.00103)	(0.00099)	0.64897	0.64901	0.005	5.00
Fitzpatrick WA	0.00003	(0.00093)	(0.00092)	0.64907	0.64908	0.005	5.00
Popo Agie WA	0.00003	(0.00250)	(0.00248)	0.64750	0.64752	0.005	5.00
Rawah WA	0.00015	(0.00121)	(0.00111)	0.83879	0.83889	0.005	5.00
Rocky Mountain NP	0.00009	(0.00088)	(0.00082)	0.83912	0.83918	0.005	5.00
Savage Run WA	0.00032	(0.00180)	(0.00151)	0.83820	0.83849	0.005	5.00
Wind River RA	0.00009	(0.00103)	(0.00099)	0.64897	0.64901	0.005	5.00
Mt. Zirkel WA	0.00030	(0.00161)	(0.00149)	0.83839	0.83851	0.005	5.00

[1] Total impacts include S Deposition values of 0.65 kg/ha-yr measured at Pinedale (2003, CASTNET) for Bridger, Dinosaur, Fitzpatrick, Popo Agie, and Wind River sensitive areas and 0.84 kg/ha-yr measured near Centennial (2002, CASTNET) for Rawah, Rocky Mountain, Savage Run and Mt. Zirkel sensitive areas.

[2] National Park Service (2001)

[3] Fox et al. (1989)

Table F1.7.1 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Proposed Action Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.00	0.00%
Deep	Bridger	59.90	5.99	0.00	0.00%
Elbert	Zirkel	51.90	5.19	0.01	0.02%
Hobbs	Bridger	69.90	6.99	0.00	0.00%
Island	Rawah	68.70	6.87	0.01	0.01%
Kelly	Rawah	181.10	18.11	0.01	0.01%
Lazy Boy	Bridger	18.80	1.00	0.00	0.01%
Lower Saddle	Popo Agie	55.50	5.55	0.00	0.00%
Rawah #4	Rawah	41.20	4.12	0.01	0.02%
Ross	Fitzpatrick	53.50	5.35	0.00	0.00%
Seven Lakes	Zirkel	36.20	3.62	0.02	0.05%
Summit	Zirkel	47.30	4.73	0.01	0.02%
Upper Frozen	Bridger	5.00	1.00	0.00	0.05%
West Glacier	GLEES[1]	35.20	3.52	0.02	0.06%

[1]Glacier Lakes Ecosystem Experiments Site

Table F1.7.2 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from No Action and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.11	0.16%
Deep	Bridger	59.90	5.99	0.11	0.18%
Elbert	Zirkel	51.90	5.19	0.04	0.08%
Hobbs	Bridger	69.90	6.99	0.04	0.06%
Island	Rawah	68.70	6.87	0.02	0.03%
Kelly	Rawah	181.10	18.11	0.02	0.01%
Lazy Boy	Bridger	18.80	1.00	0.03	0.14%
Lower Saddle	Popo Agie	55.50	5.55	0.13	0.23%
Rawah #4	Rawah	41.20	4.12	0.02	0.06%
Ross	Fitzpatrick	53.50	5.35	0.03	0.06%
Seven Lakes	Zirkel	36.20	3.62	0.04	0.12%
Summit	Zirkel	47.30	4.73	0.04	0.08%
Upper Frozen	Bridger	5.00	1.00	0.12	2.37%
West Glacier	GLEES[1]	35.20	3.52	0.05	0.13%

[1]Glacier Lakes Ecosystem Experiments Site

Table F1.7.3 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Proposed Action and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.11	0.16%
Deep	Bridger	59.90	5.99	0.11	0.19%
Elbert	Zirkel	51.90	5.19	0.049	0.09%
Hobbs	Bridger	69.90	6.99	0.043	0.06%
Island	Rawah	68.70	6.87	0.033	0.05%
Kelly	Rawah	181.10	18.11	0.033	0.02%
Lazy Boy	Bridger	18.80	1.00	0.028	0.15%
Lower Saddle	Popo Agie	55.50	5.55	0.13	0.23%
Rawah #4	Rawah	41.20	4.12	0.034	0.08%
Ross	Fitzpatrick	53.50	5.35	0.032	0.06%
Seven Lakes	Zirkel	36.20	3.62	0.060	0.17%
Summit	Zirkel	47.30	4.73	0.047	0.10%
Upper Frozen	Bridger	5.00	1.00	0.12	2.41%
West Glacier	GLEES[1]	35.20	3.52	0.068	0.19%

[1]Glacier Lakes Ecosystem Experiments Site

Table F1.8.1 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Receptor Area	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	0.03	0	0	0.02	0	0
Dinosaur NM	0.18	0	0	0.20	0	0
Fitzpatrick WA	0.03	0	0	0.03	0	0
Popo Agie WA	0.03	0	0	0.02	0	0
Rawah WA	0.10	0	0	0.11	0	0
Rocky Mountain NP	0.07	0	0	0.07	0	0
Savage Run WA	0.20	0	0	0.20	0	0
Wind River RA	0.17	0	0	0.19	0	0
Mt. Zirkel WA	0.16	0	0	0.16	0	0

Table F1.8.2 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action

Receptor Area and Regional Sources	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.82	8	1	2.08	10	4
Dinosaur NM	0.51	2	0	0.55	2	0
Fitzpatrick WA	0.58	1	0	0.67	1	0
Popo Agie WA	1.07	3	1	1.24	4	1
Rawah WA	0.14	0	0	0.16	0	0
Rocky Mountain NP	0.08	0	0	0.09	0	0
Savage Run WA	0.24	0	0	0.24	0	0
Wind River RA	0.95	6	0	1.11	7	1
Mt. Zirkel WA	0.26	0	0	0.26	0	0

Table F1.8.3 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Receptor Area	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.82	8	1	2.08	10	4
Dinosaur NM	0.66	4	0	0.73	4	0
Fitzpatrick WA	0.58	1	0	0.67	1	0
Popo Agie WA	1.07	3	1	1.24	4	1
Rawah WA	0.23	0	0	0.26	0	0
Rocky Mountain NP	0.13	0	0	0.13	0	0
Savage Run WA	0.42	0	0	0.43	0	0
Wind River RA	0.96	8	0	1.11	9	1
Mt. Zirkel WA	0.39	0	0	0.41	0	0

APPENDIX F2:

SEMINOE ROAD FAR-FIELD MODELING RESULTS

Appendix F2 – Seminoe Road Far-Field Modeling Results

The following is a list of the tables included within this appendix.

