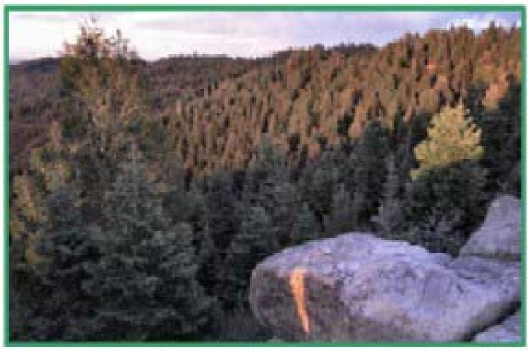
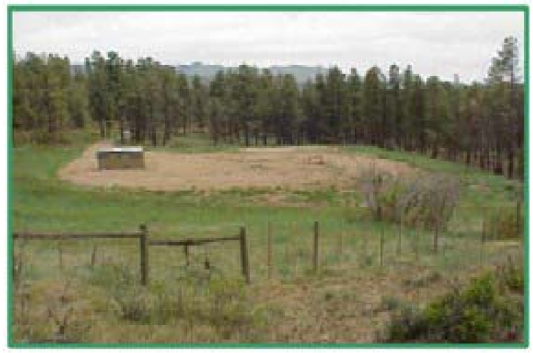
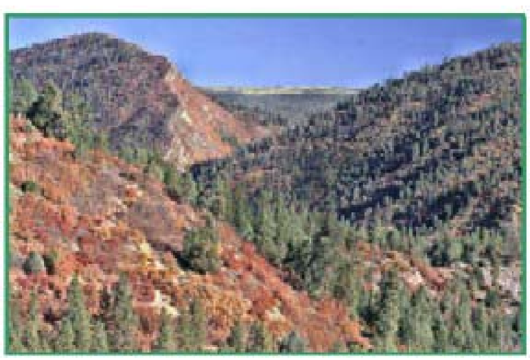
Draft Environmental Impact Statement

Northern San Juan Basin Coal Bed Methane Project
Air Quality Impact Assessment Technical Support Document







U.S. Department of Interior
Bureau of Land Management
San Juan Field Office

U.S. Department of Agriculture
Forest Service
San Juan National Forest

June 2004

Air Quality Impact Assessment Technical Support Document
Northern San Juan Basin Coalbed Methane Environmental Impact Statement

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List of Acronyms

ANC	acid neutralizing capacity
AQRV	air quality related value(s)
BLM	USDI-Bureau of Land Management
BTEX	benzene, toluene, ethyl benzene and xylene
CALMET	California Meteorological Model; a diagnostic meteorological model used within the CALPUFF modeling system
CALPUFF	California Puff Model; a non-steady-state puff dispersion modeling system
CBM	coal bed methane
CDPHE-APCD	Colorado Department of Public Health and Environment – Air Pollution Control Division
CFR	Code of Federal Regulations
CO	carbon monoxide
DEM	digital elevation model
dv	deciview
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EROS	Earth Resources Observation System
FAA	Federal Aviation Administration
FR	Federal Register
FLAG	Federal Land Managers' Air Quality Related Values Workgroup
ft	foot/feet
g/hp-hr	gram(s) per horsepower per hour
HAP	hazardous air pollutant(s)
HNO3	nitric acid
hp	horsepower
hr	hour(s)
IMPROVE	Interagency Monitoring of PROtected Visual Environments
IWAQM	Interagency Workgroup on Air Quality Models
ISCST3	Industrial Source Complex – Short Term atmospheric dispersion model
kg/ha-yr	kilogram(s) per hectare per year
km	kilometer(s)
lb/hr	pounds per hour
m	meter(s)
MACT	maximum achievable control technology
MEI	maximally exposed individual
MESOPUFF II	Mesoscale Puff Model, version 2; a non-steady-state, short term, regional scale puff dispersion modeling system
MLE	most likely exposed
MMBtu/hr	million British thermal units per hour
MM4	Mesoscale Model (version 4)
MM5	Mesoscale Model (version 5)
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

List of Acronyms (continued)

NH_3	ammonia
NMED-AQB	New Mexico Environment Department – Air Quality Bureau
NMOGA	New Mexico Oil and Gas Association
NSJB	Northern San Juan Basin
NO_2	nitrogen dioxide
NO_3^-	nitrate ion
NOx	oxides of nitrogen
NWS	National Weather Service
$PM_{2.5}$	fine particulate matter (less than 2.5 microns in effective diameter)
PM_{10}	inhalable particulate matter (less than 10 microns in effective diameter)
POSTUTIL	a post-processing analysis program used within the CALPUFF modeling system
ppb	parts per billion
ppm	parts per million
PSD	prevention of significant deterioration
RAWS	Remote Automatic Weather Station
RFS	reasonably foreseeable sources
RMP	Resource Management Plan
SO_2	sulfur dioxide
$SO_4^=$	sulfate ion
SUIT	Southern Ute Indian Tribe
t/yr	ton(s) per year
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USGS	United Stated Geological Survey
UTM	Universal Transverse Mercator
VOC	volatile organic compounds
µeq/l	microequivalent(s) per liter
$\mu g/m^3$	microgram(s) per cubic meter

1.0 Introduction

This document describes the technical approach that was used for evaluating potential near field and far field air quality impacts associated with proposed increases in natural gas production within the San Juan Basin north of the Southern Ute Indian Reservation in southwestern Colorado. The increase in natural gas production in this area would be from both conventional and coal bed methane (CBM) wells.

This document is organized in the following manner. Section 2 presents the regulatory framework for this proposed development. Section 3 provides a detailed description of the emission inventories that were developed as part of this study, as well as a discussion of the criteria that were used to establish the emission inventories for the far field impact analysis. Section 4 presents information on background air quality levels within the study area, and Section 5 presents information on the meteorological data that was used in the analysis. Section 6 presents the modeling methodology for the near field analysis, as well as the cumulative far field analysis for air quality related values (AQRV) in adjacent Class I Areas. Section 7 summarizes the potential impacts for both the near and far field analyses. Finally, Section 8 describes potential mitigation measures which could be implemented to further reduce the predicted visibility impacts from actually occurring.

1.1 Project Description and Alternatives

The Northern San Juan Basin (NSJB) Coalbed Methane Environmental Impact Statement (EIS) Study Area encompasses approximately 125,000 acres of public and private land just north of the Southern Ute Indian Reservation northern boundary in southeastern La Plata County and southwestern Archuleta County, Colorado. Figure 1-1 presents a map indicating the extent of the cumulative far field air quality impact analysis area.

Approximately 12,500 conventional and CBM wells have been constructed throughout the entire study area to date. Approximately 11,000 new wells would be constructed throughout the entire study area, including up to 500 new wells under the NSJB EIS maximum development scenario. Table 1-1 presents a summary of NSJB EIS alternatives considered and the associated number of wells that would be constructed. In this analysis, emission inventories were developed for all five alternatives, although quantitative air quality impact analyses were conducted only for Alternatives 1 (Proposed Action), 2 (Maximum Development) and 5 (No Action).

Figure 1-1. Map of the Study Area

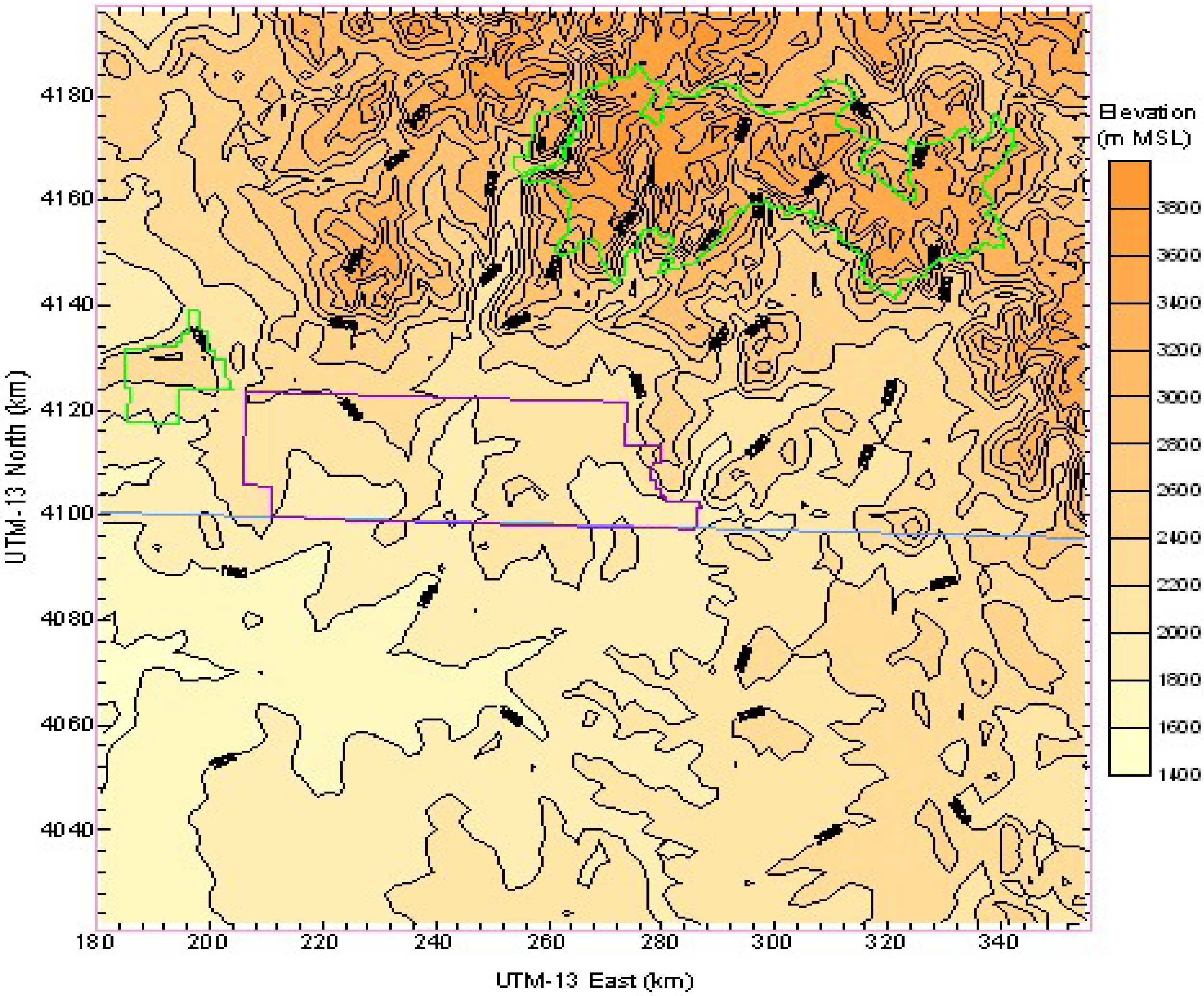


Table 1-1. List of Alternatives Considered

Alternative	Description	Number of Wells
1	Industry's Proposed Action	296
2	Maximum Development	522
3	No Well Development in the HD Mountains Inventoried Roadless Area	212
4	Continuation of Current Management Direction	185
5	No Action	118

2.0 Regulatory Framework

The U.S. Environmental Protection Agency (EPA) establishes and revises the National Ambient Air Quality Standards (NAAQS) as necessary to protect public health and welfare, setting the absolute upper limits for specific air pollutant concentrations at all locations where the public has access. In addition, the State of Colorado may establish and implement similar standards which are more stringent than the NAAQS (such as the Colorado 3-hour [hr] sulfur dioxide [SO_2] ambient air quality standard). Although the EPA recently revised both the ozone and the fine particulate matter ($PM_{2.5}$) NAAQS, these revised limits will not be implemented by the Colorado Department of Public Health and Environment – Air Pollution Control Division (CDPHE-APCD) until the Colorado State Implementation Plan is formally approved by EPA. In the meantime, EPA is responsible for implementing and enforcing these revised standards. This analysis of potential CBM development impacts must demonstrate compliance with all applicable local, state, tribal and federal air quality standards. Table 2-1 presents a summary of the applicable EPA and CDPHE-APCD air quality standards.

Table 2-1. Applicable Ambient Air Quality Standards and PSD Increment Values

Pollutant	Averaging Time	National Ambient Air Quality Standards ($\mu g/m^3$)	Colorado Ambient Air Quality Standards ($\mu g/m^3$)	PSD Class I Increment ($\mu g/m^3$)	PSD Class II Increment ($\mu g/m^3$)
carbon monoxide	1-hr	40,000	40,000	N/A	N/A
	8-hr	10,000	10,000	N/A	N/A
nitrogen dioxide	Annual	100	100	2.5	25
ozone	1-hr	235	235	N/A	N/A
	8-hr	157	157	N/A	N/A
PM_{10}	24-hr	150	150	8	30
	Annual	50	50	4	17
$PM_{2.5}$	24-hr	65	65	N/A	N/A
	Annual	15	15	N/A	N/A
sulfur dioxide	3-hr	1,300	700	25	512
	24-hr	365	365	5	91
	Annual	80	80	2	20

$\mu g/m^3$ – micrograms per cubic meter
N/A – not applicable

The air quality of the EIS Study Area is in attainment with all ambient air quality standards, as demonstrated by the relatively low measured concentration levels (see Section 4 for a discussion of existing air quality in the region). Given the EIS Study Area's current attainment status, future development projects (under any alternative) which have the potential to emit more than 250 tons per year (t/yr) of any criteria pollutant (or certain listed sources that have the potential to emit more than 100 t/yr) would be required to submit a pre-construction prevention of significant deterioration (PSD) Permit Application, including a regulatory PSD Increment Consumption Analysis under the federal New Source Review and permitting regulations. Development projects subject to the PSD regulations must also demonstrate the use of Best Available Control Technology and show that the combined impacts of all applicable sources would not exceed the PSD increments for nitrogen dioxide (NO_2), inhalable particulate matter (PM_{10}) or SO_2. Finally, the permit applicant must also demonstrate that cumulative impacts from all existing and proposed sources would comply with the applicable ambient air quality standards throughout the operational lifetime of the permit applicant's project.

In addition, a regulatory PSD Increment Consumption Analysis may be conducted at any time by the CDPHE-APCD or EPA, in order to demonstrate that the applicable PSD increment has not been exceeded by all applicable major or minor increment consuming emission sources. The determination of PSD increment consumption is a legal responsibility of the applicable air quality regulatory agencies (with EPA oversight).

For example, the CDPHE-APCD (1999) conducted a detailed review of NO_2 PSD increment consumption in southwest Colorado, indicating that Class I increment values "are probably not violated" at the Mesa Verde National Park or the Weminuche Wilderness Area, but that preliminary results "suggest that there is one isolated hot spot in La Plata County where there is an apparent Class II PSD increment violation." The CDPHE-APCD worked closely with the emission source operator to better understand the specific situation, and has resolved the source-specific PSD Class II increment situation.

Mandatory federal Class I areas were designated by the U.S. Congress on August 7, 1977, including those existing wilderness areas greater than 5,000 acres in size and national parks greater than 6,000 acres in size. All other locations in the country where the ambient air quality is within the NAAQS (including attainment and unclassified areas) are designated as PSD Class II areas with less stringent requirements. In addition, sources subject to the PSD permit review procedures are required to demonstrate that impacts to AQRVs will be below Federal Land Managers' Air Quality Related Values Workgroup (FLAG) "Limits of Acceptable Change" (FLAG 2000). The AQRVs to be evaluated include degradation of visibility, deposition of acidic compounds in mountain lakes and effects on sensitive flora and fauna within the PSD Class I areas.

Therefore, most of the EIS Study Area is currently designated as PSD Class II, while Mesa Verde National Park and the Weminuche Wilderness Area are protected by more stringent NO_2, PM_{10}, and SO_2 PSD Class I increment thresholds, as shown in Table 2-1.

In addition, the CDPHE-APCD also requires various different pre-construction and operation permits including:

- any emission source with the potential to emit air pollutants in excess of 2 t/yr must submit an Air Pollution Emission Notice to CDPHE-APCD;
- all emission sources with the potential to emit oxides of nitrogen (NOx) or carbon monoxide (CO) in excess of 10 t/yr, or 5 t/yr of PM_{10}, are required to obtain a permit before construction can begin;
- all emission sources with potential emissions in excess of 100 t/yr of CO, 40 t/yr of NOx, or 15 t/yr of PM_{10} must also include a new source modeling analysis in their permit application. CDPHE-APCD (2002) modeling guidelines specify the requirements for conducting modeling, including cumulative impact analyses;
- all emission sources with the potential to emit any "criteria" air pollutant in excess of 50 t/yr must also provide the opportunity for the public to comment on the permit application; and
- a Title V (40 CFR Part 70) operating permit is required for all sources with the potential to emit air pollutants in excess of 100 t/yr.

Since these pre-construction and operating permit programs are included in the Colorado State Implementation Plan, they have been approved (and are therefore enforceable) by EPA.

This USDI – Bureau of Land Management (BLM) National Environmental Policy Act (NEPA) analysis compares potential air quality impacts from the Proposed Action and Alternatives to applicable ambient air quality standards, PSD increments, and AQRVs, but it does not represent a regulatory air quality permit analysis. Comparisons to the PSD Class I and II increments are intended to evaluate a "threshold of concern" for potentially significant adverse impacts, but do not represent a regulatory PSD Increment Consumption Analysis.

3.0 Emission Inventory Development

This section presents data regarding emission inventories that were developed as part of the air quality impact analysis. Emission inventories were developed to evaluate air quality effects from production activities in both the near field (adjacent to the development) and far field (PSD Class I Areas). Also, estimates of air quality impacts from construction were estimated based on an analysis that was conducted as part of the Southern Ute Indian Tribe (SUIT) EIS (BLM 2000).

Separate emission inventories were developed for both the near field and the far field cumulative impact analyses. The emission inventories addressed three groups of sources: 1) proposed action (and alternatives); 2) existing sources; and 3) other reasonably foreseeable sources (RFS). Emissions from existing sources were treated differently in the near and far field modeling because of the different focus of these analyses. The purpose of the near field analysis was to compare predicted concentrations to the NAAQS and PSD increments, and all existing sources were included in the modeling. The purpose of the far field analysis was to: 1) estimate total concentrations (modeled plus measured background concentrations) for comparison with the NAAQS in the two Class I Areas; 2) estimate potential PSD increment consumption from each alternative in the two Class I Areas; and 3) estimate the potential AQRV changes in the two Class I Areas. The calculation of potential AQRV impacts is referenced to measured existing conditions at the Mesa Verde National Park and Weminuche Wilderness Area Class I areas. Because of this approach, only those existing sources not represented by the measured background conditions were included in the far field AQRV impact analyses. Section 3.1 presents the emission inventories used in the near field analysis. Section 3.2 contains the inventories used in the cumulative far field analysis.

3.1 Near Field Emissions

3.1.1 Proposed Action and Alternatives

This subsection presents the development of the proposed action and alternative emission inventories, as well as quantification of potential emissions.

In the EIS Study Area, the primary sources of air pollutants emitted during the production phase are natural gas-fired compressors, small natural gas-fired heaters (used in conjunction with separation and dehydration units), and small natural gas-fired engines associated with well operations (pump jack engines). Compressors are used for the production and pipeline transport of natural gas produced by the wells. Small wellhead engines may be used for water disposal as well as other uses. The compressors and small engines would emit NOx, CO, volatile organic compounds (VOC) and hazardous air pollutants (HAP). The heaters would emit small quantities of NOx and CO. Other than the VOC emissions from the compressor engines, there would be negligible reactive hydrocarbon emissions associated with this development because of the nature of the produced gas.

At present, detailed site-specific engineering data are is not available regarding the exact nature of equipment that would be used, or the exact locations where the equipment would be installed. For purposes of this air quality impact assessment, reasonable but conservative assumptions were made regarding these potential emission sources.

Criteria Pollutants

Emissions associated with the proposed project's operational phase will be almost totally due to added natural gas-fired compressors and small wellhead engines. Operators in the area provided estimates of additional compressor capacity requirements and general locations (regions) where additional compression might be installed. Because the new compressors and small wellhead engines would burn natural gas which contains no sulfur compounds, the only criteria pollutants emitted from these sources would be NOx, CO and small amounts of VOC. Quantitative estimates of these emissions were developed based on the compressor capacity (in horsepower, or hp), and appropriate emission factors for gas compressor engines (in grams per horsepower per hour, or g/hp-hr). The emission inventory was developed for typical maximum emissions. It was assumed that all of the new compressors and small wellhead engines would operate simultaneously for all hours of the year. This represents a conservative but upper bound of potential criteria pollutant emissions.

Emissions from Central Compression

In developing the emission inventory, some modeling assumptions were required. BLM provided assumed central compressor locations, along with the total capacity (hp) of each site; however, no detailed engineering designs have been developed. Therefore, assumptions were required to develop a physical description of each source prior to modeling. The first assumption was regarding the number of engines to be located at each central compressor facility. In order to ensure that the modeling was conservative, for those sites with a capacity in excess of 2,000 hp, total capacity was broken into smaller individual units. This was based on a review of previous central compressor facilities in the region to ensure that the calculated plume rise would be not overstated, which otherwise would have resulting in predicted concentrations being under estimated. Thus, the individual capacities listed in the emission inventory tables are reasonable assumptions, but should not be interpreted as the exact size of the equipment that would be installed. The next assumption made was the physical separation between sources. It was assumed that the individual compressor engines would be separated by 10 meters (m) or approximately 33 feet (ft).

These sources were explicitly included in the near field modeling, with stack parameters based on combustion calculations and engineering data from existing facilities.

Estimates of compressor pollutant emissions were based on the compressor requirements developed by the project proponents. Emissions were calculated based on the expected additional compressor capacity (hp) and appropriate emission factors for natural gas fired compressor engines (g/hp-hr). For compressor engines having a site rated capacity in excess of 500 hp, an emission factor of 1.5 g/hp-hr of NOx was used. This emission factor is assumed to be applicable for all operating loads, and is representative of continuous operation using well-maintained, low emitting, or well-controlled compressor engines. It should also be noted that the total emission estimates reflect potential continuous operation, and that actual development emissions are likely to be less.

As described in a previous BLM natural gas development air quality impact assessment (BLM 1999), potential NOx control measures include:

Nonselective Catalytic Reduction. This control technology is applicable to relatively new engines and requires the installation of catalysts in the engine exhaust. The catalyst removes between 80 and 90 percent of the uncontrolled NOx emissions, for an operating emission rate of 1.0 to 5.0 g/hp-hr. The cost effectiveness of this control technology applied to a 2,500 to 4,000 hp rich-burn engine ranges from $315 to $395 per ton of NOx removed.

Lean Combustion. This technology involves the increase of the air-to-fuel ratio to lower the peak combustion temperature, thus reducing the formation of NOx (applicable for new engines and retrofit applications). The controls are between 80 and 90 percent efficient, for an operating emission rate of 1.5 to 4.0 g/hp-hr. The cost effectiveness of this control technology applied to a 2,500 to 4,000 hp rich-burn engine ranges from $480 to $500 per ton of NOx removed.

Selective Catalytic Reduction. This is a post combustion control technology, which is only applicable to exhaust streams with significant oxygen content (a lean burn engine). The controls are between 80 and 90 percent efficient, for an operating emission rate of 1.0 to 2.5 g/hp-hr. The cost effectiveness of this control technology applied to a 2,500 to 4,000 hp lean-burn engine ranges from $700 to $890 per ton of NOx removed.

For CO an emission factor of 2.0 g/hp-hr was used, and is representative for engines that have low NOx emissions. The emission factor for VOCs was assumed to be 1.0 g/hp-hr, and is the value assumed by engine manufacturers. VOC emissions also include formaldehyde, a HAP. Although the VOC emission factor is believed to be conservative, it does have a large degree of uncertainty.

Emissions from Small Wellhead Engines

Emissions estimates for small wellhead engines for proposed NSJB sources were developed by first identifying potential well locations. In general, it was assumed that 50 percent of the wells in the study region would have an associated small wellhead engine. The exception was that one operator (Huber) felt that they would need an engine at each well. The emission inventory for this source category was developed by assuming that 50 percent of the wells had a small wellhead engine, while those wells associated with Huber operations each had an engine (100 percent). Based on existing engines throughout the NSJB area, the typical size of these small engines is 48 hp (site rated capacity). Emissions were estimated using AP-42 emission factors (EPA 2000a) of 10 g/hp-hr for NOx and 8.6 g/hp-hr for CO. These potential emission sources were explicitly included in the near field modeling using the assumed well locations provided by BLM. Stack parameters were developed using combustion calculations and using historical engineering data from existing facilities.

For the near field modeling, it was assumed that these emission sources would operate at maximum capacity continuously, which represents a conservative upper estimate of potential air quality impacts.

Emissions from Separator and Dehydration Units

Additional NOx and CO emissions would also occur from new natural gas-fired heaters as part of the separators and dehydration units. These units would be located at individual wells and at the central compressor locations. For modeling, heater emissions were included by aggregating these sources at the compressor locations as individual sources, and were assumed to operate at full capacity continuously. Again, this represents a reasonable but conservative upper bound of potential emissions.

Because the natural gas produced under this proposal would come from coal bed methane (almost pure methane), no hydrocarbon condensate or natural gas liquids would be produced. Table 3-1 provides the typical composition of coal bed methane natural gas. As a result, minimum reactive VOC emissions would be associated with the proposed development.

Table 3-1. Typical Coalbed Methane Gas Composition

Component	Volume (percent)	Molecular Weight	Weight (percent)
carbon dioxide	12.000	44.010	27.230
nitrogen gas	0.032	20.016	0.033
methane	86.560	16.040	71.550
ethane	0.580	30.067	0.899
propane	0.098	44.092	0.220
iso-butane	0.012	58.118	0.036
n-butane	0.012	58.118	0.036
iso-pentane	0.002	72.144	0.007
n-pentane	0.001	72.144	0.004
n-hexane	0.001	86.169	0.009
		Non-reactive VOC	**99.7**

Source: BP America, Inc. (2002)

Hazardous Air Pollutants

Formaldehyde is the only HAP that would be emitted in significant quantities from emission sources associated with natural gas development, and results from using natural gas as a fuel in internal combustion compressor engines.

Potential formaldehyde emissions were calculated for central compressor engines using an emission factor of 0.3 g/hp-hr. This represents a reasonable but conservative upper level estimate of formaldehyde emissions from lean burn natural gas-fired compressor engines (Wyoming Department of Environmental Quality 2004).

Formaldehyde emissions for small wellhead engines were calculated using an AP-42 emission factor of 0.13 g/hp-hr. This represents typical formaldehyde emissions from rich burn natural gas fired engines (EPA 2000a).

There is no universally accepted regulatory or industry emission factor for formaldehyde. Studies are ongoing to determine a reliable formaldehyde emission factor for natural gas-fired internal combustion engines, which may ultimately result in other factors than those used in this study. Because formaldehyde emissions are relatively low and emissions would be distributed over a relatively large region, a cumulative HAP analysis was not necessary. Also, the State of Colorado emission inventory does not contain HAP emission information, nor data necessary to estimate these emissions. Instead, HAP modeling was performed only for the proposed action (and alternative) sources. Because maximum impacts are likely to occur close to compressor sites, this analysis identified maximum potential near field HAP impacts.

EPA has recently developed and promulgated a maximum achievable control technology (MACT) regulation for Reciprocating Internal Combustion Engines to address formaldehyde emissions (EPA 2004). This regulation would require emission controls on certain types of engines. As a result of this regulation, by the time the proposed compressor engines would actually be installed, there will be a regulatory requirement, and actual emissions will be less than those assumed in this analysis.

Since these wells will not produce any hydrocarbon liquids or condensate, there would be no emissions of benzene, toluene, ethyl benzene or xylene (BTEX) associated with flashing or tank emissions. Also, because the gas is composed primarily of methane, and contains few heavier components, there would be no BTEX emissions from glycol dehydration units. EPA has also promulgated a MACT regulation for HAP emissions from natural gas production equipment, such as dehydration and separator equipment (EPA 1999). Since this regulation is only applicable to major HAP natural gas production sources (i.e., sources that emit in excess of 10 t/yr for a single HAP, or 25 t/yr for cumulative HAPs), it is not applicable to the proposed action (or alternative) sources.

Quantification of Emissions

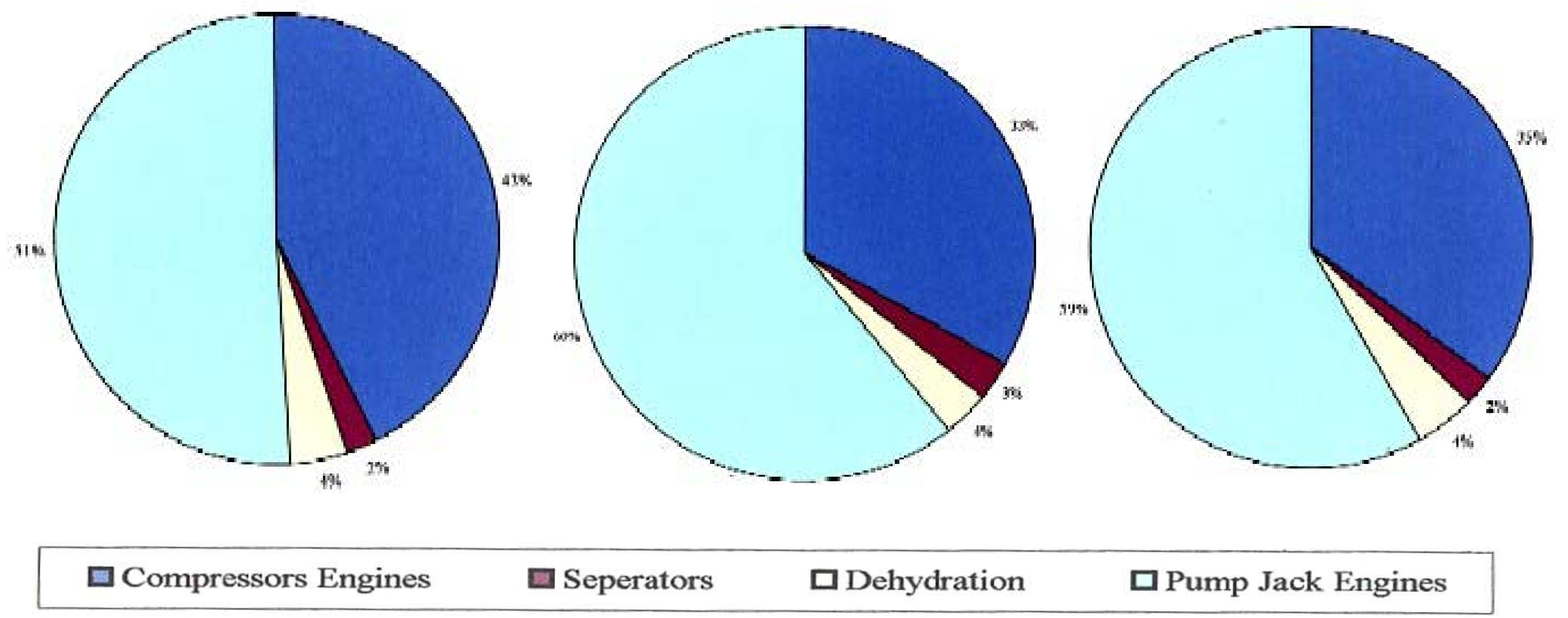
Five different development scenarios were identified and are summarized in Table 3-2. Although emission estimates were calculated for all alternatives, quantitative modeling was only performed for Alternatives 1, 2 and 5. As indicated under Alternative 1 (Proposed Action), it was assumed that an additional 41,000 hp of central compression and 14,352 hp of small wellhead engines would be needed. For this case, an increase in NOx emissions of 1,440 t/yr was estimated under full development. For CO and HAPs, the increase in emissions would be 1,531 and 104 t/yr, respectively. Under Alternative 2 (Maximum Development), it was assumed that 46,000 hp of additional compression and 25,248 hp of small wellhead engines would be needed. For this case, the increase in NOx, CO and HAPs emissions would be 2,087, 2,122, and 122 t/yr, respectively. Under Alternative 5 (No Action), the increase in central compression capacity was estimated to be 14,240 hp and the increase in capacity of small wellhead engines was estimated to be 6,384 hp. The potential increase in emissions (t/yr) was estimated to be 588 for NOx, 604 for CO and 36 for HAPs.

Table 3-2. Summary of Emissions by Alternative

Proposed Alternative	Central Compression Capacity (hp)	Wellhead Engine Capacity (hp)	Total Capacity (hp)	Compressors			Wells		Dehydration		Wellhead Engines			Total Emissions		
				NOx (t/yr)	CO (t/yr)	HAPs (t/yr)	NOx (t/yr)	CO (t/yr)	NOx (t/yr)	CO (t/yr)	NOx (t/yr)	CO (t/yr)	HAPs (t/yr)	NOx (t/yr)	CO (t/yr)	HAPs (t/yr)
1	41,000	14,352	55,352	616	821	94	32	27	61	52	731	631	9.7	1,440	1,531	104
2	46,000	25,248	71,248	688	917	105	57	48	74	63	1,267	1,095	16.7	2,087	2,122	122
3	28,640	10,416	39,056	502	669	77	23	19	44	37	560	483	7.4	1,128	1,209	84
4	30,400	9,072	39,472	436	581	67	21	17	31	26	476	411	6.3	963	1,036	73
5	14,240	6,384	20,624	206	275	32	13	11	26	22	342	296	5.0	588	604	36

Figures 3-1 through 3-3. Relative NOx Emissions by Alternative and Source Category

Alternative 1 (Proposed Action) **Alternative 2 (Maximum Development)** **Alternative 5 (No Action)**



Figures 3-1 through 3-3 present the relative contribution of NOx emissions from each source category. Appendix A presents detailed information on the development of these inventories, including detailed emission inventory tables for each alternative.

3.1.2 Existing Sources Not Represented by the Background Data

Criteria Pollutants

A cumulative analysis was performed to determine maximum combined near field impacts of the proposed action and alternatives (project sources) and non-project sources for comparison with the State and NAAQS. Information on existing sources was obtained from: 1) the State of Colorado; 2) the State of New Mexico; and 3) the SUIT and EPA regarding sources on tribal land. A cumulative near field analysis was conducted because current background monitoring data may not be representative of potential maximum impacts from existing sources. Consequently, an emission inventory for all existing sources was developed and used in the cumulative near field modeling analysis. The inventory was originally developed for the SUIT EIS (BLM 2000) and was updated for this analysis.

All existing Colorado sources within the Study Area were included in the near field emission inventory, and was compiled using information prepared by the CDPHE-APCD. Because the Division has rescinded permit authority for sources located within the boundaries of the Southern Ute Indian Reservation, an attempt was made to remove duplicate entries when compared to the tribal inventory (described below). However, it is possible that there was some double counting of emissions between the Colorado and tribal inventories, representing a reasonable but conservative upper bound of potential emissions. Appendix B presents the detailed Colorado emission source inventory.

For existing New Mexico sources, an emission inventory was obtained from the State of New Mexico Environment Department – Air Quality Bureau (NMED-AQB) web site (NMED-AQB 2003). This inventory contained some sources that were located outside of the Study Area, as well as some sources located within the State of Colorado (which were deleted from the New Mexico analysis inventory). In addition, the remaining New Mexico sources were also screened to determine which could also be excluded because they would have insignificant cumulative impacts throughout the Study Area. The determination of insignificant impacts was accomplished as follows.

First, generic emission units were developed based on existing and proposed new source sizes. Four source sizes were considered: 1) less than 10 t/yr; 2) between 11 to 50 t/yr; 3) between 51 to 100 t/yr; and 4) greater than 101 t/yr.

Second, these generic source categories were modeled using representative meteorological data (as described in Section 5.1), a 1 kilometer (km) receptor grid, and assuming averaging times applicable for the NAAQS (i.e., an annual averaging time for NO_2). Screening modeling (using the Industrial Source Complex – Short Term, or ISCST3, atmospheric dispersion model; EPA 1995) for typical sources in northwestern New Mexico was conducted using for a full year of meteorological data collected at the Bayfield Gas Plant (RTP Environmental 2002). Typical source parameters were used based on the NMED-AQB inventory.

Third, based on the screening modeling results, the distance for each source size category to the EPA "significance level" was determined (i.e., 1.0 $\mu g/m^3$ for NO_2).

Finally, these distances were used to determine which sources in New Mexico would be included in the near field cumulative analysis. Sources located beyond the calculated screening distances were excluded, while those within these distances were included. Appendix C presents the detailed New Mexico emission source inventory.

The SUIT near field emission inventory for sources located within the exterior boundaries of the Southern Ute Indian Reservation was developed using several different data sources. Compilation of this inventory was not simple because the tribe does not have a major or minor source permit program, and therefore no detailed emission data were available. Although EPA has instituted a Title V (40 CFR Part 71) permitting program on tribal land, it does not have a minor source permit program. Therefore, there is no existing single emission inventory for sources on tribal land.

For this analysis, EPA Region 8 permit files were first reviewed to develop the emission inventory, including review of individual permit applications as well as processed EPA permits. It is important to note that EPA's permits on the SUIT Reservation generally do not have enforceable emission limits. This is because there is no existing minor source permit program, and EPA Region 8 cannot impose any new permitting requirements under Title V of the Clean Air Act. The second source of data was the SUIT EIS inventory for existing sources. This inventory was developed as part of the SUIT EIS analysis for existing emission sources within the boundaries of the SUIT Reservation (BLM 2000). Appendix D presents the detailed Tribal emission source inventory.

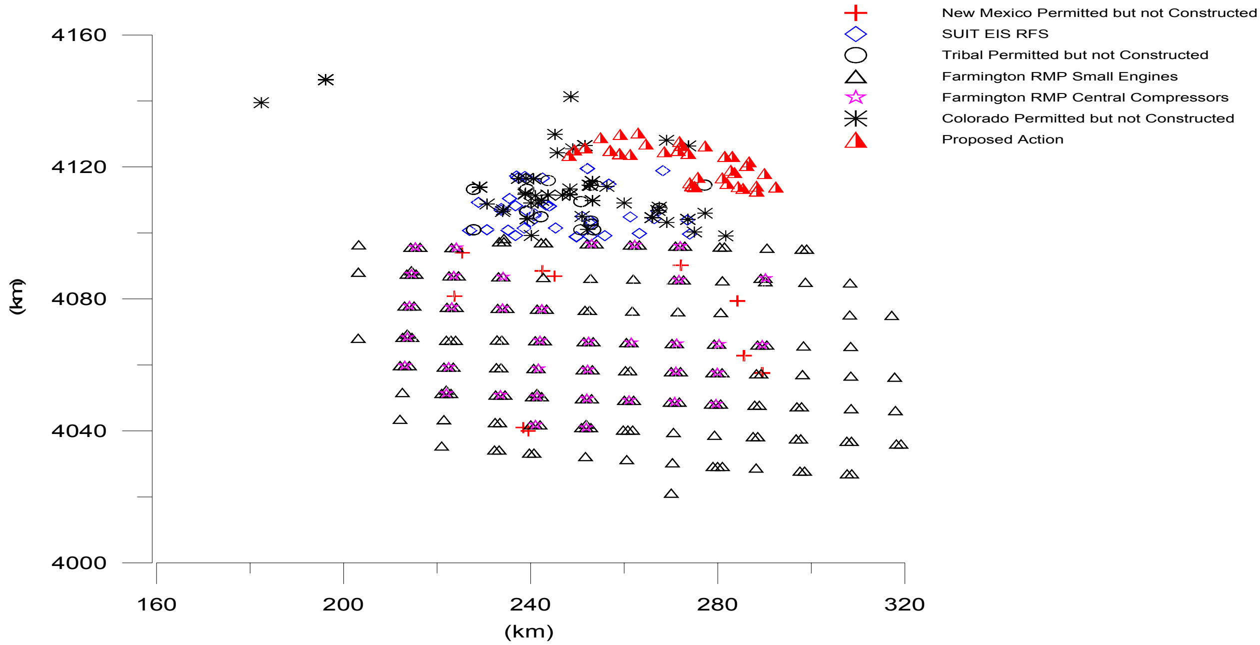
3.1.3 Reasonably Foreseeable Sources

In addition to the proposed action (and alternative) emission sources and the existing sources, the near field modeling analysis also included other RFS. These include sources that are assumed to become operational during the lifetime of the proposed activities, but have not previously been identified as existing, proposed action or alternative sources. Quantification of emissions from RFS sources is very difficult because of their speculative nature. The starting point for this inventory was the proposed action inventory developed for the SUIT EIS (BLM 2000). This included data on criteria pollutant emissions, source locations, and physical (stack) parameters. While the SUIT EIS examined three levels of potential central compressor emission controls (at 1.0, 1.5 and 2.0 g/hp-hr), this analysis assumed a level of 1.5 g/hp-hr as reasonably foreseeable. The SUIT inventory was also reviewed to determine if any of the proposed sources have been actually installed. For cases where this occurred, these sources were included in the existing Tribal near field emission source inventory. Appendix E presents the detailed RFS emission source inventory.

3.2 Far Field Emissions

This subsection presents information regarding emission inventories for the cumulative far field analysis. This methodology is consistent with emission inventory development process for other EIS', such as the SUIT EIS (BLM 2000). Figure 3-4 presents emission source locations for the proposed action (and alternatives), New Mexico, Colorado, Tribal, and other RFS sources, as well as potential Farmington, New Mexico Resource Management Plan (RMP) sources (BLM 2003).

Figure 3-4. Cumulative Far Field Emission Source Locations



The purpose of the far field analysis was to identify potential direct or cumulative air quality impacts in the downwind Mesa Verde National Park and Weminuche Wilderness mandatory federal PSD Class I areas, both located in Colorado. The primary purpose of this analysis was to determine potential NO_2 impacts, potential visibility impacts from secondary nitrate particulate matter (as well as NO_2 gas), potential total nitrogen deposition, and potential lake chemistry impacts within the Class I areas from far field NOx emission sources.

There were four groups of sources included in the far field modeling:

- proposed action (and alternative) sources;
- existing sources not represented by the background measurements (including permitted but not yet constructed sources);
- other RFS; and
- Farmington, New Mexico RMP sources.

3.2.1 <u>Proposed Action and Alternatives</u>

The far field proposed action (and alternative) emission inventory was identical to that used in the near field analysis (see Section 3.1.1).

3.2.2 <u>Existing Sources Not Represented by the Background Data</u>

The determination of which emission sources to include in the far field modeling analysis was based on the last complete year of background monitoring data, as well as an analysis of IMPROVE (Interagency Monitoring of PROtected Visual Environments; 2003) speciated aerosol monitoring data for Mesa Verde and the Weminuche PSD Class I Areas (see Section 4.2). The purpose of this analysis was there were any aerosol trends which would question the reliability of using 1999 background monitoring data as an emission source cutoff date. Based on the information presented in Section 4.1, it was concluded that within the limits of uncertainty of the IMPROVE data, there were no significant trends in background conditions, and 1999 was the appropriate cutoff date to identify those operational sources to be included in the cumulative modeling inventory. The following criteria were used to determine inclusion of sources in the modeling. If any emission source was operational one year before 1999, it was assumed to be represented by the background monitoring data, and therefore excluded from the modeling inventory. This approach insured that source impacts were included in at least one year of monitoring data.