Table F2.1.1 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
NO_2	Annual	Bridger WA	0.0000	0.10[1]	2.50	3.40	3.40	100	100	--
		Dinosaur NM	0.0002	1.00	25.00	3.40	3.40	100	--	100
		Fitzpatrick WA	0.0000	0.10[1]	2.50	3.40	3.40	100	100	--
		Popo Agie WA	0.0000	1.00	25.00	3.40	3.40	100	100	--
		Rawah WA	0.0002	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0001	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0007	0.10[1]	2.50	3.40	3.40	100	100	--
		Wind River RA	0.0002	1.00	25.00	3.40	3.40	100	100	--
		Mt. Zirkel WA	0.0002	0.10[1]	2.50	3.40	3.40	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.1.2 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.0001	0.10[1]	2.50	3.40	3.40	100	100	--
		Dinosaur NM	0.0007	1.00	25.00	3.40	3.40	100	--	100
		Fitzpatrick WA	0.0000	0.10[1]	2.50	3.40	3.40	100	100	--
		Popo Agie WA	0.0001	1.00	25.00	3.40	3.40	100	100	--
		Rawah WA	0.0007	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0003	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0022	0.10[1]	2.50	3.40	3.40	100	100	--
		Wind River RA	0.0006	1.00	25.00	3.40	3.40	100	100	--
		Mt. Zirkel WA	0.0006	0.10[1]	2.50	3.40	3.40	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.1.3 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	Bridger WA	0.0936	0.10[1]	2.50	3.40	3.49	100	100	--
		Dinosaur NM	0.0175	1.00	25.00	3.40	3.42	100	--	100
		Fitzpatrick WA	0.0145	0.10[1]	2.50	3.40	3.41	100	100	--
		Popo Agie WA	0.0393	1.00	25.00	3.40	3.44	100	100	--
		Rawah WA	0.0044	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0018	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0130	0.10[1]	2.50	3.40	3.41	100	100	--
		Wind River RA	0.0346	1.00	25.00	3.40	3.43	100	100	--
		Mt. Zirkel WA	0.0108	0.10[1]	2.50	3.40	3.41	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.1.4 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	Bridger WA	0.0936	0.10[1]	2.50	3.40	3.49	100	100	--
		Dinosaur NM	0.0177	1.00	25.00	3.40	3.42	100	--	100
		Fitzpatrick WA	0.0145	0.10[1]	2.50	3.40	3.41	100	100	--
		Popo Agie WA	0.0393	1.00	25.00	3.40	3.44	100	100	--
		Rawah WA	0.0046	0.10[1]	2.50	3.40	3.40	100	--	100
		Rocky Mountain NP	0.0019	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0137	0.10[1]	2.50	3.40	3.41	100	100	--
		Wind River RA	0.0346	1.00	25.00	3.40	3.43	100	100	--
		Mt. Zirkel WA	0.0109	0.10[1]	2.50	3.40	3.41	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.1.5 Maximum Predicted NO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	Bridger WA	0.0936	0.10[1]	2.50	3.40	3.49	100	100	--
		Dinosaur NM	0.0181	1.00	25.00	3.40	3.42	100	--	100
		Fitzpatrick WA	0.0145	0.10[1]	2.50	3.40	3.41	100	100	--
		Popo Agie WA	0.0393	1.00	25.00	3.40	3.44	100	100	--
		Rawah WA	0.0051	0.10[1]	2.50	3.40	3.41	100	--	100
		Rocky Mountain NP	0.0022	0.10[1]	2.50	3.40	3.40	100	--	100
		Savage Run WA	0.0152	0.10[1]	2.50	3.40	3.42	100	100	--
		Wind River RA	0.0346	1.00	25.00	3.40	3.43	100	100	--
		Mt. Zirkel WA	0.0113	0.10[1]	2.50	3.40	3.41	100	--	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.2.1 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
SO_2	Annual	Bridger WA	0.0000	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	0.0000	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	0.0000	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	0.0000	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	0.0001	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	0.0000	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	0.0001	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	0.0000	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	0.0000	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0008	0.20[1]	5.00	43.00	43.00	365	260	--
		Dinosaur NM	0.0022	5.00	91.00	43.00	43.00	365	--	100
		Fitzpatrick WA	0.0004	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0011	5.00	91.00	43.00	43.00	365	260	--
		Rawah WA	0.0016	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0011	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0040	0.20[1]	5.00	43.00	43.00	365	260	--
		Wind River RA	0.0015	5.00	91.00	43.00	43.00	365	260	--
		Mt. Zirkel WA	0.0020	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.0022	1.00[1]	25.00	132.00	132.00	1300	1300	--
		Dinosaur NM	0.0047	25.00	512.00	132.00	132.00	1300	--	700
		Fitzpatrick WA	0.0010	1.00[1]	25.00	132.00	132.00	1300	1300	--
		Popo Agie WA	0.0032	25.00	512.00	132.00	132.00	1300	1300	--
		Rawah WA	0.0050	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0032	1.00[1]	25.00	132.00	132.00	1300	--	700
		Savage Run WA	0.0100	1.00[1]	25.00	132.00	132.01	1300	1300	--
		Wind River RA	0.0047	25.00	512.00	132.00	132.00	1300	1300	--
		Mt. Zirkel WA	0.0044	1.00[1]	25.00	132.00	132.00	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.2.2 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
SO_2	Annual	Bridger WA	0.0000	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	0.0000	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	0.0000	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	0.0000	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	0.0001	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	0.0000	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	0.0001	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	0.0000	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	0.0000	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0008	0.20[1]	5.00	43.00	43.00	365	260	--
		Dinosaur NM	0.0022	5.00	91.00	43.00	43.00	365	--	100
		Fitzpatrick WA	0.0004	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0011	5.00	91.00	43.00	43.00	365	260	--
		Rawah WA	0.0016	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0011	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0040	0.20[1]	5.00	43.00	43.00	365	260	--
		Wind River RA	0.0015	5.00	91.00	43.00	43.00	365	260	--
		Mt. Zirkel WA	0.0020	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.0022	1.00[1]	25.00	132.00	132.00	1300	1300	--