For sources that had obtained an emission permit, but may not have become operational (referred to as permitted but not constructed), the following criteria were used to determine if the source would be included in the far field emission source inventory. For permitted sources with the potential to emit greater than 250 t/yr, if the permit was more that 18 months old but the source had not yet become operational, it was excluded from the modeling inventory. For sources with potential emissions between 100 to 250 t/yr the criteria was one year, and for sources less than 100 t/yr the criteria was six months.

In reviewing CDPHE-APCD permit application files, all permitted but not constructed facilities were identified as natural gas-fired sources. Therefore, no SO_2 or primary particulate matter emissions were included in the far field analysis for this source group. However, review of the Colorado inventory identified a large number of missing stack parameters, therefore best engineering judgment was used to complete this information. When an assumed value was used, it was documented in the emission inventory files. Appendix B presents the detailed Colorado existing sources not represented by the background measurements, as well as permitted but not yet constructed sources which were included in the far field modeling analysis.

Similarly, in reviewing NMED-AQB permit application files, all permitted but not constructed facilities were identified as natural gas-fired sources. Therefore, no SO_2 or primary particulate matter emissions were included in the far field analysis for this source group. Appendix C presents the detailed New Mexico existing sources not represented by the background measurements, as well as permitted but not yet constructed sources which were included in the far field modeling analysis.

In reviewing the EPA Region 8 Tribal permit application files, all permitted but not constructed facilities were identified as natural gas-fired sources. Therefore, no SO_2 or primary particulate matter emissions were included in the far field analysis for this source group. Review of the Tribal permits identified a large number of missing stack parameters, therefore best engineering judgment was used to complete this information. When an assumed value was used, it was documented in the emission inventory files. Appendix D presents the detailed Tribal existing sources not represented by the background measurements, as well as permitted but not yet constructed sources which were included in the far field modeling analysis. The existing tribal emission sources identified from the SUIT EIS analysis were all excluded in the far field analysis because they were operational before 1998 (Brown 2002).

As part of the EPA Region 8 Tribal permit review, data were compiled on actual and potential emissions, start date and emission factors. An important finding of this review is the level of controls EPA Region 8 requires for compressor engines located on the SUIT reservation. Of the 70 compressor engines permits which included emission rate and compressor capacity data (allowing calculation of a corresponding emission factor, the average emission factor was 2.6 g/hp-hr. The lowest emission factor was 0.5 g/hp-hr. The highest emission factor was 17.2 g/hp-hr. Review of the individual engine data indicated that of the 70 engines, only eight were uncontrolled engines (with permitted emissions in the range of 7 to 17.2 g/hp-hr), and all of the remaining engines were permitted at less than 3 g/hp-hr. The size of these compressor engines ranged from 17 to 2,800 hp.

3.2.3 <u>Reasonably Foreseeable Sources</u>

In addition to the proposed action (and alternative) and the existing emission sources, the far field modeling analysis also included other RFS. These are sources that may become operational during the lifetime of the proposed activities, but were not identified as existing, proposed action or alternative emission sources. Quantification of emissions from other RFS is very difficult because of their speculative nature. The RFS inventory was based on the proposed action inventory developed for the SUIT EIS, which contained data on criteria pollutant emissions, source location and physical parameters. Appendix E presents the detailed other RFS sources which were included in the far field modeling analysis. For this source group category, the near field and far field emission inventories were the same.

3.2.4 <u>Farmington, New Mexico RMP Sources</u>

The other RFS sources that were included in the far field modeling were potential oil and gas sources identified in the Farmington, New RMP. This inventory was developed by reviewing the RMP (BLM 2003) and its Technical Support Document (SAIC 2003). The Farmington RMP air quality impact analysis did not quantify potential PSD Class I AQRV impacts.

The original Farmington RMP emission inventory was reviewed and modified for use in this far field impact analysis. First, the original RMP analysis assumed that small wellhead engines would be installed on 50 percent of the wells, that each small wellhead engine would have a capacity of 68.5 hp, and a corresponding NOx emission factor of 9.62 g/hp-hr. Data obtained from New Mexico Oil and Gas Association (NMOGA) indicated the weighted average size of small wellhead engines installed in the region is 68.5 hp, although with an average emission rate of 6.4 t/yr. Operational data supplied by NMOGA also indicated the utilization rate of these engines was 54 percent (NMOGA 2003), therefore this utilization factor was applied to the far field impact analysis.

No information was provided in the RMP regarding the potential locations for small wellhead engines, however the RMP document did estimate the potential number of wells located in each geographic section. This information was used to scale the small wellhead engine emissions based on the proposed development described in the RMP. It was assumed that nearly half of the wells would be equipped with a 68.5 hp engine. However, due to operational limitations on the number of sources allowed in the air quality dispersion model (California Puff Model, or CALPUFF), 26.2

small wellhead engines were combined into common modeling point source locations, each with a total emission rate of 90 t/yr.

Model sensitivity testing was conducted to ensure this simplification of describing the emissions for this source type as input to CALPUFF would not affect the predicted impacts. This analysis kept total emissions constant but changed the emission density over the source region. The sensitivity testing involved modeling critical receptors using 26.2 engines represented as a single modeling source. This resulted in 190 source locations in CALPUFF. The second run reduced the number of sources that were combined to 11.3, which resulted in 442 source locations being modeled in three separate CALPUFF runs. The results indicated that increasing the number of emission source locations increased potential visibility impacts by only 0.1 deciview (dv). Therefore, it was demonstrated this modeling simplification would not significantly change the modeling results or conclusions.

Although not included in the original RMP analysis, it was also assumed that each well would be equipped with a three-phase separator. Total separator NOx emissions from the RMP proposed action were estimated to be 1,425 t/yr, assuming continuous operation throughout the entire year. This is a reasonable but conservative assumption because no actual separator operations information was available, and emissions from the separators were combined with the small wellhead engines due to the model limitations. Therefore, it was assumed that 70 separators (with total NOx emissions of 7.5 t/yr) were with each small wellhead engine modeling point source location.

The original RMP analysis also provided an estimate of total central compressor capacity of 360,000 horsepower, although no information was provided regarding the number of central compressor stations, the size of individual stations, or their locations. In order to perform this modeling, the following assumptions were made to distribute potential central compressors throughout the RMP area. First, it was assumed that 36 central compressor stations would be installed, each having a capacity of 10,000 hp. Based on an emission factor of 1.5 g/hp-hr, it was assumed that total NOx emissions from each central compressor station would be 145 t/yr. It was further assumed that each central compressor station would be comprised of four 2,500 hp engines. Stack parameters were based on this size engine. Source locations were estimated by placing one compressor stations in each of the 36 townships with the highest number of existing wells. Because the distance from the source region to each PSD Class I area exceeds 10-km, the modeling results would not be sensitive to exact source locations.

Dehydration units also were not included in the original RMP analysis, however, produced natural gas would be required to undergo some level of dehydration before it is sold. Dehydration burners having a capacity of 2 million British thermal units per hour (MMBtu/hr) would be required to treat every 100 million standard cubic feet of gas processed (NMOGA 2003). It was estimated that 1,062,700 million British thermal units of natural gas would be produced per year in the RMP region, which would require 2.43 MMBtu/hr of heat capacity for dehydration. This equates to nearly 10 t/yr of total dehydration NOx emissions, which were included in the modeling by adding 0.29 t/yr to each central compressor station. Appendix F presents the detailed Farmington, New Mexico sources which were included in the far field modeling analysis.

3.3 Construction Emissions

Construction emissions associated with the proposed action (and alternatives) would occur mainly due to the installation of new wells involving three sequential phases:

- well pad and resource road construction;
- rig-up, drill and rig-down; and
- well completion and testing.

The SUIT Air Quality analysis performed a detailed emission inventory for the construction phase of development (BLM 2000). No new information was available to revise estimates of those construction emissions. Therefore, Tables 3-3 through 3-5 present emission summaries (in pounds per hour, or lb/hr) from the previous study which are directly applicable to this analysis.

Table 3-3. Well Pad Site and Resource Road Construction Phase Emission Inventory

ASSUMPTIONS:
Number of days to complete the activity................................ 3 days
Hours of operation per day ....8 hours
Total number of work hours to complete the activity..........24 hours

Activities	Emission Rates (lb/hr)				
	PM_{10}	SO_2	NO_x	CO	VOC
FUGITIVE DUST EMISSIONS					
Well pad construction	2.62	0.00	0.00	0.00	0.00
Resource road construction	3.15	0.00	0.00	0.00	0.00
Traffic on unpaved haul roads	37.83	0.00	0.00	0.00	0.00
Subtotal	**43.60**	**0.00**	**0.00**	**0.00**	**0.00**
EQUIPMENT AND VEHICLE EMISSIONS					
Truck tail pipe emissions	0.91	1.01	10.87	3.17	0.95
Heavy construction equipment	0.31	0.24	3.04	1.24	0.38
Subtotal	**1.22**	**1.25**	**13.91**	**4.41**	**1.33**
Maximum Hourly Emissions	**44.82**	**1.25**	**13.91**	**4.41**	**1.33**

Table 3-4. Well Site Rig-Up, Drill and Rig-Down Phase Emission Inventory

ASSUMPTIONS:

Number of days of vehicle/equipment traffic .... 8 days
Hours of operation per day for traffic ....8 hours
Total number of traffic hours...64 hours
Number of days of drill rig engine operation .... 6 days
Hours of operation per day for drill rig engines ....24 hours
Total numbers of drill engine operating hours
incorporating load factor for time operated ....144 hours

Activities	Emission Rates (lb/hr)				
	PM_{10}	**SO_2**	**NO_x**	**CO**	**VOC**
Traffic on unpaved haul roads	25.34	0.00	0.00	0.00	0.00
Subtotal	**25.34**	**0.00**	**0.00**	**0.00**	**0.00**
Truck tail pipe emissions	0.67	0.75	8.09	2.36	0.71
Operation of drill rig engines	1.07	1.02	15.11	3.27	1.22
Subtotal	**1.74**	**1.77**	**23.20**	**5.63**	**1.93**
Maximum Hourly Emissions	**27.08**	**1.77**	**23.20**	**5.63**	**1.93**

Table 3-5. Well Completion and Testing Phase Emission Inventory

ASSUMPTIONS:

Number of days of vehicle/equipment operation:...................25 days
Hours of operation per day for vehicle/equipment operation: 8 hours
Total number of hours of vehicle/equipment operation: .... 200 hours
Number of days to complete well flaring: ....7 days
Hours of operation per day for well flaring: .... 24 hours
Total number of hours of gas flaring .... 168 hours

Activities	Emission Rates (lb/hr)				
	PM_{10}	SO_2	NO_x	CO	VOC
Traffic on unpaved haul roads	11.25	0.00	0.00	0.00	0.00
Subtotal	**11.25**	**0.00**	**0.00**	**0.00**	**0.00**
Tail pipe emissions from trucks	0.16	0.18	1.94	0.57	0.17
Gas flaring	0.18	Neg.	2.02	11.01	1.88
Subtotal	**0.34**	**0.18**	**3.96**	**11.58**	**2.05**
Maximum Hourly Emissions	**11.59**	**0.18**	**3.96**	**11.58**	**2.05**

4.0 Air Quality Data

4.1 Near Field Background Data

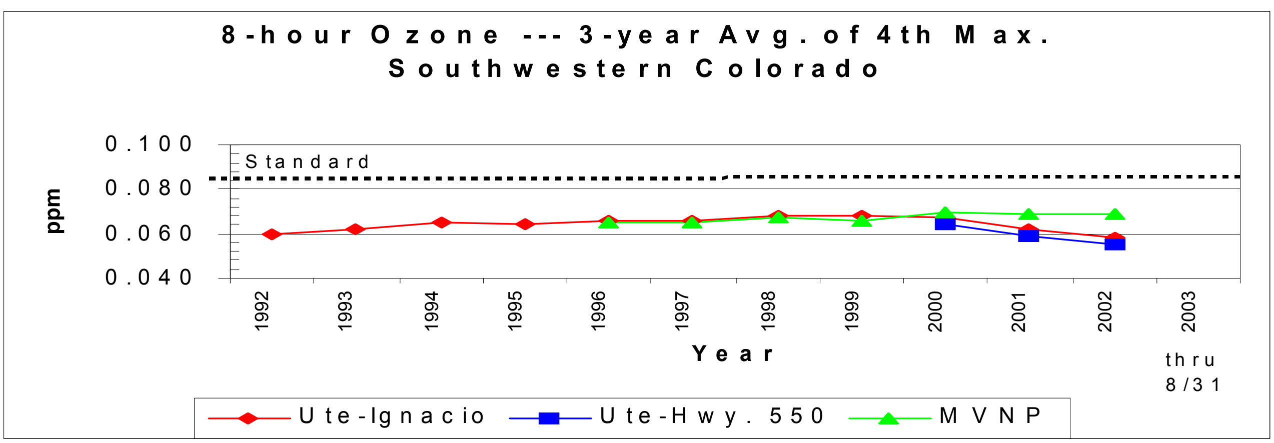
Air quality is considered to be good throughout the EIS Study Area with existing sources of air pollution distributed over a large area. The most complete air quality measurement data available within the project area are from the SUIT monitoring station near Ignacio, Colorado, which has been operational since 1987. The maximum measured pollutant concentrations are summarized in Table 4-1, and demonstrate air quality has consistently been well below applicable NAAQS. This station is operated according to PSD Monitoring Guidelines, and its data are routinely audited by EPA Region 8.

Although the maximum recorded 1 hr ozone concentration (237 μg/m^3, measured in 1994) slightly exceeded the NAAQS (at 235 μg/m^3), the second highest measured concentration (182 μg/m^3, also measured in 1994) was considerably below the standard. Since that time, the maximum 1 hr ozone concentration has been even less. In addition, Figure 4-1 presents a summary of the running three year average of the 4th highest 8 hr ozone concentrations measured in southwestern Colorado. As indicated in this figure, the maximum 4th highest three year average concentration was approximately 0.070 parts per million (ppm; nearly 137 μg/m^3), and indicates this region complies with the 8 hr ozone NAAQS of 0.08 ppm (157 μg/m^3).

There are no historical data on ambient carbon monoxide within the EIS Study Area. The CDPHE-APCD recommends assuming a concentration of 2 ppm (2,286 μg/m^3) for both the 1 and 8 hr averaging periods as a representative value for rural southern Colorado (CDPHE-APCD 2001).

The Ignacio air quality measurement data are considered to be representative of the air quality in the non-industrialized portions of southern Colorado. Since Ignacio is the largest population center within the SUIT Reservation, the effects of vehicle emissions at this station are likely to be greater than at other rural locations throughout the EIS Study Area.

Figure 4-1. Running Three Year Average of 4th Maximum 8 hour Ozone Values



Source: CDPHE-APCD (2003)

Table 4-1. Background Air Pollutant Concentrations (Regional)

Pollutant	Year	Averaging Time	Maximum Concentration (*u*g/m³)	Second Maximum Concentration (*u*g/m³)	Applicable Ambient Air Quality Standard (*u*g/m³)
carbon monoxide		1-hr	2,286 [(1)]	2,286 [(1)]	40,000
		8-hr	2,286 [(1)]	2,286 [(1)]	10,000
nitrogen dioxide	1997	Annual	9.4	N/A	100
	1998	Annual	9.4	N/A	100
	1999	Annual	9.4	N/A	100
	2000	Annual	7.5	N/A	100
ozone	1996	1-hr	164	163	235
	1997	1-hr	149	147	235
	1998	1-hr	157	153	235
	1999	1-hr	153	151	235
	2000	1-hr	151	147	235
	1997-1999	8-hr	137 [(2)]	N/A	157
PM_{10}	1991	24-hr	50	25	150
	1991	Annual	11.0	N/A	50
	1992	Annual	10.2	N/A	50
	1993	Annual	11.3	N/A	50
	1994	Annual	10.8	N/A	50
	1995	Annual	14.1	N/A	50
	1996	Annual	14.6	N/A	50
$PM_{2.5}$	2003	24-hr	26 [(3)]	20 [(3)]	65
		Annual	6 [(3)]	N/A	15
sulfur dioxide	1992	3-hr	57	55	700
		24-hr	23	23	365
		Annual	1.8	N/A	80

Source: BLM (2000)
µg/m³ – micrograms per cubic meter
N/A – not applicable
[(1)] CDPHE-APCD (2001) assumed values
[(2)] Maximum 4th highest 3-yr running average concentration
[(3)] CDPHE-APCD (2003) data collected in Durango, Colorado.

4.2 PSD Class I Background Data

Criteria Pollutants

Representative background ambient air pollutant concentrations provided by the State of Colorado (CHPDE-APCD 2001), based on typical rural air quality estimates, were used to describe existing air quality within Mesa Verde National Park and the Weminuche Wilderness PSD Class I areas. These levels are summarized in Table 4-2.

Table 4-2. Background Air Pollutant Concentrations (Mesa Verde and Weminuche)

Pollutant	Averaging Time	Mesa Verde National Park ($\mu g/m^3$)	Weminuche Wilderness Area ($\mu g/m^3$)
carbon monoxide	1-hr	2,286	2,286
	8-hr	2,286	2,286
nitrogen dioxide	Annual	9	9
PM_{10}	24-hr	30	9
	Annual	6	4
sulfur dioxide	3-hr	21	21
	24-hr	13	13
	Annual	5	5

Source: CDPHE-APCD (2001)

Visibility

Background visibility conditions were determined based on speciated aerosol samples collected using IMPROVE (2003) monitoring protocols at Mesa Verde National Park and Weminuche Wilderness Area, as well as daily average relative humidity values measured at the Albino Canyon, New Mexico, Remote Automatic Weather Station (RAWS; WRCC 2003). Measured concentrations of sulfate ion, nitrate ion, organic carbon, elemental carbon, soil and coarse mass were incorporated into a Microsoft Excel© Daily FLAG Refined Analysis Spreadsheets (Archer 2003), which calculated daily background visibility (extinction) conditions based on the FLAG (2000) reconstructed extinction methodology. Missing speciated aerosol concentration and daily relative humidity data were substituted by linearly interpolation between valid data.

Figure 4-2 presents the visibility frequency distribution expressed in deciviews for Mesa Verde National Park from 1989 through 1999. This is done for the 90th (clearest), 80th, 50th 20th, and 10th (haziest) percentile days in each year. The horizontal lines present the temporal trend (least square fit) for each percentile level. While there is some inter-annual variation about the mean, there does not appear to be a discernible trend in visibility conditions. The standard deviation around the annual means is about 0.5 dv at all percentile levels. This variation is below the 1.0 dv "just noticeable change" visibility threshold. This finding suggests that visibility has not significantly changed at Mesa Verde National Park mandatory federal PSD Class I Area.

Figure 4-3 presents the visibility frequency distribution expressed in deciviews for the Weminuche Wilderness Area from 1989 through 1999. There appears to be a slight visibility reduction trend for the clearest days, and a slight visibility improvement for the haziest days. The standard deviation about the annual means is approximately 0.6 dv at all percentile levels, which is below the 1.0 dv "just noticeable change" visibility threshold.

Figure 4-2. 1989-99 Visibility Frequency Distribution (Mesa Verde)

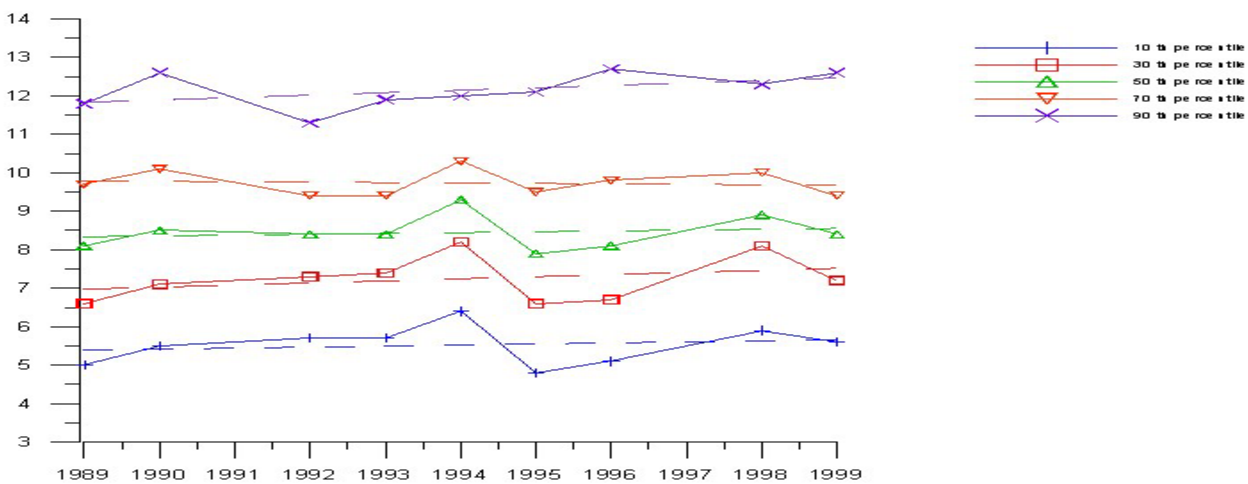
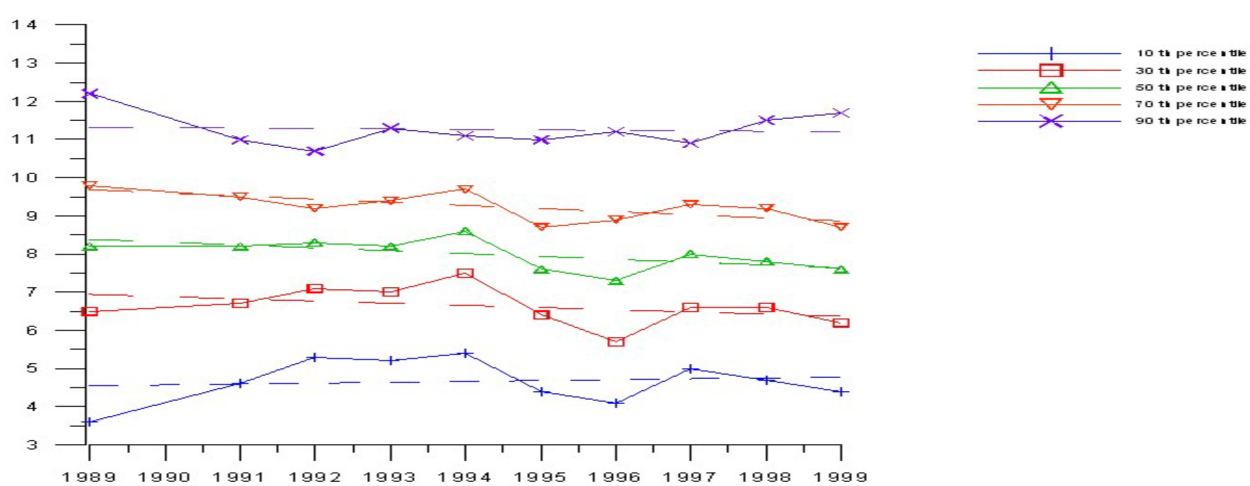


Figure 4-3. 1989-99 Visibility Frequency Distribution (Weminuche)



Lake Chemistry

Four lakes of concern were identified within the Weminuche Wilderness Area, while the USDI-National Park Service has not identified any sensitive lakes within Mesa Verde National Park. The Weminuche sensitive lakes and their background acid neutralizing capacity (ANC; reported in microequivalents per liter, or μeq/l) values are presented in Table 4-3.