		Dinosaur NM	0.0047	25.00	512.00	132.00	132.00	1300	--	700
		Fitzpatrick WA	0.0010	1.00[1]	25.00	132.00	132.00	1300	1300	--
		Popo Agie WA	0.0032	25.00	512.00	132.00	132.00	1300	1300	--
		Rawah WA	0.0050	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0032	1.00[1]	25.00	132.00	132.00	1300	--	700
		Savage Run WA	0.0100	1.00[1]	25.00	132.00	132.01	1300	1300	--
		Wind River RA	0.0047	25.00	512.00	132.00	132.00	1300	1300	--
		Mt. Zirkel WA	0.0044	1.00[1]	25.00	132.00	132.00	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.2.3 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
SO_2	Annual	Bridger WA	(0.0016)	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	(0.0016)	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	(0.0014)	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	(0.0030)	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	(0.0012)	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	(0.0006)	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	(0.0020)	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	(0.0015)	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	(0.0016)	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0522	0.20[1]	5.00	43.00	43.05	365	260	--
		Dinosaur NM	0.0149	5.00	91.00	43.00	43.01	365	--	100
		Fitzpatrick WA	0.0045	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0071	5.00	91.00	43.00	43.01	365	260	--
		Rawah WA	0.0036	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0014	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0067	0.20[1]	5.00	43.00	43.01	365	260	--
		Wind River RA	0.0089	5.00	91.00	43.00	43.01	365	260	--
		Mt. Zirkel WA	0.0038	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.2618	1.00[1]	25.00	132.00	132.26	1300	1300	--
		Dinosaur NM	0.0386	25.00	512.00	132.00	132.04	1300	--	700
		Fitzpatrick WA	0.0182	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Popo Agie WA	0.0229	25.00	512.00	132.00	132.02	1300	1300	--
		Rawah WA	0.0084	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0059	1.00[1]	25.00	132.00	132.01	1300	--	700
		Savage Run WA	0.0222	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Wind River RA	0.0742	25.00	512.00	132.00	132.07	1300	1300	--
		Mt. Zirkel WA	0.0129	1.00[1]	25.00	132.00	132.01	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.2.4 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
SO_2	Annual	Bridger WA	(0.0015)	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	(0.0016)	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	(0.0014)	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	(0.0030)	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	(0.0012)	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	(0.0006)	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	(0.0019)	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	(0.0015)	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	(0.0016)	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0522	0.20[1]	5.00	43.00	43.05	365	260	--
		Dinosaur NM	0.0149	5.00	91.00	43.00	43.01	365	--	100
		Fitzpatrick WA	0.0045	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0071	5.00	91.00	43.00	43.01	365	260	--
		Rawah WA	0.0036	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0016	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0067	0.20[1]	5.00	43.00	43.01	365	260	--
		Wind River RA	0.0089	5.00	91.00	43.00	43.01	365	260	--
		Mt. Zirkel WA	0.0038	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.2618	1.00[1]	25.00	132.00	132.26	1300	1300	--
		Dinosaur NM	0.0386	25.00	512.00	132.00	132.04	1300	--	700
		Fitzpatrick WA	0.0182	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Popo Agie WA	0.0229	25.00	512.00	132.00	132.02	1300	1300	--
		Rawah WA	0.0089	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0060	1.00[1]	25.00	132.00	132.01	1300	--	700
		Savage Run WA	0.0222	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Wind River RA	0.0742	25.00	512.00	132.00	132.07	1300	1300	--
		Mt. Zirkel WA	0.0129	1.00[1]	25.00	132.00	132.01	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.2.5 Maximum Predicted SO_2 Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Scenario and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
SO_2	Annual	Bridger WA	(0.0015)	0.10[1]	2.00	9.00	9.00	80	60	--
		Dinosaur NM	(0.0016)	1.00	20.00	9.00	9.00	80	--	15
		Fitzpatrick WA	(0.0014)	0.10[1]	2.00	9.00	9.00	80	60	--
		Popo Agie WA	(0.0030)	1.00	20.00	9.00	9.00	80	60	--
		Rawah WA	(0.0012)	0.10[1]	2.00	9.00	9.00	80	--	15
		Rocky Mountain NP	(0.0006)	0.10[1]	2.00	9.00	9.00	80	--	15
		Savage Run WA	(0.0019)	0.10[1]	2.00	9.00	9.00	80	60	--
		Wind River RA	(0.0015)	1.00	20.00	9.00	9.00	80	60	--
		Mt. Zirkel WA	(0.0016)	0.10[1]	2.00	9.00	9.00	80	--	15
SO_2	24-hr	Bridger WA	0.0522	0.20[1]	5.00	43.00	43.05	365	260	--
		Dinosaur NM	0.0149	5.00	91.00	43.00	43.01	365	--	100
		Fitzpatrick WA	0.0045	0.20[1]	5.00	43.00	43.00	365	260	--
		Popo Agie WA	0.0071	5.00	91.00	43.00	43.01	365	260	--
		Rawah WA	0.0036	0.20[1]	5.00	43.00	43.00	365	--	100
		Rocky Mountain NP	0.0016	0.20[1]	5.00	43.00	43.00	365	--	100
		Savage Run WA	0.0067	0.20[1]	5.00	43.00	43.01	365	260	--
		Wind River RA	0.0089	5.00	91.00	43.00	43.01	365	260	--
		Mt. Zirkel WA	0.0038	0.20[1]	5.00	43.00	43.00	365	--	100
SO_2	3-hr	Bridger WA	0.2618	1.00[1]	25.00	132.00	132.26	1300	1300	--
		Dinosaur NM	0.0386	25.00	512.00	132.00	132.04	1300	--	700
		Fitzpatrick WA	0.0182	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Popo Agie WA	0.0229	25.00	512.00	132.00	132.02	1300	1300	--
		Rawah WA	0.0089	1.00[1]	25.00	132.00	132.01	1300	--	700
		Rocky Mountain NP	0.0060	1.00[1]	25.00	132.00	132.01	1300	--	700
		Savage Run WA	0.0222	1.00[1]	25.00	132.00	132.02	1300	1300	--
		Wind River RA	0.0742	25.00	512.00	132.00	132.07	1300	1300	--
		Mt. Zirkel WA	0.0129	1.00[1]	25.00	132.00	132.01	1300	--	700