Table 4-3. Weminuche Wilderness Area Sensitive Lakes

Sensitive Lake	Background Acid Neutralizing Capacity (μeq/l)
Big Eldorado Lake	27.7
Lower Sunlight Lake	79.8
Upper Grizzly Lake	24.3
Upper Sunlight Lake	25.8

Source: USDA-Forest Service (2001)

5.0 Meteorological Data

5.1 Near Field Meteorological Data

Calendar year 2002 (December 16, 2001 through December 16, 2002) meteorological data used for the ISCST3 modeling analysis were obtained from the Bayfield Gas Plant (RTP Environmental 2002) meteorological tower located in La Plata County, Colorado. This meteorological monitoring system was installed in December 2001 and is still in operation. Wind speed, wind direction and ambient temperature were measured at a height of 10 m above the surface. Atmospheric stability was calculated based on the standard deviation of wind direction and mean wind speed (EPA 2000b). Mixing height was estimated using Holzworth average minimum and maximum mixing heights for the region (EPA 2000c). Because the stack heights for the proposed sources are low, mixing height was not a critical model variable for the near field analysis.

5.2 Cumulative Far Field Meteorological Data

The winds throughout in the EIS Study Area are complex and highly variable as a result of terrain features. Consequently, winds throughout the study area were determined using the California Meteorological Model (CALMET), with its diagnostic wind field module, rather than being driven by direct observations (Scire, et al 2000a).

The CALMET meteorological data developed for the SUIT EIS modeling effort were used in this analysis. Additional review was conducted to determine if any new data could be used to supplement the data used in the SUIT analysis. While newer meteorological data were identified at the Florida and Bayfield gas processing facilities, these data were not incorporated due to operational constraints. A Mesoscale Model, version 5 (MM5) modeling run conducted by EPA was also considered, but it was not available in a computer usable format.

The primary source of meteorological data used in the SUIT EIS to initiate the CALMET wind field was the 1990 Mesoscale Model, version 4 (MM4) data base (NCDC 1995). This data set consists of modeled hourly values of wind speed, wind direction, temperature and pressure on an 80-km grid that covers the continental United States, southern Canada and northern Mexico. These data were prepared to supplement observational data in areas where observational data are sparse. The use of these data is consistent with recommendations from the Interagency Work Group on Air Quality Modeling (IWAQM 1998) Phase 2 report.

In addition to the MM4 data, CALMET requires hourly surface observations of wind speed, wind direction, temperature, cloud cover, ceiling height, surface pressure, relative humidity and precipitation type (i.e., snow, rain, etc.) These data are routinely collected by National Weather Service (NWS) and Federal Aviation Administration (FAA) surface observation stations. Upper air data are also required, and include twice-daily observations of vertical profiles of wind speed, wind direction, temperature and pressure. Table 5-1 presents a list of available meteorological data for 1990 within the modeling domain.

Table 5-1. Regional Meteorological Data Sources

Location	Data
Surface Observations	
Grand Junction, Colorado	Hourly surface (CD144) observations (NWS)
Gallup, New Mexico	Hourly surface observations (FAA)
Upper Air Observations	
Grand Junction, Colorado	Twice-daily upper air (TD6201) soundings (NWS)
Albuquerque, New Mexico	Twice-daily upper air (TD6201) soundings (NWS)

Hourly precipitation measurements are required for wet deposition calculations in CALPUFF. In developing the SUIT EIS, Earth Tech, Inc. compiled grided precipitation data; those data were also utilized in this analysis (BLM 2000).

6.0 Air Quality Modeling

6.1 Near Field Production

The selection of an appropriate dispersion model for analysis of the proposed action (and alternatives) near field air quality impacts was based upon the available meteorological data, local environment, the physical characteristics of proposed sources, and anticipated buildings and structures. Taking these factors into account, the ISCST3 dispersion model (Version 02035) was used for both the construction and production phase near field impact analyses. The ISCST3 model is a Gaussian dispersion model designed for applications involving multiple sources within an industrial facility, and has been designated an EPA-approved Guideline model (EPA 1995).

6.1.1 Receptor Grid

A nested fine and coarse receptor grid was used in this analysis. The fine receptor grid was designed to identify maximum impacts from sources associated with the proposed action (and alternatives). This grid was constructed around each proposed new central compressor station. Receptors were located at a distance of approximately 100 m from the facility or fence line, and extend to a distance of 500 m, creating a rectangular grid having a resolution of 100 m. Since the physical height of the compressor stations is similar to the stack height, it is important to consider aerodynamic downwash when estimating potential maximum impacts. Under such conditions, the largest impacts would likely occur close to the facility's fence line. Thus, this receptor grid was designed to ensure that the concentrations resulting from such effects were quantified. A computer program was used to calculate receptor locations around each assumed new emission source, and to generate the fine receptor grid when sources of the proposed development would be less than 1 km apart. A plot showing the network of fine receptor grids is shown in Figure 6-1.

The coarse receptor grid was created to cover the entire EIS Study Area so that maximum near field impacts throughout the region could be evaluated. This grid was laid out using a rectangular grid with 500 m resolution. As shown in Figure 6-2, the fine grids around individual compressor stations are embedded within this coarse grid. Terrain elevations were extracted from the United States Geological Survey (USGS 1987) digital elevation model (DEM) files for each receptor point.

Modeling results were reviewed to ensure that the receptor grids identified the location and magnitude of the maximum impacts.

Figure 6-1. Near Field Fine Receptor Grid

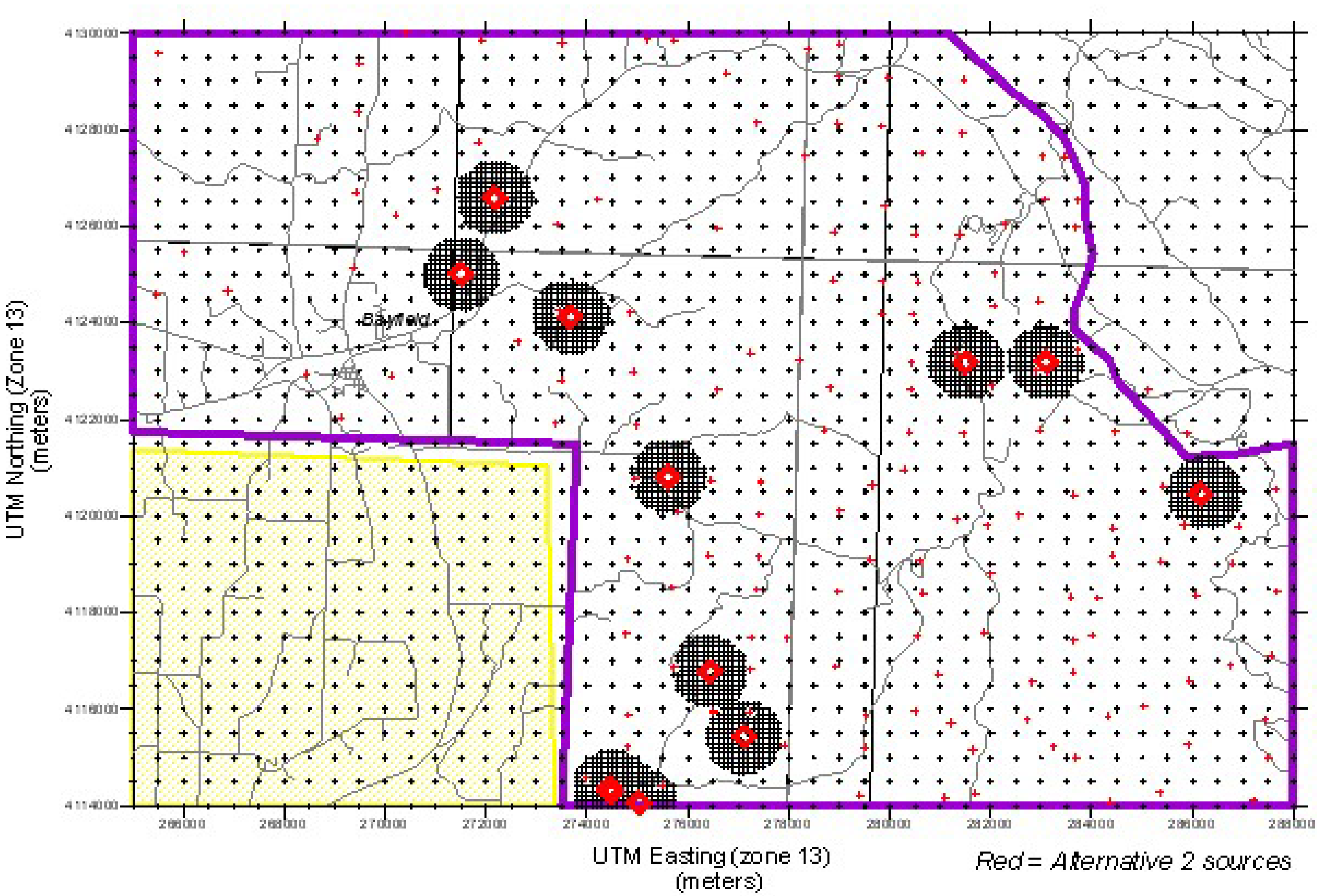
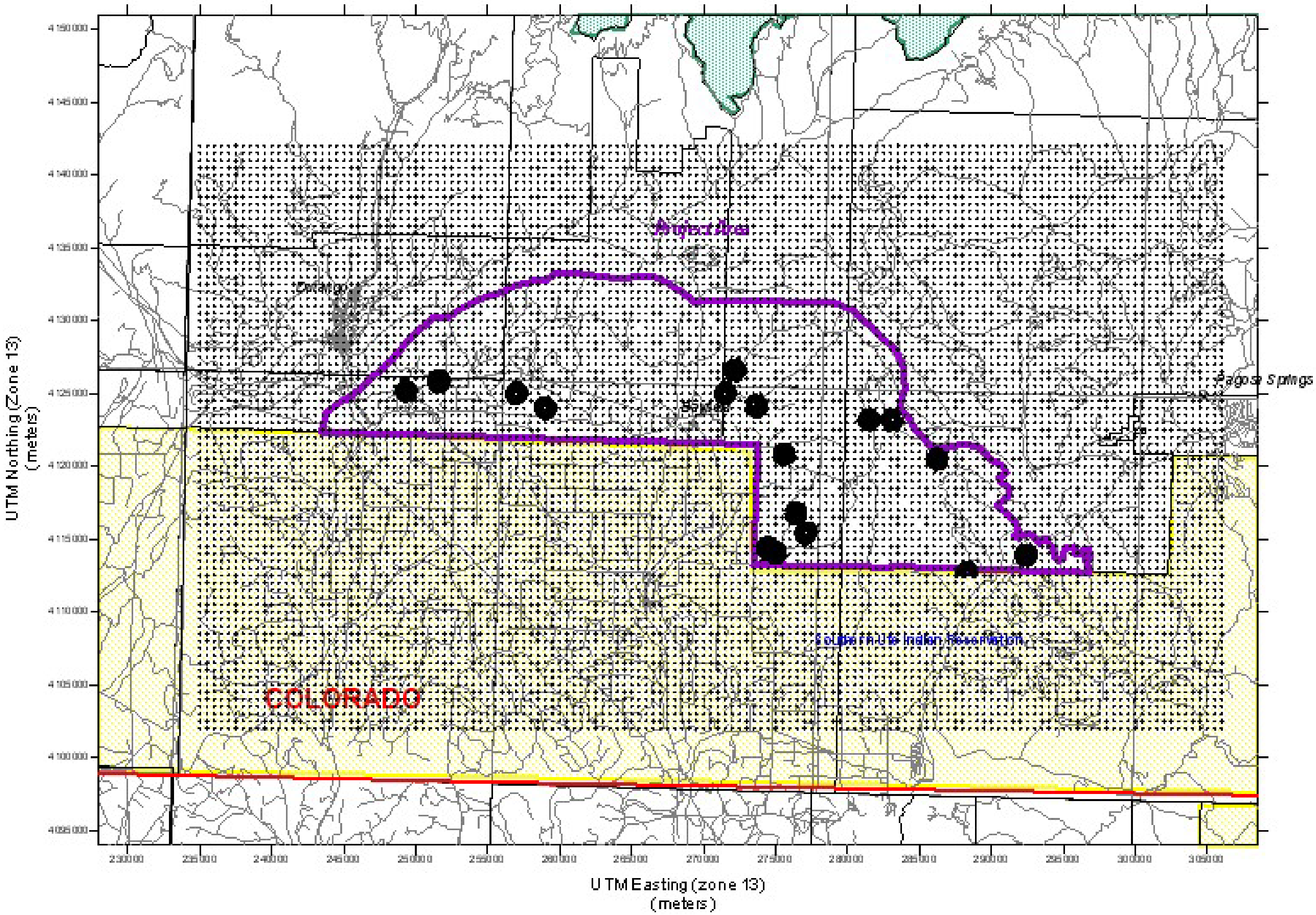


Figure 6-2. Near Field Coarse Receptor Grid



6.1.2 Model Options

The regulatory default options outlined in the Guideline on Air Quality Models (EPA 1986) were used for the near field ISCST3 modeling. These options are as follows:

- use stack-tip downwash for point sources (except when Schulman-Scire building downwash is applicable);
- use buoyancy-induced dispersion;
- do not use gradual plume rise (except when building downwash is applicable);
- use calms processing routine;
- use default wind speed exponents; and
- use default vertical potential temperature gradients

The ISCST3 rural dispersion coefficients were used, consistent with the rural land use in the EIS Study Area.

6.1.3 Building Downwash

The ISCST3 model provides the option to simulate aerodynamic plume downwash on the lee side of buildings (and other obstacles) that may be adjacent to the source. Downwash can produce elevated ground level concentrations close to these structures. The occurrence of downwash depends on the interaction between the height of the stack, the distance between the stack and nearby buildings, the dimensions of the buildings, as well as meteorological conditions.

Estimates of assumed building dimensions for the proposed compressor stations were developed as part of the emission inventory. Because of the lack of detailed engineering data, building dimensions have been assumed to apply uniformly regardless of wind direction. Downwash was not considered for the Colorado, New Mexico, Tribal and other RFS inventory sources because building dimensions were not available in those inventories.

6.1.4 Conversion of NOx into NO_2

Emissions of NOx as a result of burning natural gas would be primarily in the form of nitrogen oxide, which can be photochemically converted into NO_2 in the presence of ambient ozone. EPA's regulatory default NO_2/NOx conversion ratio of 0.75 (EPA 2003a) was used to estimate NO_2 concentrations for comparison with the annual State and NAAQS. Potential NO_2 impacts were therefore calculated by multiplying the NOx emission rate by 0.75 prior to inclusion in the ISCST3 model. Given the rural nature of the EIS Study Area, this procedure can be viewed as a reasonable but conservative application.

6.2 Far Field Production

The non-steady-state CALPUFF modeling system (including CALMET) was used in the far field analysis. EPA has identified these as preferred Guideline Models (Scire, et al 2000a and 2000b) for both air quality concentration assessments and in determining potential AQRV impacts at source-receptor distances of 50 to several hundred kilometers (EPA 2003b).

6.2.1 CALMET

CALMET is a diagnostic meteorological model that produces three-dimensional wind fields based on large-scale diagnostic flows, ground-level observations, terrain (such as slope flow and terrain blocking) and water body effects. Meteorological observations are used to determine the wind field in areas where the observations are representative, whereas diagnostic winds are given more weight in areas away from observations. The CALMET meteorological model consists of a diagnostic wind field module and a micrometeorological module for determining boundary layers over water and land. The diagnostic wind field module uses a two-step approach to compute wind fields. In the first step, an initial guess wind field is adjusted for kinematic effects of terrain, slope flow and terrain blocking, to produce an initial wind field. The second step consists of an objective analysis procedure to adjust the initial wind field (based on observational data) to produce a final wind field.

In this study, a Lambert Conformal Projection Coordinate System was used to account for the curvature of the Earth.

The major features and options of the meteorological model are summarized in Table 6-1. The techniques used in the CALMET model are briefly described in the following subsections. Hourly CALMET results were combined on a monthly basis and the output files were archived for subsequent air quality impact analysis using CALPUFF.

Table 6-1. Features of the CALMET Meteorological Model

Boundary Layer Modules of CALMET	Diagnostic Wind Field Module of CALMET
Over Land Boundary Layer - Energy Balance Method Over Water Boundary Layer - Profile Method Produces Grided Fields of: ● Surface Friction Velocity ● Convective Velocity Scale ● Monin-Obukhov Length ● Mixing Height ● Pasquill-Gifford Stability Class ● Air Temperature (3-D) ● Precipitation Rate	Slope Flow: ● Kinematic Terrain Effects ● Terrain Blocking Effects ● Divergence Minimization ● Produces Grided Fields of U, V, W Wind Components ● Input Includes Domain-Scale Winds, Observations ● Coarse-Grid Prognostic Model Winds ● Lambert Conformal Projection

6.2.1.1 Modeling Domain

This study utilized the SUIT EIS modeling domain, including portions of southwestern Colorado and northwestern New Mexico, as well as Mesa Verde National Park and the Weminuche Wilderness Area (Figure 1-1). The modeling domain also includes topographical features which would modify the wind flow, including some peak elevations that are more than 2 km above some emission source base elevations.

A spatial resolution of 2 km was used to represent the sharp variations of the terrain elevations in the area. All USGS elevation records located within each grid cell of the modeling domain were averaged to produce a single mean elevation for each grid point. A 2 km grid resolution produced a reasonable number of cells while providing adequate representation of terrain features.

6.2.1.2 Model Options

Terrain

The terrain files used in this analysis were obtained from the SUIT modeling analysis (BLM 2000), derived from the 3 arc-second DEM (USGS 1990), formatted and distributed by the Earth Resources Observation System (EROS) Data Center. USGS 1:250,000 scale topographic maps are the primary source of 1 degree DEMs. These data are provided in files covering 1 degree by 1 degree blocks of latitude and longitude, corresponding to a square of approximately 108 km. The 1 degree DEMs were produced by the Defense Mapping Agency using cartographic and photographic sources (USGS 1987).

One degree DEM data consists of an array of 1201 by 1201 elevations referenced on the geographic (latitude/longitude) coordinate system of the World Geodetic System 1972 Datum. Elevations are in meters relative to mean sea level, with the elevations along each profile spaced at 3 arc seconds (corresponding to approximately 90 m).

Land Use

The USGS land use data in the Study Area were cataloged to produce a grided field of dominant land use categories. The land use data were obtained in Composite Theme Grid format from the EROS Data Center Land Use and Land Cover web site with a resolution of 30 m. (USGS 1990).

Land use data were combined to produce a 2 km resolution grided field of fractional land use categories. The 37 USGS land use categories were then converted into 14 CALMET land use categories. Surface properties such as albedo, Bowen ratio, roughness length and leaf area index were computed proportionally to the fractional land use. Table 6-2 presents the default CALMET land use categories along with their associated geophysical parameters.

6.2.2 CALPUFF

The CALPUFF modeling system (Scire, et al 2000b) Version 5 was used for determining potential air quality impacts within the two distant mandatory federal PSD Class I Areas. CALPUFF, and its meteorological model, CALMET (Scire, et al 2000a), are designed to address the influence of complex terrain on air pollutant transport, and to predict potential impacts at locations 50 to several hundred kilometers away from multiple emission sources. CALPUFF is a non-steady-state Gaussian puff model, and includes algorithms for: building downwash effects; chemical transformation; wet, dry and total atmospheric deposition; as well as assessing the impact of primary and secondary particulate matter (and NO_2 gas) on visibility. The EPA (2003b) has designated CALPUFF as a Guideline model for this type of analysis.

Table 6-2. Default CALMET Land Use Categories and Geophysical Parameters

Land Use Type	USGS Description	Surface Roughness	Albedo	Bowen Ratio	Soil Heat Flux	Leaf Area Index
10	Urban or Built-up Land	1.0	0.18	1.5	0.25	0.2
20	Agricultural Land – Non-irrigated	0.25	0.15	1.0	0.15	3.0
-20 (1)	Agricultural Land – Irrigated	0.25	0.15	0.5	0.15	3.0
30	Rangeland	0.05	0.25	1.0	0.15	0.5
40	Forest Land	1.0	0.10	1.0	0.15	7.0
50	Water	0.001	0.10	0.0	1.0	0.0
51	Small Water Body	0.001	0.10	0.0	1.0	0.0
55	Large Water Body	0.001	0.10	0.0	1.0	0.0
60	Wetland	1.0	0.10	0.5	0.25	2.0
61	Forested Wetland	1.0	0.10	0.5	0.25	2.0
62	Non-forested Wetland	0.2	0.10	0.1	0.25	1.0
70	Barren Land	0.05	0.30	1.0	0.15	0.05
80	Tundra	0.20	0.30	0.5	0.15	0.0
90	Perennial Snow or Ice	0.20	0.70	0.5	0.15	0.0

(1) Negative values indicate "irrigated" land use

Separate CALPUFF modeling runs were made for several discrete emission source groups (as described in Table 6-3). This allowed individual source group impacts to be evaluated for both the Mesa Verde National Park and Weminuche Wilderness PSD Class I Areas. In addition, the individual emission source impacts were combined using a post-processing program to estimate cumulative impacts. CALPUFF was run for an entire year using the hourly meteorological modeling results from CALMET (see Section 6.2.1).

Table 6-3. CALPUFF Emission Source Categories

Source Type	Source Groups Considered (1)
Proposed Action Sources	Alternative 1 (Proposed Action) Alternative 2 (Maximum Development) Alternative 5 (No Action)
Existing Sources	Colorado Permitted New Mexico Permitted Tribal Permitted
Other Reasonably Foreseeable Sources	SUIT EIS (Proposed) Farmington (NM) RMP

(1) Each source group was evaluated in a separate CALPUFF modeling run

6.2.2.1 Modeling Domain

The CALPUFF modeling domain was the same size and resolution as the CALMET meteorological grid. In the vertical dimension, ten separate layers were used, including a finer resolution near the mixed layer and a coarser resolution above the mixed layer. The ten vertical levels used in this analysis were set at 10, 30, 70, 120, 230, 450, 800, 1250, 1850 and 2600 m above the terrain.

6.2.2.2 Receptor Grid

Discrete receptors were located along the external boundaries of Mesa Verde National Park and the Weminuche Wilderness Area, each with a resolution of 1 km. Grided receptors were placed throughout the two Class I Areas with a grid resolution of 2 km. Discrete receptors were also placed at individual lake locations within the Weminuche Wilderness Area, which were identified by the USDA-Forest Service as potentially sensitive to atmospheric deposition. The lake receptors included:

- Big Eldorado Lake;
- Lower Sunlight Lake;
- Upper Sunlight Lake; and
- Upper Grizzly Lake.

Terrain elevations and receptor locations used for Mesa Verde National Park and the Weminuche Wilderness area are illustrated in Figures 6-3 and 6-4, respectively.

Figure 6-3. Far Field Analysis Receptor Grid (Mesa Verde)

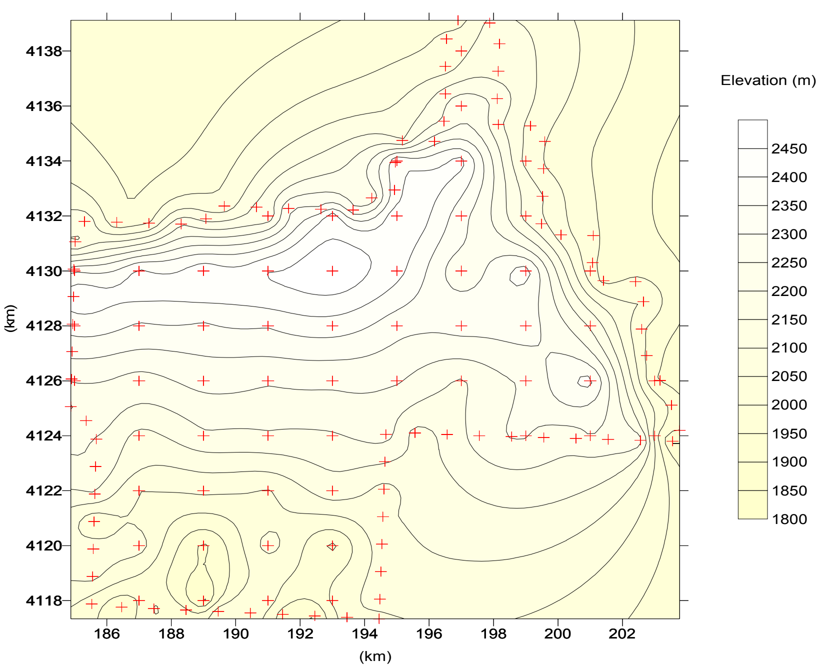
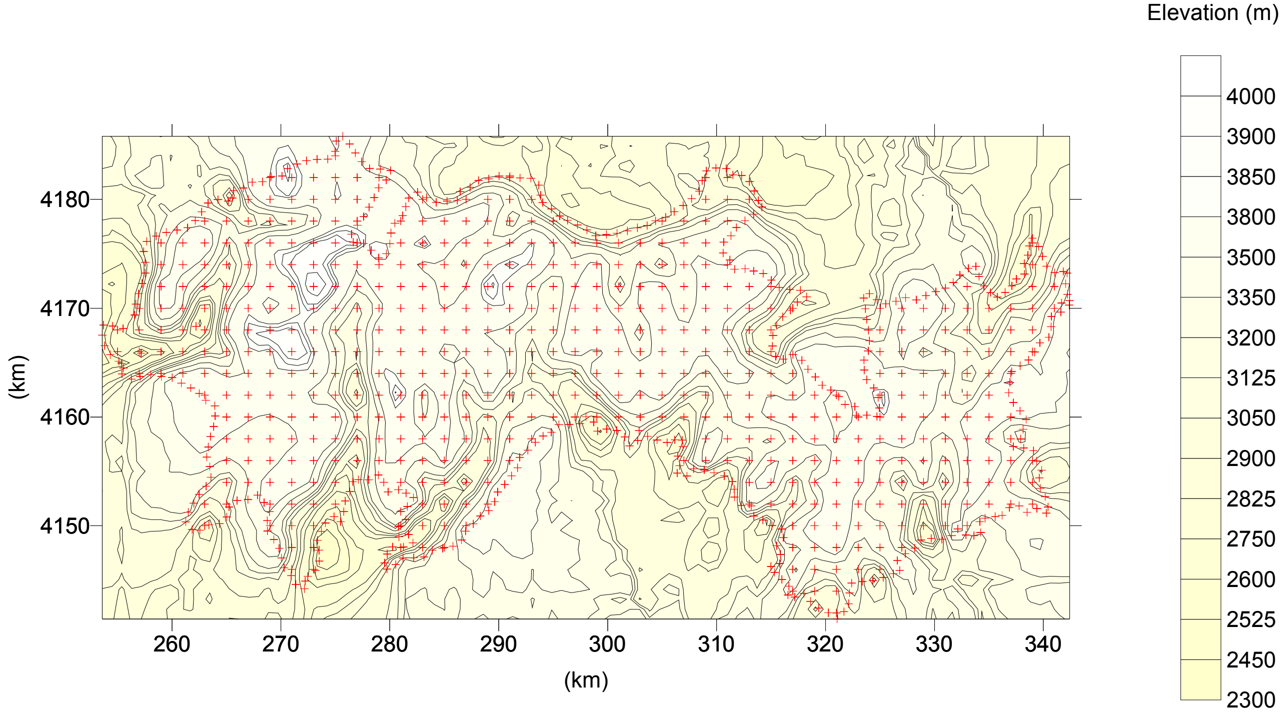


Figure 6-4. Far Field Analysis Receptor Grid (Weminuche)



6.2.2.3 Model Options

The CALPUFF model was run with the following technical options selected:

- Gaussian near field distribution;
- transitional plume rise;
- stack tip downwash;
- Pasquill-Gifford dispersion coefficients (rural areas);
- transition of sigma y to time-dependent (Heffter) puff growth rates;
- wet deposition;
- dry deposition;
- chemical transformation of SO_2 to sulfate ion ($SO_4^{=}$), and NOx/NO_2 to nitric acid (HNO_3) and nitrate ion (NO_3^-), modeled using the MESOPUFF II chemical mechanism (EPA 1994);
- wet and dry deposition effects modeled using the default dry deposition model, dry deposition parameters and scavenging coefficients; and
- EPA default conversion rate of 0.75 was used to estimate the transformation of NOx into NO_2 (see Section 6.1.4).

Terrain and Land Use

The CALPUFF terrain and land use values were identical to those used for the CALMET meteorological model (see Section 6.2.1.2).

6.2.2.4 Background Ammonia Levels

When calculating the chemical transformation of SO_2 and NOx emissions to secondary particulate matter (ammonium sulfate and ammonium nitrate), CALPUFF requires an assumed concentration of background ammonia (NH_3) levels. Since ammonia is not directly measured in the atmosphere, it was computed using a procedure developed for the Southwestern Wyoming Technical Air Forum (Earth Tech, Inc. 2001). This methodology assumes that the amount of ammonia available for forming secondary nitrate may be thought as the residual after secondary sulfate forms (sulfate has a greater affinity to ammonia than nitrate). Therefore, sulfate and nitrate concentrations collected at IMPROVE monitoring sites can be used to estimate the minimum amount of available background ammonia, assuming that all available ammonia is used to produce the measured sulfate and nitrate.

This can be expressed as follows for concentrations in parts per billion (ppb):

$$[NH_3]_{ppb} = [NO_3^-]_{ppb} + 2\,[SO_4^=]_{ppb}$$

or for concentrations in µg/m^3:

$$[NH_3]_{\mu g/m3} = 0.274\,[NO_3^-]_{\mu g/m3} + 0.354\,[SO_4^=]_{\mu g/m3}$$

Therefore, the background ammonia concentration used in CALPUFF was computed by analyzing sulfate and nitrate monitoring data collected at the Mesa Verde and Weminuche Class I Areas since March 1988 (IMPROVE 2003).

The first step in the analysis was to create a database that contained all years of data sorted by sampling date. For each valid IMPROVE sample, the background ammonia concentration was computed using the procedure outlined above. When the reported nitrate concentrations were below the reported minimum detection limit, the concentration was set to the detection limit. Using the individual computed ammonia concentration, the monthly and annual average ammonia were computed. A limitation of this analysis is that the nitrate analytical procedure was modified in 1996. It is not known to what extent this change affected the detection limit, analytical accuracy and precision and sample recovery. However, examination of the calculated mean and standard deviation suggests that the variation before and after this change results in the same level of scatter in the data and, at least for this analysis, this was not a significant issue.

Table 6-4 presents the computed monthly, seasonal and annual background ammonia concentrations for the Mesa Verde and Weminuche Class I Areas. As a result of the low seasonal variability in the calculated background ammonia concentrations, an annual average of 0.38 ppb was used for both the Mesa Verde and Weminuche Class I areas in the CALPUFF modeling analysis.

Table 6-4. CALPUFF Background Ammonia Concentrations

Monthly Average	Mesa Verde (ppb)	Weminuche (ppb)	Average (ppb)
January	0.31	0.20	0.26
February	0.31	0.22	0.26
March	0.36	0.31	0.34
April	0.40	0.36	0.38
May	0.46	0.42	0.44
June	0.50	0.44	0.47
July	0.54	0.44	0.49
August	0.55	0.45	0.50
September	0.55	0.45	0.50
October	0.42	0.36	0.39
November	0.32	0.20	0.26
December	0.33	0.18	0.26
Seasonal Average			
Winter	0.32	0.20	0.26
Spring	0.40	0.36	0.38
Summer	0.53	0.44	0.49
Fall	0.43	0.34	0.38
Annual Average	0.42	0.34	**0.38**

6.2.2.5 Visibility Calculations

Potential visibility impacts were performed using the FLAG (2000) published procedure to calculate a change in extinction (reported in dv) at mandatory federal PSD Class I Areas. Background extinction conditions were determined based on speciated aerosol samples collected using IMPROVE (2003) monitoring protocols at Mesa Verde National Park and Weminuche Wilderness Area, as well as daily average relative humidity values measured at the Albino Canyon, New Mexico, RAWS location (WRCC 2003) as described in Section 4.2 above. Since potential carbon, primary particulate matter, and sulfur emissions would not be significant from the proposed action (or alternatives), permitted but not yet constructed sources, or other RFS, the visibility impact analysis was based on the maximum daily nitrate ion (NO_3^-) and nitrogen dioxide gas (NO_2) concentrations predicted to occur anywhere within each Class I area.

Microsoft Excel© Daily FLAG Refined Analysis Spreadsheets (Archer 2003) for the Mesa Verde National Park and Weminuche Wilderness areas were used to determine the change in extinction as if the maximum daily predicted impacts had occurred during the aerosol sampling period (1988 through 2002). The number of days in excess of a 1.0 dv "Just Noticeable Change," reported as a range of values for the entire aerosol sampling period, was used as the significance threshold. This threshold is based on the original development of the deciview scale (Pitchford and Malm 1994), and is supported by EPA's Final Regional Haze Regulation (64 FR 126, July 1, 1999) decision to use of 1.0 dv as the significance level when preparing periodic reasonable progress reports. However, at the request of the USDA-Forest Service, this analysis also reports the predicted range of days in excess of 0.5 dv (1/2 of a "Just Noticeable Change.")

6.2.2.6 Atmospheric Deposition Calculations

Total predicted dry nitrogen deposition impacts were calculated using the CALPUFF default dry deposition model, dry deposition parameters, and scavenging coefficients. Total predicted wet nitrogen deposition fluxes were computed from the modeled nitrogen species, with a molecular weight adjustment to convert the fluxes to the same units. For total wet nitrogen deposition, the adjustment factors were:

$$\text{Total N} = 0.291667\,[SO_4^{=}] + 0.451613\,[NO_3^{-}] + 0.222222\,[HNO_3] + 0.823529\,[NH_3]$$

Since no large SO_2 emission sources were identified in the proposed action (or alternatives), the permitted but not yet constructed, and other RFS emission source inventories, it was assumed that the change in sulfur deposition would be insignificant. Nitrate ion is assumed to be present as ammonium nitrate secondary particulate matter.

Wet and dry deposition were combined to estimate total nitrogen deposition using the POSTUTIL post processing program. The annual total deposition from each CALPUFF emission source group was calculated separately so that total deposition could be combined for the scenarios of interest. The USDA-Forest Service (Fox, et al 1989) has established a 3 kilogram per hectare per year (kg/ha-yr) total nitrogen deposition acceptable threshold for PSD Class I areas, below which no reductions in emissions would be necessary.

A USDA-Forest Service (2000) has also established a screening methodology to calculate the potential change in ANC at sensitive lakes located within PSD Class I areas. Four sensitive lakes were identified within the Weminuche Wilderness Area, although no sensitive lakes were identified within Mesa Verde National Park. For Upper Grizzly Lake, the minimum measured background ANC was 24.3 μeq/l; the USDA-Forest Service has indicated a threshold of 1 μeq/l change for lakes with background ANC levels less than 25 μeq/l. Since background ANC levels at the remaining three lakes were all above 25 μeq/l, the applicable threshold is a 10 percent change in ANC.

6.3 Construction Impacts

This subsection was originally developed as part of the SUIT Air Quality Analysis (BLM 2000). It is included here for completeness, and is applicable to the proposed action (and alternative) construction impacts.

Construction emissions would primarily occur due to the installation of new wells, which involves three separate, sequential phases:

- well pad and resource road construction;
- rig-up, drill, and rig-down; and
- well completion and testing.

For this analysis, information is not available regarding the actual locations of new wells that would result from the proposed action (or alternatives), nor the likely chronological sequence of their construction. Construction of the additional gas wells and associated equipment from the assumed development would occur over a prolonged period and, for the most part, the resulting air emissions would occur sequentially rather than concurrently. Neither the actual timing of the construction activity at any location nor the chronological sequence of such activities within the overall project can be forecast. For this reason, the impact analysis for the construction phase of the proposed development focused on evaluation of an assumed reasonable, but conservative, construction scenario from a group of four wells.

The scenario selected for the modeling analysis included concurrent, parallel construction of four wells arrayed at the corners of a square with sides of 0.5 mile (805 m). Each of the three project construction activities was assumed to occur simultaneously at all four of these well sites (i.e., resource road and well pad construction at the four locations were assumed to occur on the same three days, etc.) This is a highly unlikely development scenario. Consequently, actual construction impacts are likely to be less than the predicted pollutant concentrations. The assumptions that were used in this analysis are:

- well installation and the associated road building activity would be the primary source of construction phase emissions for the proposed action (and alternatives);
- development of each well and pad was assumed to proceed in a sequential fashion;
- some sizing (hp ratings) and load factors for construction equipment were estimated based on assumptions used in previous analyses for similar projects;
- EPA emission factors were used for estimating construction dust generation and equipment exhaust emissions; and
- SO_2 emissions from natural gas flaring were assumed to be negligible (e.g.; the gas would be “sweet.”)

Maximum background concentrations recorded at the Ignacio air quality monitoring site were assumed to represent the combined contributions of non-project emissions throughout the study area. Maximum near-field pollutant concentrations predicted by the ISCST3 model for the selected reasonable, but conservative, well construction emission scenarios were added to the maximum background concentration to produce maximum total concentrations for comparison with the State and NAAQS. These maximum predicted total concentration values (background plus modeled) are expected to overestimate actual construction impacts because these two events would occur under very different meteorological conditions, which are not expected to coincide.

Potential annual average impacts were not predicted, since construction emissions would result from a series of short-duration activities (nearly 36 days total). In addition, the actual number of wells that would be constructed during any particular year is unknown, and due to the wide geographic distribution of these sources, the cumulative annual average concentration is likely to be small. Past experience has shown that maximum predicted concentrations for shorter averaging times (1 to 24 hr) typically govern compliance with ambient standards for construction activities.

The maximum emission rates for each stage of construction were used in the modeling. The highest emission rates for PM_{10} and SO_2 would occur during the well pad/resource road construction and rig up/drilling/rig down phases, respectively. This modeling approach, with respect to emissions, is conservative. Hourly meteorological input data for the near-field ISCST3 simulations were developed by the CALMET model. Receptors were located at a minimum distance of 0.12 miles (200 m) from the roads and the well pad. Shorter source-receptor distances were considered inappropriate because the heavy equipment operators would not allow closer public access for safety reasons. The interval between receptors was 100 m. Each well pad was modeled as a volume source with horizontal dimensions of 300 ft x 300 ft. Each resource road (0.5 miles long) was modeled as 66 volume sources (66 segments) with horizontal dimensions of 40 ft x 40 ft.

The actual orientation of potential future pads and resource roads is unknown. However, the relative locations of sources with respect to wind direction could affect the dispersion modeling results. Accordingly, an initial set of test modeling runs was conducted to determine the orientation of project construction sources that would produce the highest predicted impact for each pollutant and averaging time. To accomplish this objective, a small hypothetical volume source was modeled with a year of meteorological data to determine the specific wind direction associated with the highest predicted concentrations for 3 and 24 hr averaging times. The sole purpose of this modeling was to determine the reasonable, but conservative orientation of the well pad and resource road sources to maximize the predicted impacts for different pollutants and averaging times.

Next, these initial test results were used to rotate the four well pad and resource road combinations to maximize the potential emissions of PM_{10} and SO_2 that would occur along the wind directions identified in the initial simulations. The "maximum impact" alignments of emission sources were then assumed in all subsequent simulations for a particular pollutant averaging time combination.

Receptors for the tests consisted of polar and Cartesian grid receptor networks starting at a distance of 200 m from the source. A variable hourly emission rate option was used for fugitive dust (PM_{10}) since the mechanical disturbance caused by construction equipment would only occur during the 8 hr workday. On the other hand, potential emissions due to well flaring were assumed to occur on a 24 hr basis.

7.0 Assessment of Air Quality Impacts

7.1 Near Field Impacts

7.1.1 State and NAAQS

A modeling analysis of total cumulative air quality impacts was performed to demonstrate that the combined effects of the proposed action (and alternatives), existing (including permitted but not operating sources), and other RFS would not violate applicable State and NAAQS. Total pollutant concentrations were represented by adding the maximum measured background pollutant concentrations for a given averaging period at the Ignacio monitoring station (or other values suggested by CDPHE-APCD) to the maximum predicted concentrations for determining compliance with the State and NAAQS. Compliance with the CO (1- and 8-hr) as well as NO_2 (annual) standards was demonstrated.

Carbon monoxide

Modeling was conducted to demonstrate compliance with the CO 1-hr NAAQS of 40,000 $\mu g/m^3$ and the 8-hr NAAQS of 10,000 $\mu g/m^3$ (Table 7-1). Modeling was performed for Alternatives 1, 2 and 5, and for all of these cases, the maximum predicted concentration was less than the EPA significance levels (2,000 $\mu g/m^3$ for 1-hr and 500 $\mu g/m^3$ for 8-hr) for potential cumulative impacts. Since the predicted concentrations were below these thresholds, additional cumulative modeling was not conducted because it is very unlikely that these sources in combination with other existing sources would violate the State and NAAQS. This is consistent with EPA and CDPHE-APCD modeling guidelines.