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.3.1 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
PM_{10}	Annual	Bridger WA	0.000	0.20[1]	4.00	16.00	16.00	50	50	--
		Dinosaur NM	0.000	1.00	17.00	16.00	16.00	50	--	50
		Fitzpatrick WA	0.000	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.000	1.00	17.00	16.00	16.00	50	50	--
		Rawah WA	0.001	0.20[1]	4.00	16.00	16.00	50	--	50
		Rocky Mountain NP	0.000	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.001	0.20[1]	4.00	16.00	16.00	50	50	--
		Wind River RA	0.000	1.00	17.00	16.00	16.00	50	50	--
		Mt. Zirkel WA	0.000	0.20[1]	4.00	16.00	16.00	50	--	50
PM_{10}	24-hr	Bridger WA	0.006	0.30[1]	8.00	33.00	33.01	150	150	--
		Dinosaur NM	0.019	5.00	30.00	33.00	33.02	150	--	150
		Fitzpatrick WA	0.004	0.30[1]	8.00	33.00	33.00	150	150	--
		Popo Agie WA	0.007	5.00	30.00	33.00	33.01	150	150	--
		Rawah WA	0.013	0.30[1]	8.00	33.00	33.01	150	--	150
		Rocky Mountain NP	0.008	0.30[1]	8.00	33.00	33.01	150	--	150
		Savage Run WA	0.036	0.30[1]	8.00	33.00	33.04	150	150	--
		Wind River RA	0.015	5.00	30.00	33.00	33.01	150	150	--
		Mt. Zirkel WA	0.016	0.30[1]	8.00	33.00	33.02	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.3.2 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
PM_{10}	Annual	Bridger WA	0.000	0.20[1]	4.00	16.00	16.00	50	50	--
		Dinosaur NM	0.001	1.00	17.00	16.00	16.00	50	--	50
		Fitzpatrick WA	0.000	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.000	1.00	17.00	16.00	16.00	50	50	--
		Rawah WA	0.001	0.20[1]	4.00	16.00	16.00	50	--	50
		Rocky Mountain NP	0.001	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.002	0.20[1]	4.00	16.00	16.00	50	50	--
		Wind River RA	0.001	1.00	17.00	16.00	16.00	50	50	--
		Mt. Zirkel WA	0.001	0.20[1]	4.00	16.00	16.00	50	--	50
PM_{10}	24-hr	Bridger WA	0.011	0.30[1]	8.00	33.00	33.01	150	150	--
		Dinosaur NM	0.043	5.00	30.00	33.00	33.04	150	--	150
		Fitzpatrick WA	0.008	0.30[1]	8.00	33.00	33.01	150	150	--
		Popo Agie WA	0.013	5.00	30.00	33.00	33.01	150	150	--
		Rawah WA	0.030	0.30[1]	8.00	33.00	33.03	150	--	150
		Rocky Mountain NP	0.019	0.30[1]	8.00	33.00	33.02	150	--	150
		Savage Run WA	0.089	0.30[1]	8.00	33.00	33.09	150	150	--
		Wind River RA	0.036	5.00	30.00	33.00	33.04	150	150	--
		Mt. Zirkel WA	0.039	0.30[1]	8.00	33.00	33.04	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.3.3 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
PM_{10}	Annual	Bridger WA	0.014	0.20[1]	4.00	16.00	16.01	50	50	--
		Dinosaur NM	0.014	1.00	17.00	16.00	16.01	50	--	50
		Fitzpatrick WA	0.004	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Rawah WA	0.006	0.20[1]	4.00	16.00	16.01	50	--	50
		Rocky Mountain NP	0.003	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.010	0.20[1]	4.00	16.00	16.01	50	50	--
		Wind River RA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Mt. Zirkel WA	0.012	0.20[1]	4.00	16.00	16.01	50	--	50
PM_{10}	24-hr	Bridger WA	0.481	0.30[1]	8.00	33.00	33.48	150	150	--
		Dinosaur NM	0.368	5.00	30.00	33.00	33.37	150	--	150
		Fitzpatrick WA	0.127	0.30[1]	8.00	33.00	33.13	150	150	--
		Popo Agie WA	0.282	5.00	30.00	33.00	33.28	150	150	--
		Rawah WA	0.055	0.30[1]	8.00	33.00	33.06	150	--	150
		Rocky Mountain NP	0.035	0.30[1]	8.00	33.00	33.03	150	--	150
		Savage Run WA	0.112	0.30[1]	8.00	33.00	33.11	150	150	--
		Wind River RA	0.247	5.00	30.00	33.00	33.25	150	150	--
		Mt. Zirkel WA	0.105	0.30[1]	8.00	33.00	33.11	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.3.4 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
PM_{10}	Annual	Bridger WA	0.014	0.20[1]	4.00	16.00	16.01	50	50	--
		Dinosaur NM	0.014	1.00	17.00	16.00	16.01	50	--	50
		Fitzpatrick WA	0.004	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Rawah WA	0.006	0.20[1]	4.00	16.00	16.01	50	--	50
		Rocky Mountain NP	0.003	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.011	0.20[1]	4.00	16.00	16.01	50	50	--
		Wind River RA	0.009	1.00	17.00	16.00	16.01	50	50	--
		Mt. Zirkel WA	0.012	0.20[1]	4.00	16.00	16.01	50	--	50
PM_{10}	24-hr	Bridger WA	0.481	0.30[1]	8.00	33.00	33.48	150	150	--
		Dinosaur NM	0.368	5.00	30.00	33.00	33.37	150	--	150
		Fitzpatrick WA	0.127	0.30[1]	8.00	33.00	33.13	150	150	--
		Popo Agie WA	0.283	5.00	30.00	33.00	33.28	150	150	--
		Rawah WA	0.061	0.30[1]	8.00	33.00	33.06	150	--	150
		Rocky Mountain NP	0.038	0.30[1]	8.00	33.00	33.04	150	--	150
		Savage Run WA	0.125	0.30[1]	8.00	33.00	33.13	150	150	--
		Wind River RA	0.247	5.00	30.00	33.00	33.25	150	150	--
		Mt. Zirkel WA	0.106	0.30[1]	8.00	33.00	33.11	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.3.5 Maximum Predicted PM_{10} Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)	CAAQS (ug/m^3)
PM_{10}	Annual	Bridger WA	0.014	0.20[1]	4.00	16.00	16.01	50	50	--
		Dinosaur NM	0.015	1.00	17.00	16.00	16.01	50	--	50
		Fitzpatrick WA	0.0040	0.20[1]	4.00	16.00	16.00	50	50	--
		Popo Agie WA	0.0092	1.00	17.00	16.00	16.01	50	50	--
		Rawah WA	0.0068	0.20[1]	4.00	16.00	16.01	50	--	50
		Rocky Mountain NP	0.0035	0.20[1]	4.00	16.00	16.00	50	--	50
		Savage Run WA	0.013	0.20[1]	4.00	16.00	16.01	50	50	--
		Wind River RA	0.0095	1.00	17.00	16.00	16.01	50	50	--
		Mt. Zirkel WA	0.012	0.20[1]	4.00	16.00	16.01	50	--	50
PM_{10}	24-hr	Bridger WA	0.481	0.30[1]	8.00	33.00	33.48	150	150	--
		Dinosaur NM	0.368	5.00	30.00	33.00	33.37	150	--	150
		Fitzpatrick WA	0.127	0.30[1]	8.00	33.00	33.13	150	150	--
		Popo Agie WA	0.283	5.00	30.00	33.00	33.28	150	150	--
		Rawah WA	0.070	0.30[1]	8.00	33.00	33.07	150	--	150
		Rocky Mountain NP	0.043	0.30[1]	8.00	33.00	33.04	150	--	150
		Savage Run WA	0.155	0.30[1]	8.00	33.00	33.16	150	150	--
		Wind River RA	0.247	5.00	30.00	33.00	33.25	150	150	--
		Mt. Zirkel WA	0.125	0.30[1]	8.00	33.00	33.13	150	--	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table F2.4.1 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS[1] (ug/m^3)	CAAQS (ug/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.000	---	---	5.00	5.00	15	15	--
		Dinosaur NM	0.000	---	---	5.00	5.00	15	--	--
		Fitzpatrick WA	0.000	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.000	---	---	5.00	5.00	15	15	--
		Rawah WA	0.001	---	---	5.00	5.00	15	--	--
		Rocky Mountain NP	0.000	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.001	---	---	5.00	5.00	15	15	--
		Wind River RA	0.000	---	---	5.00	5.00	15	15	--
		Mt. Zirkel WA	0.000	---	---	5.00	5.00	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.006	---	---	13.00	13.01	65	65	--
		Dinosaur NM	0.019	---	---	13.00	13.02	65	--	--
		Fitzpatrick WA	0.004	---	---	13.00	13.00	65	65	--
		Popo Agie WA	0.007	---	---	13.00	13.01	65	65	--
		Rawah WA	0.013	---	---	13.00	13.01	65	--	--
		Rocky Mountain NP	0.008	---	---	13.00	13.01	65	--	--
		Savage Run WA	0.036	---	---	13.00	13.04	65	65	--
		Wind River RA	0.015	---	---	13.00	13.01	65	65	--
		Mt. Zirkel WA	0.016	---	---	13.00	13.02	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F2.4.2 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Significance Level ($\mu g/m^3$)	PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.000	---	---	5.00	5.00	15	15	--
		Dinosaur NM	0.001	---	---	5.00	5.00	15	--	--
		Fitzpatrick WA	0.000	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.000	---	---	5.00	5.00	15	15	--
		Rawah WA	0.001	---	---	5.00	5.00	15	--	--
		Rocky Mountain NP	0.001	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.002	---	---	5.00	5.00	15	15	--
		Wind River RA	0.001	---	---	5.00	5.00	15	15	--
		Mt. Zirkel WA	0.001	---	---	5.00	5.00	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.011	---	---	13.00	13.01	65	65	--
		Dinosaur NM	0.043	---	---	13.00	13.04	65	--	--
		Fitzpatrick WA	0.008	---	---	13.00	13.01	65	65	--
		Popo Agie WA	0.013	---	---	13.00	13.01	65	65	--
		Rawah WA	0.030	---	---	13.00	13.03	65	--	--
		Rocky Mountain NP	0.019	---	---	13.00	13.02	65	--	--
		Savage Run WA	0.089	---	---	13.00	13.09	65	65	--
		Wind River RA	0.036	---	---	13.00	13.04	65	65	--
		Mt. Zirkel WA	0.039	---	---	13.00	13.04	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F2.4.3 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS[1]	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.016	---	---	5.00	5.02	15	15	--
		Dinosaur NM	0.011	---	---	5.00	5.01	15	--	--
		Fitzpatrick WA	0.005	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.010	---	---	5.00	5.01	15	15	--
		Rawah WA	0.006	---	---	5.00	5.01	15	--	--
		Rocky Mountain NP	0.003	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.012	---	---	5.00	5.01	15	15	--
		Wind River RA	0.010	---	---	5.00	5.01	15	15	--
		Mt. Zirkel WA	0.009	---	---	5.00	5.01	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.458	---	---	13.00	13.46	65	65	--
		Dinosaur NM	0.248	---	---	13.00	13.25	65	--	--
		Fitzpatrick WA	0.128	---	---	13.00	13.13	65	65	--
		Popo Agie WA	0.270	---	---	13.00	13.27	65	65	--
		Rawah WA	0.057	---	---	13.00	13.06	65	--	--
		Rocky Mountain NP	0.035	---	---	13.00	13.03	65	--	--
		Savage Run WA	0.114	---	---	13.00	13.11	65	65	--
		Wind River RA	0.238	---	---	13.00	13.24	65	65	--
		Mt. Zirkel WA	0.094	---	---	13.00	13.09	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F2.4.4 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (ug/m^3)	Significance Level (ug/m^3)	PSD Increment (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS[1] (ug/m^3)	CAAQS (ug/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.016	---	---	5.00	5.02	15	15	--
		Dinosaur NM	0.012	---	---	5.00	5.01	15	--	--
		Fitzpatrick WA	0.005	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.010	---	---	5.00	5.01	15	15	--
		Rawah WA	0.007	---	---	5.00	5.01	15	--	--
		Rocky Mountain NP	0.003	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.013	---	---	5.00	5.01	15	15	--
		Wind River RA	0.011	---	---	5.00	5.01	15	15	--
		Mt. Zirkel WA	0.009	---	---	5.00	5.01	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.458	---	---	13.00	13.46	65	65	--
		Dinosaur NM	0.248	---	---	13.00	13.25	65	--	--
		Fitzpatrick WA	0.128	---	---	13.00	13.13	65	65	--
		Popo Agie WA	0.270	---	---	13.00	13.27	65	65	--
		Rawah WA	0.064	---	---	13.00	13.06	65	--	--
		Rocky Mountain NP	0.038	---	---	13.00	13.04	65	--	--
		Savage Run WA	0.127	---	---	13.00	13.13	65	65	--
		Wind River RA	0.238	---	---	13.00	13.24	65	65	--
		Mt. Zirkel WA	0.109	---	---	13.00	13.11	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F2.4.5 Maximum Predicted $PM_{2.5}$ Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification Alternative and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Significance Level	PSD Increment	Background Concentration	Total Concentration	NAAQS	WAAQS[1]	CAAQS
			(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.016	---	---	5.00	5.02	15	15	--
		Dinosaur NM	0.012	---	---	5.00	5.01	15	--	--
		Fitzpatrick WA	0.005	---	---	5.00	5.00	15	15	--
		Popo Agie WA	0.011	---	---	5.00	5.01	15	15	--
		Rawah WA	0.007	---	---	5.00	5.01	15	--	--
		Rocky Mountain NP	0.004	---	---	5.00	5.00	15	--	--
		Savage Run WA	0.014	---	---	5.00	5.01	15	15	--
		Wind River RA	0.011	---	---	5.00	5.01	15	15	--
		Mt. Zirkel WA	0.009	---	---	5.00	5.01	15	--	--
$PM_{2.5}$	24-hr	Bridger WA	0.458	---	---	13.00	13.46	65	65	--
		Dinosaur NM	0.248	---	---	13.00	13.25	65	--	--
		Fitzpatrick WA	0.128	---	---	13.00	13.13	65	65	--
		Popo Agie WA	0.270	---	---	13.00	13.27	65	65	--
		Rawah WA	0.072	---	---	13.00	13.07	65	--	--
		Rocky Mountain NP	0.043	---	---	13.00	13.04	65	--	--
		Savage Run WA	0.156	---	---	13.00	13.16	65	65	--
		Wind River RA	0.238	---	---	13.00	13.24	65	65	--
		Mt. Zirkel WA	0.129	---	---	13.00	13.13	65	--	--