Nitrogen dioxide

Given the large number of NOx emission sources and receptors in the modeling domain, the NO_2 modeling analysis examined separate NOx subgroups, then combined these subgroups with a simple post processing procedure for comparison to the State and NAAQS. This approach is reasonable but conservative since impacts from existing compressors and other SUIT sources were also represented by the maximum background measurements. In addition, due to the complexity of the source inventories, some sources may have been included in more than one of the source group inventories. The separate NOx subgroups as modeled were:

- the Proposed Action (Alternative 1), Alternatives 2 and 5;
- existing State of Colorado Sources;
- existing State of New Mexico Sources;
- existing Tribal Sources; and
- other RFS (SUIT EIS and Farmington RMP) Sources.

Table 7-2 presents the maximum predicted direct and cumulative (including other existing sources, RFS and background) concentrations where the proposed action (and alternative) sources would have their maximum impacts. As indicated in this table, the cumulative impacts are well below the applicable NO_2 annual State and NAAQS of 100 µg/m^3 (Alternative 1 is 38.7 µg/m^3, Alternative 2 is 38.4 µg/m^3 and Alternative 5 is 37.1 µg/m^3).

Table 7-1. Maximum Predicted CO Direct Near Field Impacts (µg/m^3)

	Alternative 1 (Proposed Action)	Alternative 2 (Maximum Development)	Alternative 5 (No Action)
Maximum Direct 1-hr Impact	991	1,218	646
EPA Cumulative Significance Threshold	2,000	2,000	2,000
Maximum 1-hr Background	2,286	2,286	2,286
Total 1-hr Impact	3,277	3,504	2,932
1-hr NAAQS	40,000	40,000	40,000
Location of Maximum 1-hr Impact UTM Easting (m) UTM Northing (m)	 274,400 4,114,200	 250,000 4,124,900	 250,000 4,124,900
Maximum Direct 8-hr Impact	389	431	382
EPA Cumulative Significance Threshold	500	500	500
Maximum 8-hr Background	2,286	2,286	2,286
Total 8-hr Impact	2,675	2,717	2,668
8-hr NAAQS	10,000	10,000	10,000
Location of Maximum 8-hr Impact UTM Easting (m) UTM Northing (m)	 289,610 4,120,600	 271,800 4,126,100	 271,800 4,126,100

UTM - Universal Transverse Mercator

Table 7-2. Maximum Predicted NO_2 Direct Near Field Impacts (µg/m^3) (1)

	Alternative 1 (Proposed Action)	Alternative 2 (Maximum Development)	Alternative 3 (No Action)
Maximum Direct Annual Impact (2)	24.8	24.8	23.6
PSD Class II Increment	25	25	25
Maximum Annual Background	9.4	9.4	9.4
Other Existing and RFS Impact	4.5	4.2	4.1
Total Annual Impact	38.7	38.4	37.1
Annual NAAQS	100	100	100
Location of Maximum Annual Impact UTM Easting (m) UTM Northing (m)	 289,000 4,115,000	 288,400 4,112,800	 288,400 4,112,800

(1) At those locations where the proposed action (or alternative) has their maximum predicted impact
(2) The maximum predicted impact occurs near the same source in both Alternative 1 and 2.

Table 7-3 presents the maximum total cumulative concentrations where all sources would have their maximum impacts. The majority of the contributions come from existing (Tribal and Colorado) emission source inventories. As indicated, the maximum total cumulative impacts (including background) are just below the applicable NO_2 annual State and NAAQS of 100 μg/m^3 (Alternative 1 is 93.0 μg/m^3, Alternative 2 is 93.2 μg/m^3 and Alternative 5 is 92.8 μg/m^3). Therefore, compliance of the annual NO_2 NAAQS is demonstrated. These modeling results are a reasonable but conservative estimate as a result of combining the maximum modeled impacts with the maximum observed background concentrations, and by using EPA's regulatory default NOx to NO_2 conversion rate. In a rural environment, it is likely that the actual conversion rate would be less than the default value of 0.75; consequently, actual impacts are likely to be less than the model estimates.

Table 7-3. Maximum Total NO_2 Cumulative Far Field Impacts (μg/m^3) (1)

	Alternative 1 (Proposed Action)	**Alternative 2 (Maximum Development)**	**Alternative 3 (No Action)**
Maximum Direct Annual Impact	0.83	0.99	0.61
Maximum Annual Background	9.4	9.4	9.4
Other Existing and RFS Impact	82.8	82.8	82.8
Total Annual Impact	93.0	93.2	92.8
Annual NAAQS	100	100	100
Location of Maximum Annual Impact UTM Easting (m) UTM Northing (m)	 253,500 4,108,500	 253,500 4,108,500	 253,500 4,108,500

(1) At the location of maximum cumulative impact

Figures 7-1 through 7-3 graphically present the spatial distribution of the annual NO_2 concentrations for these alternatives. It is important to note that only a limited area around the maximum total NO_2 cumulative impact exceed 75 μg/m^3 and these areas are outside the area of the proposed development. In addition, most of the study area shows predicted impacts below 10 μg/m^3.

Figure 7-1. Cumulative Annual Average NO_2 Impacts from Alternative 1 (Proposed Action)

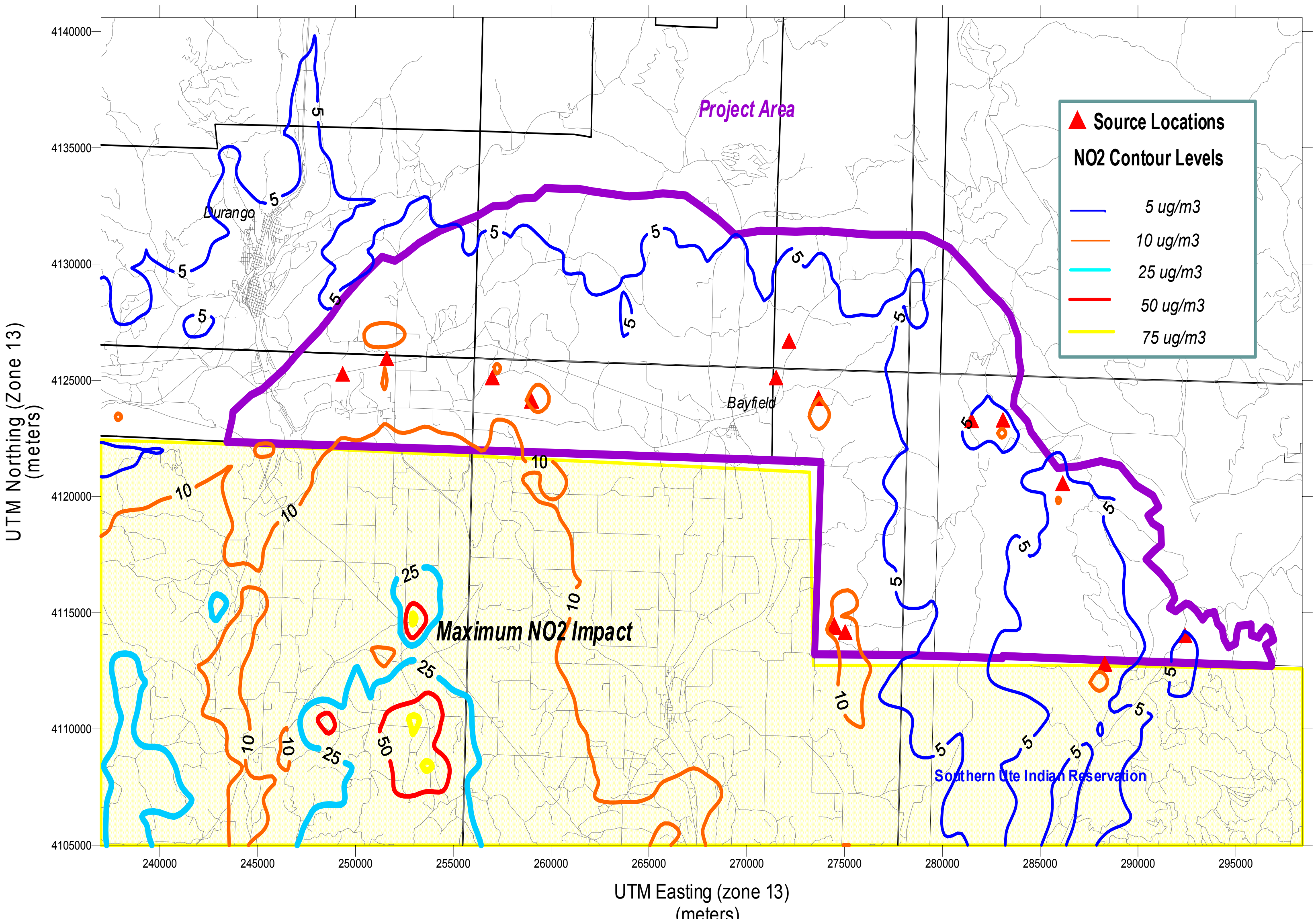


Figure 7-2. Cumulative Annual Average NO_2 Impacts from Alternative 2 (Maximum Development)

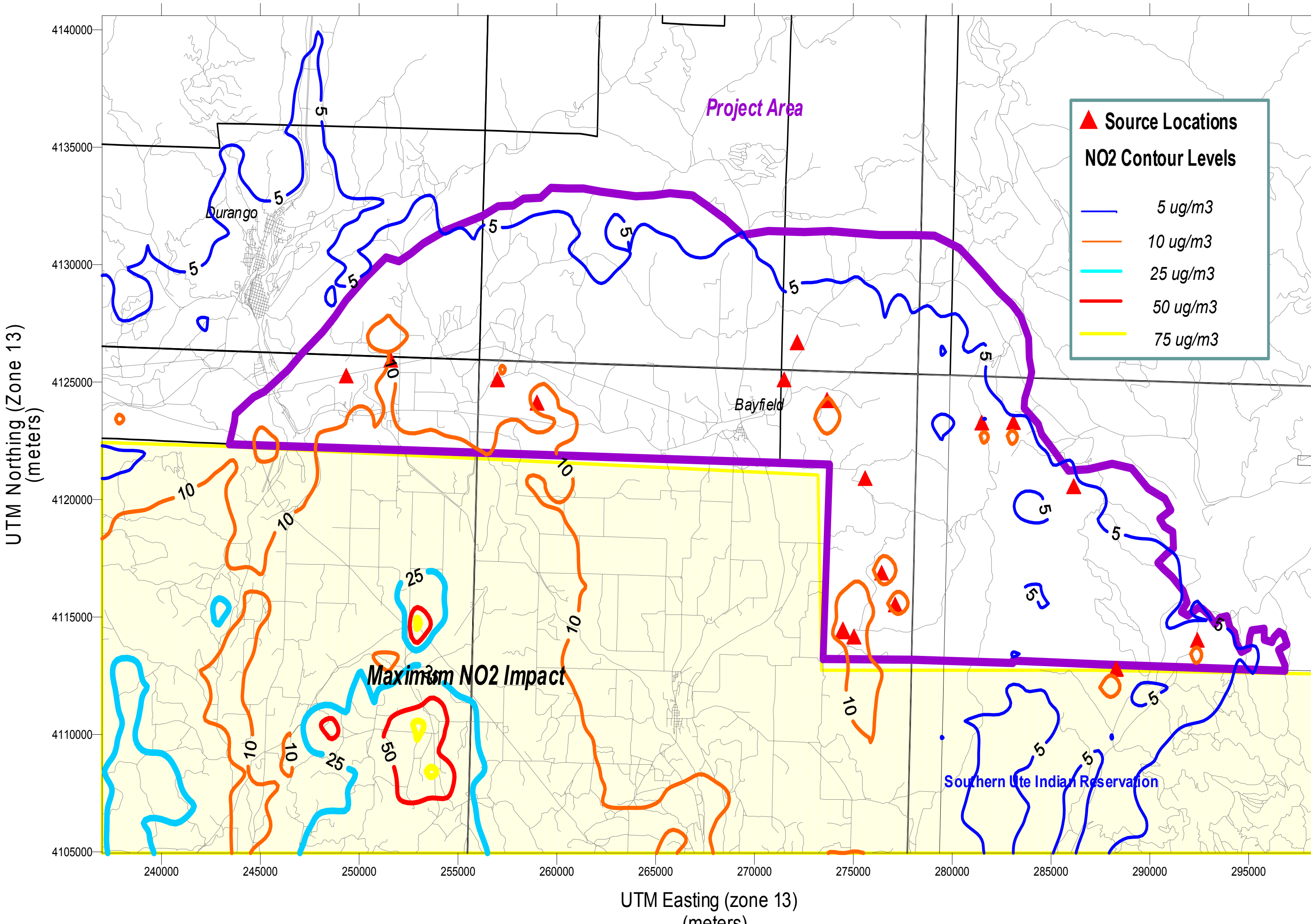
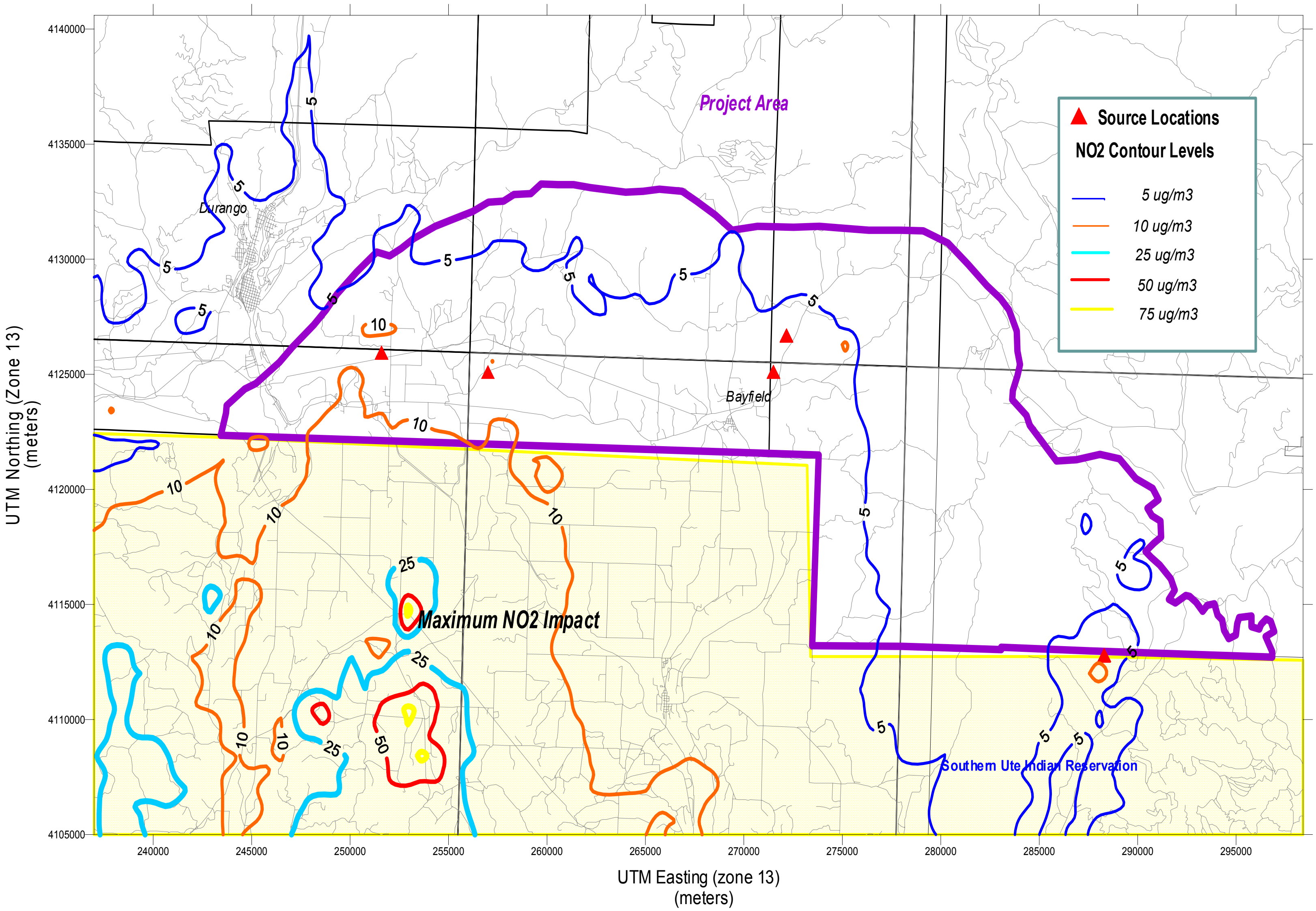


Figure 7-3. Cumulative Annual Average NO_2 Impacts from Alternative 5 (No Action)



7.1.2 PSD Increment Values (Proposed Action and Alternatives)

Near-field modeling was also conducted to compare predicted impacts from the proposed action (and alternatives) directly to PSD Class II increments. Given the lack of detailed engineering data available for this EIS analysis, as well as information regarding which existing sources actually consume the increments, a rigorous PSD analysis is not possible. Further, BLM does not have the regulatory authority to conduct such an analysis. This comparison was made to indicate potential significance only, and is not intended to be a regulatory PSD increment consumption analysis.

The regulatory authority responsible for administrating the PSD program is also responsible for performing a detailed increment analysis; such an analysis would be based on established baseline conditions, permit application data, and existing increment consuming sources, but not sources that are simply undergoing NEPA review. Because this is not a regulatory PSD increment analysis, these results are presented for disclosure purposes only.

Table 7-2 presents maximum predicted NO_2 direct annual impacts for Alternatives 1, 2 and 5. Under Alternatives 1 and 2, the maximum predicted direct annual impacts would be just less than the PSD Class II Increment of 25 $\mu g/m^3$, both at 24.8 $\mu g/m^3$. This impact was predicted to occur immediately next to the proposed Elmridge 1 compressor station. The maximum impact under Alternative 5 would be 23.6 ug/m^3 which is also less than the applicable PSD Class II Increment.

7.1.3 Incremental Risk from HAPs

As previously stated, the only HAP that would be emitted from the sources associated with the proposed action (and alternatives) is formaldehyde. Maximum cumulative concentrations of formaldehyde associated with the proposed engines (central compressors and small wellhead engines) were used to evaluate incremental health risks. This analysis focused on potential incremental cancer risk to the most likely exposed (MLE) and the maximum exposed individual (MEI). Long-term (annual average) formaldehyde concentrations were adjusted for the expected project lifetime, then multiplied by EPA's formaldehyde unit risk factor, to obtain an estimate of incremental cancer risk. The calculated "cancer risk" reflects the maximum potential incremental risk, but does not represent the total risk to any particular individual.

The incremental cancer risk was based on the maximum predicted annual average formaldehyde concentration, and EPA's unit risk factor of 1.3×10^{-5} (EPA 2003c). The resulting estimated MLE and MEI incremental cancer risks were compared against the cancer risk threshold range of 1 to 100×10^{-6}, (e.g.; 10^{-4} to 10^{-6}). The cancer risk values were also adjusted to account for duration of exposure and time spent at home as detailed below. The EPA MLE criterion assumes that a person would be exposed to the maximum concentration continuously for a period of 70 yr. The criterion allows for an adjustment to reflect the normal years of occupancy at a specific residence.

For the MLE scenario, the exposure duration is assumed to be 9 yr, which corresponds to the mean duration that a family remains at a single residence (EPA 1992). The resulting MLE residency adjustment factor for 9 yr ÷ 70 yr is 0.129. A second daily exposure factor accounts for the percentage of time during any given day that a potentially exposed person is at home. The analysis assumed a maximum "at home" exposure fraction of 0.64. During the remainder of the day, it was conservatively assumed the same individual would be exposed to 25 percent of the maximum concentration. Therefore, the MLE daily exposure adjustment factor was [(0.64 x (1.0)] + [(0.36) x (0.25)], or 0.73. Combining the two adjustment factors for the MLE scenario results in an overall adjustment value of 0.0939 (0.129 x 0.73).

For the MEI scenario, the exposure duration was assumed to be the life of a typical natural gas well, or 20 yr. Thus, the MEI residency adjustment factor was 20 yr ÷ 70 yr, or 0.286. For the MEI scenario, it was conservatively assumed that a person would remain at home 24 hr per day for the entire 20 yr production period; therefore the daily adjustment factor was 1.0. Combining the two adjustment factors for the MEI scenario results in an overall adjustment value of 0.286 (0.286 x 1.0).

To calculate the incremental cancer risk for the MLE and MEI scenarios, the maximum annual predicted formaldehyde concentration was first multiplied by EPA's unit risk factor, and then by the appropriate overall adjustment values (Table 7-4). The maximum annual formaldehyde concentration was predicted to be 3.8 $\mu g/m^3$, at 320-m (nearly 1,050 ft) from a central compressor station for all alternatives. Therefore, the calculated MLE and MEI values became 4.7 x 10^{-6} and 14.2 x 10^{-6}, respectively, which are both within the acceptable 1 to 100 x 10^{-6} range of risk impacts. Figures 7-4 and 7-5 present risk contours for the MLE and MEI for Alternative 2 (Maximum Development).

Table 7-4. Maximum Predicted Incremental Cancer Risks by Alternative

Alternative	Maximum conc. ($\mu g/m^3$)	UTM Easting (m)	UTM Northing (m)	Unit Risk Factor	MLE exposure factor	MEI exposure factor	Total MLE Risk	Total MEI Risk
Proposed Action	3.8	288,400	4,112,800	1.30 x 10^{-5}	0.0939	0.286	4.7 x 10^{-6}	14.2 x 10^{-6}
Maximum Development	3.8	288,400	4,112,800	1.30 x 10^{-5}	0.0939	0.286	4.7 x 10^{-6}	14.2 x 10^{-6}
No Action	3.8	288,400	4,112,800	1.30 x 10^{-5}	0.0939	0.286	4.7 x 10^{-6}	14.2 x 10^{-6}

7.2 Far Field Impacts

The far field analysis presents four different combinations of emission source impacts (using CALPUFF) within Mesa Verde National Park and the Weminuche Wilderness PSD Class I Areas. First, direct modeling results are presented for the proposed action and alternative emission sources (Alternatives 1, 2 and 5). Next, these proposed action (and alternative) impacts were combined those from existing New Mexico, Colorado, and Tribal emission sources, as well as other RFS (SUIT EIS) sources. The third analysis included all of the previously mentioned sources, plus other RFS sources identified in the Farmington RMP analysis (including small wellhead engines operating at 9.62 g/hp-hr NOx emissions). The final method was for all of the previous sources, however assuming that the Farmington RMP small wellhead engines would be controlled at a level of 2 g/hp-hr NOx emissions. It should be noted that for this last case, the small engine emissions associated with the Proposed Action (Alternative 1) were assumed to be operating at 10 g/hp-hr NOx emissions.

Figure 7-4. HAP Incremental Risk Analysis for Formaldehyde MLE (Maximum Development)

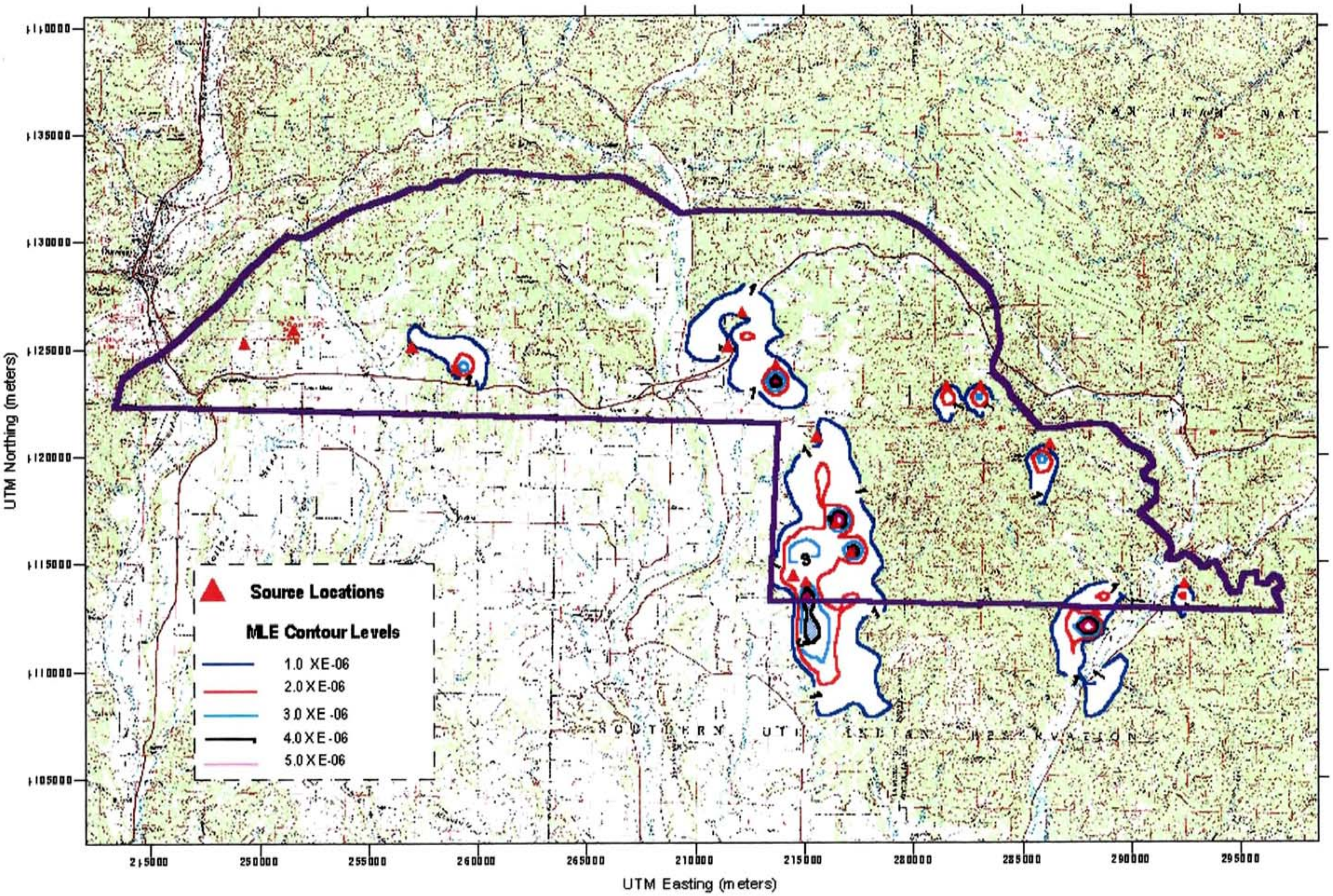
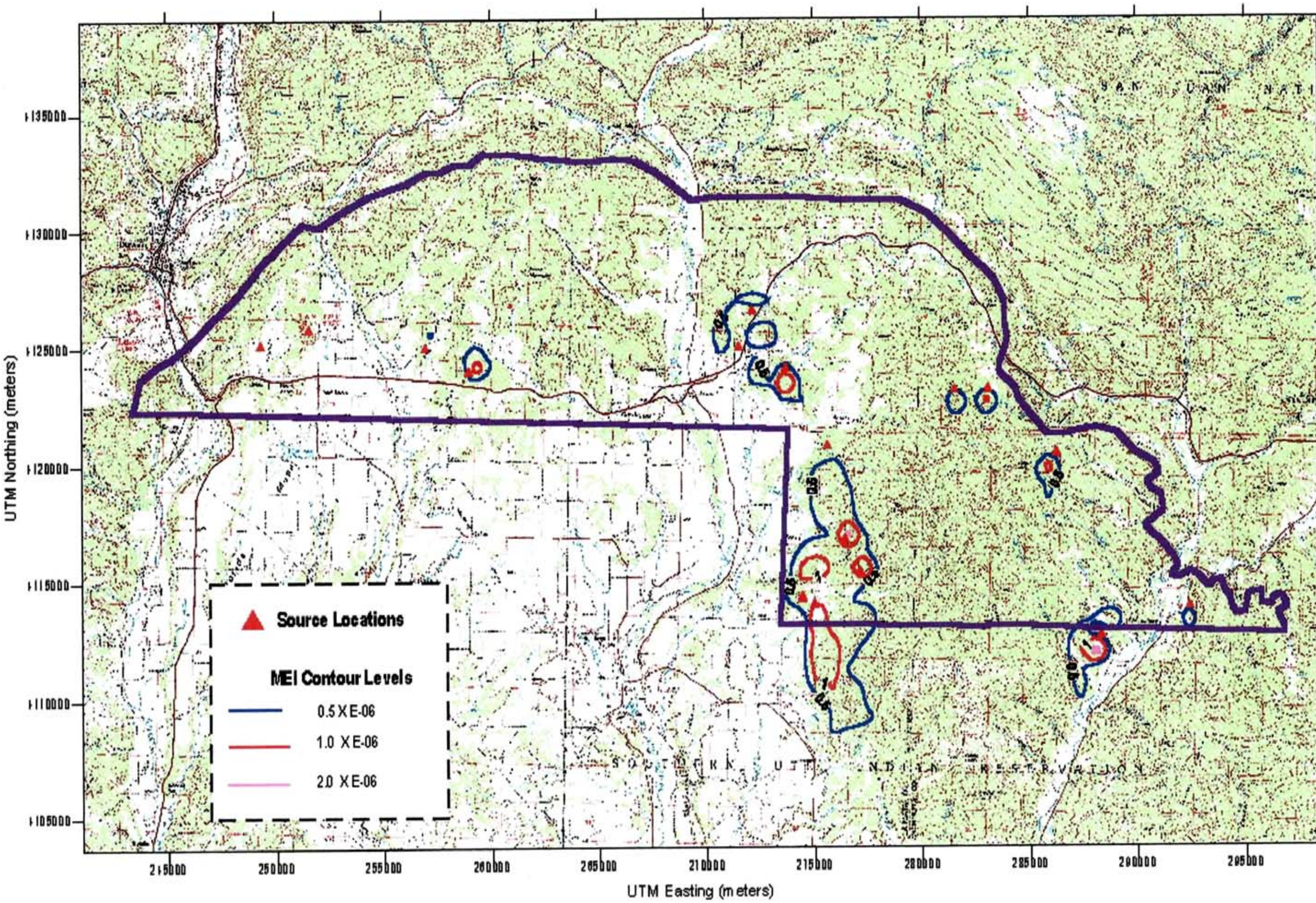


Figure 7-5. HAP Incremental Risk Analysis for Formaldehyde MEI (Maximum Development)



7.2.1 State and NAAQS

A modeling analysis of direct and cumulative air quality impacts was performed to demonstrate the effects of the proposed action (and alternatives) alone, and in conjunction with existing and other RFS, would not result in exceedances of State and NAAQS. Background air pollutant concentrations provided by the State of Colorado for Mesa Verde National Park and the Weminuche Wilderness Area (Table 4-2) were added to the CALPUFF predicted concentrations, and then compared to applicable ambient air quality standards.

Table 7-5 presents a summary of maximum predicted annual average NO_2 concentrations at the Mesa Verde Class I Area under the various emission source combinations. As indicated, all predicted impacts would be well below the applicable annual NO_2 State and NAAQS of 100 $\mu g/m^3$. The highest predicted direct cumulative NO_2 impacts at Mesa Verde were 0.51 $\mu g/m^3$ for Alternative 1, 0.57 $\mu g/m^3$ for Alternative 2 and 0.49 $\mu g/m^3$ for Alternative 5. When added to an assumed background concentration of 9 $\mu g/m^3$, total cumulative NO_2 impacts represent nearly 10 percent of the NAAQS. The predicted impacts from the proposed action (and alternatives) sources alone contributed up to 5 percent of the total cumulative predicted impacts.

Table 7-6 presents a summary of maximum predicted annual average NO_2 concentrations at the Weminuche Class I Area under the various emission source combinations. As indicated, all predicted impacts would be well below the applicable annual NO_2 State and NAAQS of 100 $\mu g/m^3$. The highest predicted direct cumulative NO_2 impacts at Weminuche were 0.27 $\mu g/m^3$ for Alternative 1, 0.33 $\mu g/m^3$ for Alternative 2 and 0.21 $\mu g/m^3$ for Alternative 5. When added to an assumed background concentration of 9 $\mu g/m^3$, total cumulative NO_2 impacts represent nearly 10 percent of the NAAQS. The predicted impacts from the proposed action (and alternatives) sources alone contributed up to 36 percent of the total cumulative predicted impacts.

7.2.2 PSD Increment Values (Proposed Action and Alternatives)

Far-field modeling was also conducted to compare predicted impacts from the proposed action (and alternatives) directly to PSD Class I increments. Given the lack of detailed engineering data available for this EIS analysis, as well as information regarding which existing sources actually consume the increments, a rigorous PSD analysis is not possible. Further, BLM does not have the regulatory authority to conduct such an analysis. This comparison was made to indicate potential significance only, and is not intended to be a regulatory PSD increment consumption analysis.

The regulatory authority responsible for administrating the PSD program is also responsible for performing a detailed increment analysis; such an analysis would be based on established baseline conditions, permit application data, and existing increment consuming sources, but not sources that are simply undergoing NEPA review. Because this is not a regulatory PSD increment analysis, these results are presented for disclosure purposes only.

As indicated in Tables 7-5 and 7-6, the maximum predicted NO_2 direct annual impacts for Alternatives 1, 2 and 5 were all well below the applicable PSD Class I Increment of 2.5 $\mu g/m^3$ within both PSD Class I areas.

Table 7-5. Annual Average NO_2 Impact Summary (Mesa Verde)

Emission Source Group	Maximum Direct Impact (μg/m³)	UTM Easting (m)	UTM Northing (m)	PSD Class I Increment (μg/m³)	Percent of PSD Class I Increment	Assumed Background (μg/m³)	Maximum Total Impact (μg/m³)	NAAQS (μg/m³)	Percent of NAAQS
Alt 1 (Proposed Action)	0.02	202,555	4,123,835	2.5	< 1	9	9.02	100	9
Alt 2 (Maximum Development)	0.03	202,555	4,123,835	2.5	< 1	9	9.02	100	9
Alt 5 (No Action)	0.00	203,775	4,125,199	2.5	< 1	9	9.00	100	9
Alt 1 + Existing + RFS	0.25	202,555	4,123,835	2.5	10	9	9.25	100	9
Alt 2 + Existing + RFS	0.26	202,555	4,123,835	2.5	10	9	9.26	100	9
Alt 5 + Existing + RFS	0.24	202,555	4,123,835	2.5	10	9	9.24	100	9
Alt 1 + Existing + RFS + FRMP	0.51	202,555	4,123,835	2.5	20	9	9.51	100	10
Alt 2 + Existing + RFS + FRMP	0.57	202,555	4,123,835	2.5	21	9	9.52	100	10
Alt 5 + Existing + RFS + FRMP	0.49	202,555	4,123,835	2.5	20	9	9.49	100	9
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.37	202,555	4,123,835	2.5	15	9	9.37	100	9
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.52	202,555	4,123.835	2.5	21	9	9.52	100	10
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.36	202,555	4,123,835	2.5	14	9	9.36	100	9

Table 7-6. Annual Average NO_2 Impact Summary (Weminuche)

Emission Source Group	Maximum Direct Impact (µg/m³)	UTM Easting (m)	UTM Northing (m)	PSD Class I Increment (µg/m³)	Percent of PSD Class I Increment	Assumed Background (µg/m³)	Maximum Total Impact (µg/m³)	NAAQS (µg/m³)	Percent of NAAQS
Alt 1 (Proposed Action)	0.07	272,162	4,144,211	2.5	3	9	9.07	100	9
Alt 2 (Maximum Development)	0.12	272,162	4,144,211	2.5	5	9	9.12	100	9
Alt 5 (No Action)	0.01	272,162	4,144,211	2.5	< 1	9	9.01	100	9
Alt 1 + Existing + RFS	0.18	272,162	4,144,211	2.5	7	9	9.18	100	9
Alt 2 + Existing + RFS	0.24	272,162	4,144,211	2.5	10	9	9.24	100	9
Alt 5 + Existing + RFS	0.12	272,162	4,144,211	2.5	5	9	9.12	100	9
Alt 1 + Existing + RFS + FRMP	0.27	272,162	4,144,211	2.5	11	9	9.27	100	9
Alt 2 + Existing + RFS + FRMP	0.33	272,162	4,144,211	2.5	13	9	9.33	100	9
Alt 5 + Existing + RFS + FRMP	0.21	272,162	4,144,211	2.5	8	9	9.21	100	9
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.22	272,162	4,144,211	2.5	9	9	9.22	100	9
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.28	272,162	4,144,211	2.5	13	9	9.33	100	9
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.16	272,162	4,144,211	2.5	7	9	9.16	100	9

7.2.3 AQRV Impacts

7.2.3.1 Visibility

Tables 7-7 and 7-8 present a summary of the potential cumulative changes in visibility within the Mesa Verde and Weminuche Class I Areas. These tables present the minimum, maximum, and average number of days per year where the reduction in visibility was predicted to exceed a 1.0 dv "just noticeable change" (equivalent to a 10 percent change in extinction). At the request of the USDA-Forest Service, the same information is presented for a 0.5 dv 1/2 of a "just noticeable change" threshold. The maximum predicted single day change in visibility is also presented.

As indicated in Table 7-7, the maximum predicted direct visibility impacts for all alternatives at Mesa Verde are less than 1.0 dv. At Weminuche, up to three days were predicted to exceed 1.0 dv annually under Alternatives 1 and 2 (Table 7-8).

At Mesa Verde (Table 7-7), the maximum cumulative impacts from all sources combined was between 15 and 32 days per year greater than a 1.0 dv "just noticeable change" under Alternative 2 (assuming Farmington RMP small wellhead engines would operate at 9.62 g/hp-hr NOx emissions). If the Farmington RMP small wellhead engines were limited to 2.0 g/hp-hr NOx emissions, the maximum cumulative impacts are reduced to between 4 and 16 days greater than a 1.0 dv annually.

At the Weminuche Class I Area (Table 7-8), the maximum cumulative impacts from all sources combined was between 11 and 25 days per year greater than a 1.0 dv "just noticeable change" under Alternative 2 (assuming Farmington RMP small wellhead engines would operate at 9.62 g/hp-hr NOx emissions). If the Farmington RMP small wellhead engines were limited to 2.0 g/hp-hr NOx emissions, the maximum cumulative impacts are reduced to between 5 and 17 days greater than a 1.0 dv annually.

7.2.3.2 Atmospheric Deposition

A modeling analysis of total cumulative atmospheric deposition was performed to demonstrate the combined effects of the proposed action (and alternatives) in conjunction with existing and other RFS would not exceed the USDA-Forest Service total nitrogen deposition threshold (Fox, et al 1989) of 3 kg/ha-yr in each Class I area. Since no SO_2 emission sources would be associated with the proposed action (or alternatives), it was assumed that additional sulfur deposition would be negligible. Table 7-9 presents a summary of maximum predicted total annual nitrogen deposition within the Mesa Verde and Weminuche Class I areas. In addition, Figures 7-6 and 7-7 present these modeling results graphically.

The maximum predicted total annual nitrogen deposition within Mesa Verde National Park was 0.22 kg/ha-yr, under the cumulative Maximum Development (Alternative 2) scenario. As indicated in Figure 7-6, the maximum impacts would occur in the southeast corner of Mesa Verde and would decrease towards the northwest.

Table 7-7. Visibility Impact Summary (Mesa Verde)

Emission Source Group	Maximum Single Day Impact (dv)	Number of Days > 0.5 dv change			Number of Days > 1.0 dv change		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Alt 1 (Proposed Action)	0.34	0	0	0	0	0	0
Alt 2 (Maximum Development)	0.49	0	0	0	0	0	0
Alt 5 (No Action)	0.12	0	0	0	0	0	0
Existing + RFS Only	2.07	3	18	11.2	0	4	1.3
FRMP Only (9.6 g/hp-hr)	4.59	32	52	40.5	7	24	15.9
FRMP Only (2.0 g/hp-hr)	2.71	6	19	12.1	0	5	1.5
Alt 1 + Existing + RFS	2.31	6	20	12.6	0	3	1.3
Alt 2 + Existing + RFS	2.44	9	21	14.2	0	4	1.7
Alt 5 + Existing + RFS	2.13	6	18	10.5	0	3	1.3
Alt 1 + Existing + RFS + FRMP	6.25	36	65	52.9	14	31	20.8
Alt 2 + Existing + RFS + FRMP	6.34	37	64	53.5	15	32	22.2
Alt 5 + Existing + RFS + FRMP	6.12	36	61	51.5	11	32	20.3
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	3.84	23	43	31.2	4	11	7.5
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	3.97	24	48	32.4	4	16	8.2
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	3.66	21	43	30.6	3	13	7.0

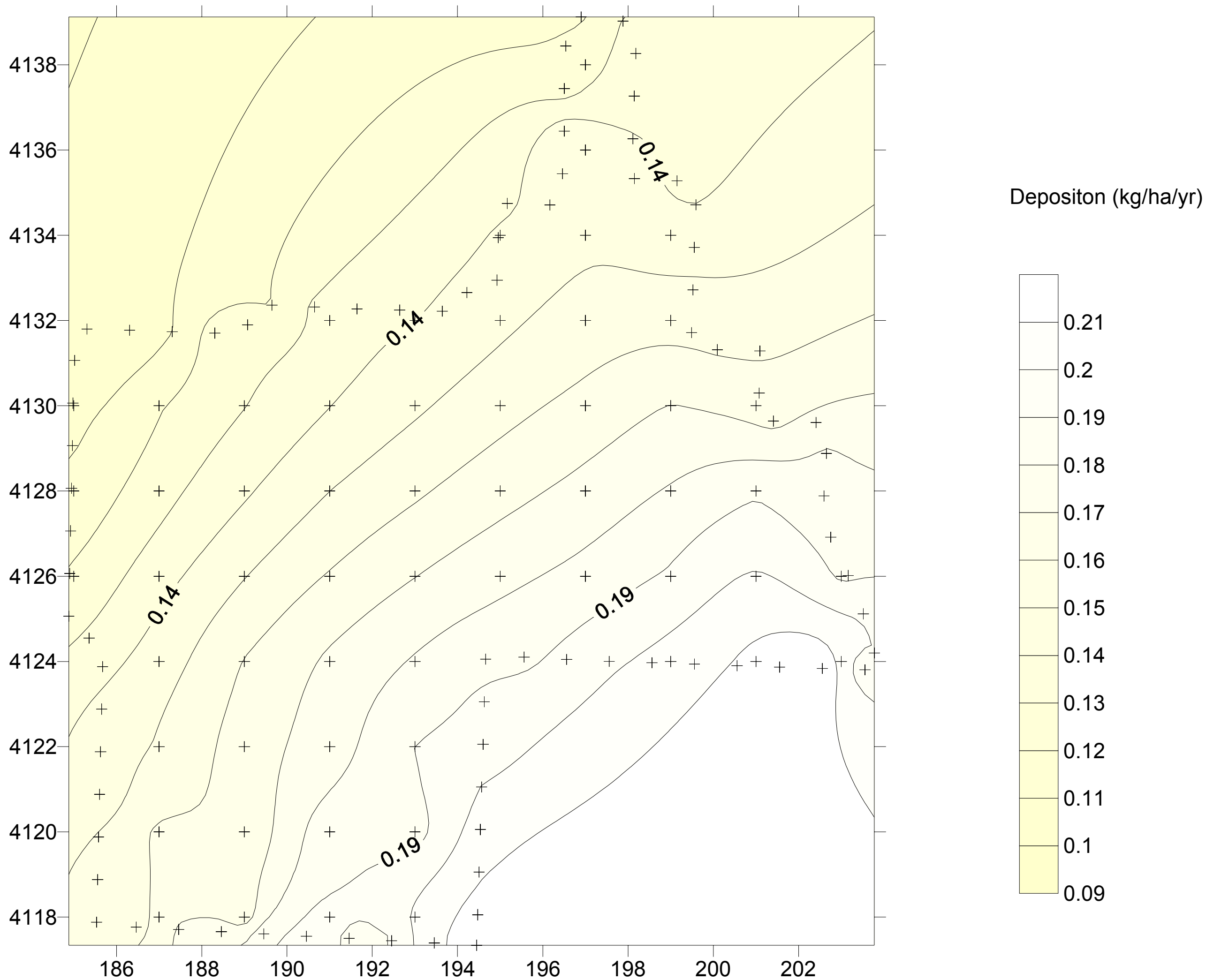
Table 7-8. Visibility Impact Summary (Weminuche)