[1] Standard not yet enforced in Wyoming per WAQSR Chapter 2 Section 2(b)(v).

Table F2.5.1 Maximum Predicted Pollutant Impacts Within the SRPA from Proposed Action Sources

Pollutant	Averaging Time	Direct Predicted Impact (ug/m^3)	Background Concentration (ug/m^3)	Total Concentration (ug/m^3)	NAAQS (ug/m^3)	WAAQS (ug/m^3)
NO_2	Annual	0.60	3.4	4.0	100	100
SO_2	3-Hour	1.04	132.0	133.0	1,300	1,300
	24-Hour	0.20	43.0	43.2	365	260
	Annual	0.05	9.0	9.0	80	60
PM_{10}	24-Hour	38.63	33.0	71.6	150	150
	Annual	3.78	16.0	19.8	50	50
$PM_{2.5}$	24-Hour	12.05	13.0	25.0	65[1]	65[1]
	Annual	0.67	5.0	5.7	15[1]	15[1]

[1] Proposed standard.

Table F2.5.2 Maximum Predicted Pollutant Impacts Within the SRPA from Non-Electrification Alternative Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	5.30	3.4	8.7	100	100
SO_2	3-Hour	1.04	132.0	133.0	1,300	1,300
	24-Hour	0.20	43.0	43.2	365	260
	Annual	0.05	9.0	9.0	80	60
PM_{10}	24-Hour	38.63	33.0	71.6	150	150
	Annual	3.83	16.0	19.8	50	50
$PM_{2.5}$	24-Hour	12.05	13.0	25.0	65[1]	65[1]
	Annual	0.72	5.0	5.7	15[1]	15[1]

[1] Proposed standard.

Table F2.5.3 Maximum Predicted Pollutant Impacts Within the SRPA from No Action and Regional Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	0.11	3.4	3.5	100	100
SO_2	3-Hour	0.45	132.0	132.5	1,300	1,300
	24-Hour	0.12	43.0	43.1	365	260
	Annual	0.01	9.0	9.0	80	60
PM_{10}	24-Hour	0.66	33.0	33.7	150	150
	Annual	0.10	16.0	16.1	50	50
$PM_{2.5}$	24-Hour	0.37	13.0	13.4	65[1]	65[1]
	Annual	0.05	5.0	5.0	15[1]	15[1]

[1] Proposed standard.

Table F2.5.4 Maximum Predicted Pollutant Impacts Within the SRPA from Proposed Action and Regional Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	0.67	3.4	4.1	100	100
SO_2	3-Hour	1.03	132.0	133.0	1,300	1,300
	24-Hour	0.22	43.0	43.2	365	260
	Annual	0.05	9.0	9.0	80	60
PM_{10}	24-Hour	38.66	33.0	71.7	150	150
	Annual	3.85	16.0	19.8	50	50
$PM_{2.5}$	24-Hour	12.06	13.0	25.1	65[1]	65[1]
	Annual	0.71	5.0	5.7	15[1]	15[1]

[1] Proposed standard.

Table F2.5.5 Maximum Predicted Pollutant Impacts Within the SRPA from Non-Electrification Alternative and Regional Sources

Pollutant	Averaging Time	Direct Predicted Impact	Background Concentration	Total Concentration	NAAQS	WAAQS
		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
NO_2	Annual	5.38	3.4	8.8	100	100
SO_2	3-Hour	1.03	132.0	133.0	1,300	1,300
	24-Hour	0.22	43.0	43.2	365	260
	Annual	0.05	9.0	9.0	80	60
PM_{10}	24-Hour	38.66	33.0	71.7	150	150
	Annual	3.90	16.0	19.9	50	50
$PM_{2.5}$	24-Hour	12.06	13.0	25.1	65[1]	65[1]
	Annual	0.75	5.0	5.8	15[1]	15[1]

[1] Proposed standard.

Table F2.6.1 Maximum Predicted Nitrogen Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Project and Regional Sources - Direct and Total.

Receptor Area	Proposed Action Sources	Non-Electrification Alternative Sources	No Action and Regional Sources	Proposed Action and Regional Sources	Non-Electrification Alternative and Regional Sources	Total No Action[1]	Total Proposed Action[1]	Total Non-Electrification Alternative[1]	Deposition Analysis Threshold for Project Alone[2]	Deposition Analysis Level of Concern for Cumulative Impacts[3]
	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)
Bridger WA	0.00009	0.00028	0.02302	0.02306	0.02317	1.42302	1.42306	1.42317	0.005	3.00
Dinosaur NM	0.00014	0.00047	0.00609	0.00622	0.00653	1.40609	1.40622	1.40653	0.005	3.00
Fitzpatrick WA	0.00006	0.00018	0.00593	0.00598	0.00610	1.40593	1.40598	1.40610	0.005	3.00
Popo Agie WA	0.00010	0.00032	0.01560	0.01570	0.01590	1.41560	1.41570	1.41590	0.005	3.00
Rawah WA	0.00023	0.00075	0.00454	0.00477	0.00529	2.70454	2.70477	2.70529	0.005	3.00
Rocky Mountain NP	0.00015	0.00048	0.00312	0.00327	0.00359	2.70312	2.70327	2.70359	0.005	3.00
Savage Run WA	0.00039	0.00136	0.00874	0.00913	0.01010	2.70874	2.70913	2.71010	0.005	3.00
Wind River RA	0.00011	0.00040	0.01311	0.01320	0.01337	1.41311	1.41320	1.41337	0.005	3.00
Mt. Zirkel WA	0.00019	0.00064	0.00839	0.00857	0.00900	2.70839	2.70857	2.70900	0.005	3.00

[1] Total impacts include N Deposition values of 1.4 kg/ha-yr measured at Pinedale (2003, CASTNET) for Bridger, Dinosaur, Fitzpatrick, Popo Agie, and Wind River sensitive areas and 2.7 kg/ha-yr measured near Centennial (2002, CASTNET) for Rawah, Rocky Mountain, Savage Run and Mt. Zirkel sensitive areas.

[2] National Park Service (2001)

[3] Fox et al. (1989)

Table F2.6.2 Maximum Predicted Sulfur Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Project and Regional Sources - Direct and Total.

Receptor Area	Proposed Action Sources	Non-Electrification Alternative Sources	No Action and Regional Sources	Proposed Action and Regional Sources	Non-Electrification Alternative and Regional Sources	Total No Action[1]	Total Proposed Action[1]	Total Non-Electrification Alternative[1]	Deposition Analysis Threshold for Project Alone[2]	Deposition Analysis Level of Concern for Cumulative Impacts[3]
	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)	(kg/ha-yr)
Bridger WA	0.00002	0.00002	(0.00099)	(0.00098)	(0.00098)	0.64901	0.64902	0.64902	0.005	5.00
Dinosaur NM	0.00003	0.00003	(0.00101)	(0.00099)	(0.00099)	0.64899	0.64901	0.64901	0.005	5.00
Fitzpatrick WA	0.00001	0.00001	(0.00092)	(0.00092)	(0.00092)	0.64908	0.64908	0.64908	0.005	5.00
Popo Agie WA	0.00002	0.00002	(0.00249)	(0.00248)	(0.00248)	0.64751	0.64752	0.64752	0.005	5.00
Rawah WA	0.00004	0.00004	(0.00114)	(0.00111)	(0.00111)	0.83886	0.83889	0.83889	0.005	5.00
Rocky Mountain NP	0.00003	0.00003	(0.00084)	(0.00082)	(0.00082)	0.83916	0.83918	0.83918	0.005	5.00
Savage Run WA	0.00008	0.00008	(0.00158)	(0.00151)	(0.00151)	0.83842	0.83849	0.83849	0.005	5.00
Wind River RA	0.00003	0.00003	(0.00101)	(0.00099)	(0.00099)	0.64899	0.64901	0.64901	0.005	5.00
Mt. Zirkel WA	0.00004	0.00004	(0.00152)	(0.00149)	(0.00149)	0.83848	0.83851	0.83851	0.005	5.00

[1] Total impacts include S Deposition values of 0.65 kg/ha-yr measured at Pinedale (2003, CASTNET) for Bridger, Dinosaur, Fitzpatrick, Popo Agie, and Wind River sensitive areas and 0.84 kg/ha-yr measured near Centennial (2002, CASTNET) for Rawah, Rocky Mountain, Savage Run and Mt. Zirkel sensitive areas.

[2] National Park Service (2001)

[3] Fox et al. (1989)

Table F2.7.1 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Proposed Action Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.00	6.70	0.00	0.00%
Deep	Bridger	59.90	5.99	0.00	0.00%
Elbert	Zirkel	51.90	5.19	0.00	0.00%
Hobbs	Bridger	69.90	6.99	0.00	0.00%
Island	Rawah	68.70	6.87	0.00	0.00%
Kelly	Rawah	181.10	18.11	0.00	0.00%
Lazy Boy	Bridger	18.80	1.00	0.00	0.00%
Lower Saddle	Popo Agie	55.50	5.55	0.00	0.00%
Rawah #4	Rawah	41.20	4.12	0.00	0.00%
Ross	Fitzpatrick	53.50	5.35	0.00	0.00%
Seven Lakes	Zirkel	36.20	3.62	0.00	0.00%
Summit	Zirkel	47.30	4.73	0.00	0.00%
Upper Frozen	Bridger	5.00	1.00	0.00	0.02%
West Glacier	GLEES[1]	35.20	3.52	0.00	0.01%

[1]Glacier Lakes Ecosystem Experiments Site

Table F2.7.2 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Non-Electrification Alternative Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.00	0.00%
Deep	Bridger	59.90	5.99	0.00	0.00%
Elbert	Zirkel	51.90	5.19	0.00	0.01%
Hobbs	Bridger	69.90	6.99	0.00	0.00%
Island	Rawah	68.70	6.87	0.01	0.01%
Kelly	Rawah	181.10	18.11	0.01	0.00%
Lazy Boy	Bridger	18.80	1.00	0.00	0.01%
Lower Saddle	Popo Agie	55.50	5.55	0.00	0.00%
Rawah #4	Rawah	41.20	4.12	0.01	0.01%
Ross	Fitzpatrick	53.50	5.35	0.00	0.00%
Seven Lakes	Zirkel	36.20	3.62	0.01	0.01%
Summit	Zirkel	47.30	4.73	0.00	0.01%
Upper Frozen	Bridger	5.00	1.00	0.00	0.04%
West Glacier	GLEES[1]	35.20	3.52	0.01	0.03%

[1]Glacier Lakes Ecosystem Experiments Site

Table F2.7.3 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from No Action and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.11	0.16%
Deep	Bridger	59.90	5.99	0.11	0.19%
Elbert	Zirkel	51.90	5.19	0.05	0.09%
Hobbs	Bridger	69.90	6.99	0.04	0.06%
Island	Rawah	68.70	6.87	0.03	0.05%
Kelly	Rawah	181.10	18.11	0.03	0.02%
Lazy Boy	Bridger	18.80	1.00	0.03	0.15%
Lower Saddle	Popo Agie	55.50	5.55	0.13	0.23%
Rawah #4	Rawah	41.20	4.12	0.03	0.08%
Ross	Fitzpatrick	53.50	5.35	0.03	0.06%
Seven Lakes	Zirkel	36.20	3.62	0.06	0.16%
Summit	Zirkel	47.30	4.73	0.05	0.10%
Upper Frozen	Bridger	5.00	1.00	0.12	2.40%
West Glacier	GLEES[1]	35.20	3.52	0.06	0.18%

[1]Glacier Lakes Ecosystem Experiments Site

Table F2.7.4 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Proposed Action and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.11	0.16%
Deep	Bridger	59.90	5.99	0.11	0.19%
Elbert	Zirkel	51.90	5.19	0.05	0.09%
Hobbs	Bridger	69.90	6.99	0.04	0.06%
Island	Rawah	68.70	6.87	0.03	0.05%
Kelly	Rawah	181.10	18.11	0.03	0.02%
Lazy Boy	Bridger	18.80	1.00	0.03	0.15%
Lower Saddle	Popo Agie	55.50	5.55	0.13	0.23%
Rawah #4	Rawah	41.20	4.12	0.03	0.08%
Ross	Fitzpatrick	53.50	5.35	0.03	0.06%
Seven Lakes	Zirkel	36.20	3.62	0.06	0.17%
Summit	Zirkel	47.30	4.73	0.05	0.10%
Upper Frozen	Bridger	5.00	1.00	0.12	2.41%
West Glacier	GLEES[1]	35.20	3.52	0.07	0.19%

[1]Glacier Lakes Ecosystem Experiments Site

Table F2.7.5 Maximum Predicted Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Non-Electrification Scenario and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.00	6.70	0.11	0.16%
Deep	Bridger	59.90	5.99	0.11	0.19%
Elbert	Zirkel	51.90	5.19	0.05	0.10%
Hobbs	Bridger	69.90	6.99	0.04	0.06%
Island	Rawah	68.70	6.87	0.04	0.05%
Kelly	Rawah	181.10	18.11	0.04	0.02%
Lazy Boy	Bridger	18.80	1.00	0.03	0.15%
Lower Saddle	Popo Agie	55.50	5.55	0.13	0.23%
Rawah #4	Rawah	41.20	4.12	0.04	0.09%
Ross	Fitzpatrick	53.50	5.35	0.03	0.06%
Seven Lakes	Zirkel	36.20	3.62	0.06	0.18%
Summit	Zirkel	47.30	4.73	0.05	0.10%
Upper Frozen	Bridger	5.00	1.00	0.12	2.44%
West Glacier	GLEES[1]	35.20	3.52	0.07	0.21%

[1]Glacier Lakes Ecosystem Experiments Site

Table F2.8.1 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action Sources

	FLAG Background Data			IMPROVE Background Data		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	0.01	0	0	0.01	0	0
Dinosaur NM	0.05	0	0	0.05	0	0
Fitzpatrick WA	0.01	0	0	0.01	0	0
Popo Agie WA	0.01	0	0	0.01	0	0
Rawah WA	0.04	0	0	0.04	0	0
Rocky Mountain NP	0.02	0	0	0.02	0	0
Savage Run WA	0.10	0	0	0.10	0	0
Wind River RA	0.04	0	0	0.05	0	0
Mt. Zirkel WA	0.05	0	0	0.05	0	0

Table F2.8.2 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification

Alternative Sources Receptor Area	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	0.03	0	0	0.04	0	0
Dinosaur NM	0.14	0	0	0.16	0	0
Fitzpatrick WA	0.02	0	0	0.02	0	0
Popo Agie WA	0.04	0	0	0.04	0	0
Rawah WA	0.11	0	0	0.12	0	0
Rocky Mountain NP	0.07	0	0	0.05	0	0
Savage Run WA	0.32	0	0	0.33	0	0
Wind River RA	0.14	0	0	0.15	0	0
Mt. Zirkel WA	0.14	0	0	0.15	0	0

Table F2.8.3 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from No Action

and Regional Sources Receptor Area	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.82	8	1	2.08	10	4
Dinosaur NM	0.66	4	0	0.72	4	0
Fitzpatrick WA	0.58	1	0	0.67	1	0
Popo Agie WA	1.07	3	1	1.24	4	1
Rawah WA	0.21	0	0	0.24	0	0
Rocky Mountain NP	0.13	0	0	0.12	0	0
Savage Run WA	0.39	0	0	0.40	0	0
Wind River RA	0.95	8	0	1.10	9	1
Mt. Zirkel WA	0.36	0	0	0.37	0	0

Table F2.8.4 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Proposed Action

Receptor Area and Regional Sources	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.82	8	1	2.08	10	4
Dinosaur NM	0.66	4	0	0.73	4	0
Fitzpatrick WA	0.58	1	0	0.67	1	0
Popo Agie WA	1.07	3	1	1.24	4	1
Rawah WA	0.23	0	0	0.26	0	0
Rocky Mountain NP	0.13	0	0	0.13	0	0
Savage Run WA	0.42	0	0	0.43	0	0
Wind River RA	0.96	8	0	1.11	9	1
Mt. Zirkel WA	0.39	0	0	0.41	0	0

Table F2.8.5 Maximum Predicted Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Non-Electrification

Alternative and Regional Sources Receptor Area	FLAG Background Data			IMPROVE Background Data		
	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.82	8	1	2.08	10	4
Dinosaur NM	0.67	4	0	0.73	4	0
Fitzpatrick WA	0.58	1	0	0.67	1	0
Popo Agie WA	1.07	3	1	1.24	4	1
Rawah WA	0.27	0	0	0.30	0	0
Rocky Mountain NP	0.14	0	0	0.16	0	0
Savage Run WA	0.54	1	0	0.56	2	0
Wind River RA	0.96	8	0	1.11	9	1
Mt. Zirkel WA	0.48	0	0	0.49	0	0

Table F2.8.6 Analysis of Cumulative Visibility Impacts of 1.0 Δdv and Greater - Seminoe Road Project

Receptor Area	Month/Day	FLAG Background Data		IMPROVE Background Data	
		Cumulative Visibility Impact (Δdv)	Direct Project Visibility Impact (Δdv)	Cumulative Visibility Impact (Δdv)	Direct Project Visibility Impact (Δdv)
Bridger WA	1/6	--	--	2.08	0.00000
Bridger WA	1/7	--	--	1.06	0.00000
Bridger WA	1/24	--	--	1.03	0.00000
Bridger WA	12/22	--	--	1.10	0.00003
Popo Agie WA	3/2	1.07	0.0024	1.24	0.0029
Wind River RA	3/2	--	--	1.11	0.0021

Table F1.8.4 Analysis of Cumulative Visibility Impacts of 1.0 Δdv and Greater - Atlantic Rim Project

		FLAG Background Data		IMPROVE Background Data	
Receptor Area	Month/Day	Cumulative Visibility Impact	Direct Project Visibility Impact	Cumulative Visibility Impact	Direct Project Visibility Impact
		(Δdv)	(Δdv)	(Δdv)	(Δdv)
Wind River RA	3/2	--	--	1.11	0.0001