Emission Source Group	Maximum Single Day Impact (dv)	Number of Days > 0.5 dv change			Number of Days > 1.0 dv change		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Alt 1 (Proposed Action)	1.67	2	11	4.9	0	3	0.9
Alt 2 (Maximum Development)	1.59	1	10	4.5	0	3	0.5
Alt 5 (No Action)	0.37	0	0	0	0	0	0
Existing + RFS Only	1.67	3	16	7.8	0	5	1.3
FRMP Only (9.6 g/hp-hr)	3.52	10	22	15.3	1	12	4.3
FRMP Only (2.0 g/hp-hr)	1.37	1	8	3.5	0	2	0.4
Alt 1 + Existing + RFS	2.14	1	12	6.7	0	3	1.1
Alt 2 + Existing + RFS	2.51	12	30	19.5	0	12	4.7
Alt 5 + Existing + RFS	1.93	3	17	9.1	0	6	1.6
Alt 1 + Existing + RFS + FRMP	4.75	25	47	36.0	9	21	15.0
Alt 2 + Existing + RFS + FRMP	4.98	34	53	43.5	11	25	18.0
Alt 5 + Existing + RFS + FRMP	4.93	23	42	32.5	5	20	12.5
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	3.13	15	35	24.3	2	15	7.9
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	4.04	23	43	30.0	5	17	10.1
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	2.75	12	27	18.8	1	12	5.2

Table 7-9. Atmospheric Deposition Impact Summary

Emission Source Group	Mesa Verde National Park			Weminuche Wilderness Area		
	Maximum Deposition (kg/ha-yr)	UTM Easting (m)	UTM Northing (m)	Maximum Deposition (kg/ha-yr)	UTM Easting (m)	UTM Northing (m)
Alt 1 (Proposed Action)	0.009	202.555	4123.835	0.007	272,162	4,144,211
Alt 2 (Maximum Development)	0.013	202.555	4123.835	0.054	272,162	4,144,211
Alt 5 (No Action)	0.002	203.775	4124.199	0.006	272,162	4,144,211
Alt 1 + Existing + RFS	0.097	202.555	4123.835	0.070	271,000	4,146,000
Alt 2 + Existing + RFS	0.101			0.109	271,000	4,146,000
Alt 5 + Existing + RFS	0.091	202.555	4123.835	0.069	271,000	4,146,000
		202.555	4123.835			
Alt 1 + Existing + RFS + FRMP	0.216	202.555	4123.835	0.142	271,000	4,146,000
Alt 2 + Existing + RFS + FRMP	0.220			0.181	271,000	4,146,000
Alt 5 + Existing + RFS + FRMP	0.210	194.451	4117.34	0.142	271,000	4,146,000
		194.451	4117.34			
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.152			0.102	271,000	4,146,000
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.156	202.555	4123.835	0.141	271,000	4,146,000
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	0.146	202.555	4123.835	0.102	271,000	4,146,000

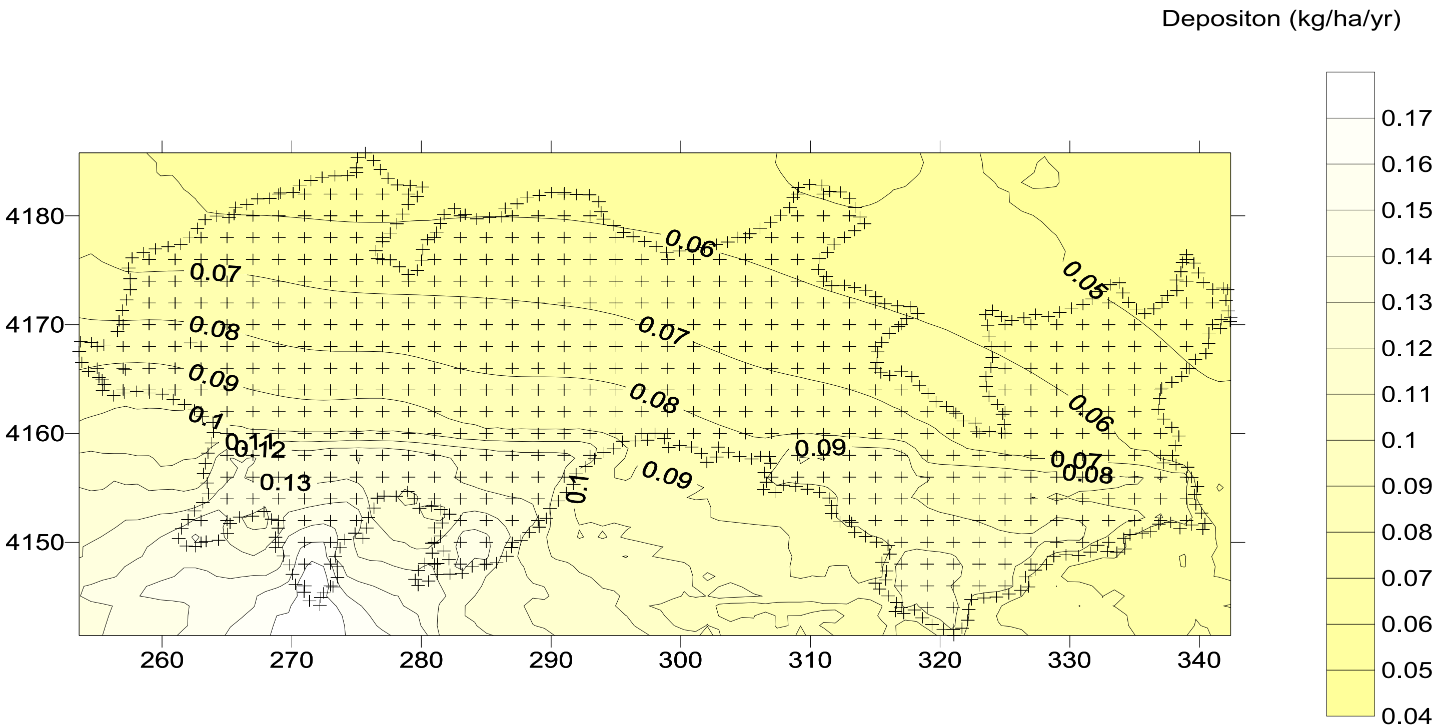
Figure 7-6. Cumulative Mesa Verde Atmospheric Deposition Levels (Maximum Development)



Notes: 1) + Indicates impact modeling receptor locations

2) Emission source groups include Alternative 2 (Maximum Development), Existing Sources, and Other RFS (SUIT EIS and Farmington RMP) Sources

Figure 7-7. Cumulative Weminuche Atmospheric Deposition Levels (Maximum Development)



Notes: 1) + Indicates impact modeling receptor locations

2) Emission source groups include Alternative 2 (Maximum Development), Existing Sources, and Other RFS (SUIT EIS and Farmington RMP) Sources

The maximum predicted total annual nitrogen deposition within the Weminuche Wilderness Area was 0.18 kg/ha-yr, also under the cumulative Maximum Development (Alternative 2) scenario. Figure 7-7 shows the maximum impacts would occur along the southwestern boundary of the Weminuche Class I Area, and would decrease towards the north.

The USDA-Forest Service (2000) screening methodology was used to calculate the potential ANC change at four sensitive lakes, all located within the Weminuche Wilderness Area. No sensitive lakes were identified within Mesa Verde National Park.

Potential changes in ANC at all four lakes (Table 7-10) were below the USDA-Forest Service ten percent change threshold. However, since the background ANC for Upper Grizzly Lake is just under 25 μeq/l (at 24.3 μeq/l), its applicable threshold is a 1.0 μeq/l change. For Upper Grizzly Lake, this corresponds to a 4.1 percent ANC change. Therefore, a "significant, adverse" impact to Upper Grizzly Lake chemistry was predicted to occur for all cumulative scenarios which include potential Farmington RMP emission sources.

Table 7-10. Maximum Predicted Cumulative ANC Changes

Emission Source Group	Potential Change in ANC (percent)			
	Eldorado Lake	Lower Sunlight Lake	Upper Grizzly Lake	Upper Sunlight Lake
Alt 1 (Proposed Action)	0.23	0.09	0.75	0.36
Alt 2 (Maximum Development)	0.37	0.14	1.21	0.57
Alt 5 (No Action)	0.08	0.03	0.26	0.12
Alt 1 + Existing + RFS	1.14	0.41	3.41	1.82
Alt 2 + Existing + RFS	1.29	0.47	3.87	2.05
Alt 5 + Existing + RFS	1.00	0.35	2.92	1.55
Alt 1 + Existing + RFS + FRMP	2.79	0.99	**8.11**	4.31
Alt 2 + Existing + RFS + FRMP	2.93	1.05	**8.57**	4.55
Alt 5 + Existing + RFS + FRMP	2.64	0.93	**7.62**	4.04
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	1.89	0.64	**5.07**	2.80
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	2.03	0.70	**5.54**	3.03
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	1.74	0.59	**4.58**	2.53

7.3 Construction Impacts

This subsection was originally developed as part of the SUIT Air Quality Analysis (BLM 2000). It is included here for completeness, and is applicable to the proposed action (and alternative) construction impacts.

The SUIT Air Quality analysis performed a detailed impact analysis for the construction phase of development (BLM 2000). No new information was available to revise estimates of these impacts. Therefore, Table 7-11 presents modeling results from the previous study which are directly applicable to this analysis. These results reflect the reasonable but conservative assumption of four closely spaced well pads developed concurrently.

Table 7-11. Maximum Predicted PM_{10} and SO_2 Impacts During Construction

Pollutant	Averaging Period	Maximum Direct Impact (μg/m³)	Background (μg/m³)	Maximum Total Impact [(1)] (μg/m³)	NAAQS (μg/m³)	Percent of NAAQS
PM_{10}	24-hr	77	50	127	150	85
sulfur dioxide	3-hr	645	57	702	1300	54
	3-hr	645	57	**702**	700 [(2)]	**>100** [(2)]
	24-hr	109	23	132	365	36

[(1)] It was conservatively assumed that the maximum modeled predicted concentration would occur concurrently with the maximum measured background concentration.
[(2)] Colorado State Ambient Air Quality Standard

The maximum potential 24 hr PM_{10} concentrations at least 650 ft (200 m) from a road, and 0.5 miles (805 m) from well emission sources, were predicted to be nearly 127 μg/m³ (including background), and therefore below the applicable State and NAAQS of 150 μg/m³. In addition, the predicted PM_{10} concentrations decrease rapidly away from the construction emission sources. Since these PM_{10} construction emissions would be temporary, PSD increments are not applicable.

The maximum short-term SO_2 emissions would result from burning diesel fuel (containing trace amounts of sulfur) in drilling rigs and heavy-equipment engines. The maximum modeled concentrations (including representative background) were predicted to be nearly 702 μg/m³ (3 hr) and 132 μg/m³ (24 hr). Therefore, predicted short-term (3 hr) SO_2 concentrations were slightly above the restrictive Colorado SO_2 Ambient Air Quality Standard of 700 μg/m³, but well below the longer-term (24 hr) State and NAAQS of 365 μg/m³. The 3 hr SO_2 NAAQS (1,300 μg/m³) is less stringent. Given the reasonable but conservative assumptions used in this modeling analysis, significant impacts are unlikely to actually occur, even when compared to the more restrictive Colorado 3 hr standard. Since these diesel-related SO_2 construction emissions are temporary, PSD increments are not applicable.

8.0 Potential Mitigation Alternatives

Additional analyses were conducted to evaluate the potential visibility benefits of installing small wellhead engines under the Proposed Action (Alternative 1) at a NOx emission rate of 2.0 g/hp-hr. This was in addition to assuming that the Farmington RMP small wellhead engines would also be limited to 2.0 g/hp-hr NOx. A small wellhead engine NOx emission rate of 10 g/hp-hr had been assumed for the proposed action (and alternatives) impact results described in Section 7.0 above. The visibility modeling results for these additional analyses are provided in Tables 8-1 and 8-2.

At the Mesa Verde Class I Area (regardless of the small wellhead engine emission rate), no days were predicted to be greater than 1.0 dv from the Proposed Action (Alternative 1) emission sources alone. Cumulatively, installing 2.0 g/hp-hr small wellhead engines under the Proposed Action (Alternative 1) would reduce the potential exceedances of 1.0 dv by one day per year.

At the Weminuche Class I Area, installing 2.0 g/hp-hr small wellhead engines under the Proposed Action (Alternative 1) would eliminate the potential direct exceedances of 1.0 dv (from a previous maximum of three days per year). Cumulatively, installing 2.0 g/hp-hr small wellhead engines would reduce the maximum annual potential exceedances by three days (from up to 15 days to 12 or less days per year.)

Table 8-1. Proposed Action with Additional Small Wellhead Engine Emission Controls - Visibility Impact Summary (Mesa Verde)

Emission Source Group	Maximum Single Day Impact (dv)	Number of Days > 0.5 dv change			Number of Days > 1.0 dv change		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Alt 1 (Proposed Action) (10 g/hp-hr)	0.34	0	0	0	0	0	0
Alt 1 (Proposed Action) (2.0 g/hp-hr)	0.19	0	0	0	0	0	0
Alt 1 (10 g/hp-hr) + Existing + RFS + FRMP (2.0 g/hp-hr)	3.84	23	43	31.2	4	11	7.5
Alt 1 (2.0 g/hp-hr) + Existing + RFS + FRMP (2.0 g/hp-hr)	3.73	20	43	29.1	3	10	6.5

Table 8-2. Proposed Action with Additional Small Wellhead Engine Emission Controls - Visibility Impact Summary (Weminuche)

Emission Source Group	Maximum Single Day Impact (dv)	Number of Days > 0.5 dv change			Number of Days > 1.0 dv change		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Alt 1 (Proposed Action) (10 g/hp-hr)	1.67	2	11	4.9	0	3	0.9
Alt 1 (Proposed Action) (2.0 g/hp-hr)	0.42	0	0	0	0	0	0
Alt 1 (10 g/hp-hr) + Existing + RFS + FRMP (2.0 g/hp-hr)	3.13	15	35	24.3	2	15	7.9
Alt 1 (2.0 g/hp-hr) + Existing + RFS + FRMP (2.0 g/hp-hr)	2.91	16	30	21.7	2	12	6.1

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Appendix A – Proposed Action and Alternatives Emission Inventory

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Table A-1. Summary of Proposed Action and Alternatives Central Compressor Stations

Site	Alternative				
	1	2	3	4	5
Bayfield	X	X	X	X	X
BP Amoco 1	X	X			
BP Amoco 2	X	X			
BP Amoco 3	X	X	X	X	
BP Amoco 4	X	X	X	X	X
Cross Timbers	X	X	X	X	X
Elmridge 1	X	X	X	X	X
Elmridge 2	X	X	X	X	
Independent 1		X			
Independent 2		X			
Independent 3		X			
Petrox 1	X	X	X		
Petrox 2	X	X	X	X	
Petrox 3	X	X	X		
Petrox 4	X	X	X		
Pure 1	X	X			X
Pure 2	X	X			X

Note: X indicates Central Compressor Station included in Alternative emission inventory.

Table A-2. Summary of Emissions by Alternative

Proposed Alternative	Central Compression Capacity (hp)	Wellhead Engine Capacity (hp)	Total Capacity (hp)	Compressors			Wells		Dehydrators		Wellhead Engines			Total Emissions		
				NOx (t/yr)	CO (t/yr)	HAPs (t/yr)	NOx (t/yr)	CO (t/yr)	NOx (t/yr)	CO (t/yr)	NOx (t/yr)	CO (t/yr)	HAPs (t/yr)	NOx (t/yr)	CO (t/yr)	HAPs (t/yr)
1 Proposed Action	41,000	14,352	55,352	616	821	94	32	27	61	52	731	631	9.7	1,440	1,531	104
2 Maximum Development	46,000	25,248	71,248	688	917	105	57	48	74	63	1,267	1,095	16.7	2,087	2,122	122
3 No Wells in HD Mtns	28,640	10,416	39,056	502	669	77	23	19	44	37	560	483	7.4	1,128	1,209	84
4 Current Management	30,400	9,072	39,472	435	580	71	21	17	31	26	476	411	6.3	963	1,036	77
5 No Action	14,240	6,384	20,624	206	275	32	13	11	26	22	342	296	5.0	58	604	36

Table A-3. Summary of Emissions by Site and Source Type

Alternative 1	NOx (t/yr)	NOx (%)	CO (t/yr)	CO (%)	HAPs (t/yr)	HAPs (%)
Compressors Engines	616	43	821	54	94	91
Separators	32	2	27	2	---	0
Dehydrators	61	4	52	3	---	0
Wellhead Engines	731	51	631	41	10	9
Total	**1,440**	**100**	**1,531**	**100**	**104**	**100**
Alternative 2	**NOx (t/yr)**	**NOx (%)**	**CO (t/yr)**	**CO (%)**	**HAPs (t/yr)**	**HAPs (%)**
Compressors Engines	688	33	917	44	105	86
Separators	57	3	48	2	---	0
Dehydrators	74	4	37	2	---	0
Wellhead Engines	1,267	61	1,095	52	17	14
Total	**2,087**	**100**	**2,097**	**100**	**122**	**100**
Alternative 3	**NOx (t/yr)**	**NOx (%)**	**CO (t/yr)**	**CO (%)**	**HAPs (t/yr)**	**HAPs (%)**
Compressors Engines	502	44	669	55	77	91
Separators	23	2	19	2	---	0
Dehydrators	44	4	37	3	---	0
Wellhead Engines	560	50	483	40	7	9
Total	**1,128**	**100**	**1,209**	**100**	**84**	**100**
Alternative 4	**NOx (t/yr)**	**NOx (%)**	**CO (t/yr)**	**CO (%)**	**HAPs (t/yr)**	**HAPs (%)**
Compressors Engines	436	45	581	56	71	92
Separators	21	2	17	2	---	0
Dehydrators	31	3	26	2	---	0
Wellhead Engines	476	49	411	40	6	8
Total	**963**	**100**	**1,036**	**100**	**77**	**100**
Alternative 5	**NOx (t/yr)**	**NOx (%)**	**CO (t/yr)**	**CO (%)**	**HAPs (t/yr)**	**HAPs (%)**
Compressors Engines	206	35	275	46	32	87
Separators	13	2	11	2	---	0
Dehydrators	26	4	22	4	---	0
Wellhead Engines	342	58	296	49	5	13
Total	**588**	**100**	**604**	**100**	**36**	**100**

Table A-4. Summary of Emissions by Site – Alternative 1 (Proposed Action)

Source Group	Total Compressor		NOx			CO			Facility Total	
			Compressors	Separators	Dehydrators	Compressors	Separators	Dehydrators	NOx	CO
	hp	% of total hp	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)
Bayfield	2,000	4.9	29.0	1.6	4.4	38.6	1.3	3.7	34.9	43.6
BP Amoco 1	4,000	9.8	57.9	3.2	4.4	77.3	2.7	3.7	65.5	83.6
BP Amoco 2	3,000	7.3	43.5	2.4	4.4	57.9	2.0	3.7	50.2	63.6
BP Amoco 3	3,000	7.3	43.5	2.4	4.4	57.9	2.0	3.7	50.2	63.6
BP Amoco 4	4,000	9.8	57.9	3.2	4.4	77.3	2.7	3.7	65.5	83.6
Cross Timbers	2,500	6.1	36.2	2.0	4.4	48.3	1.7	3.7	42.6	53.6
Elmridge 1	5,000	12.2	72.4	4.0	4.4	96.6	3.3	3.7	80.8	103.6
Elmridge 2	12,000	29.3	195.5	9.5	4.4	260.7	8.0	3.7	209.4	272.4
Petrox 1	620	1.5	9.0	0.5	4.4	12.0	0.4	3.7	13.9	16.1
Petrox 2	1,900	4.6	27.5	1.5	4.4	36.7	1.3	3.7	33.4	41.6
Petrox 3	620	1.5	9.0	0.5	4.4	12.0	0.4	3.7	13.9	16.1
Petrox 4	620	1.5	9.0	0.5	4.4	12.0	0.4	3.7	13.9	16.1
Pure 1	1,500	3.7	21.7	1.2	4.4	29.0	1.0	3.7	27.3	33.6
Pure 2	240	0.6	3.5	0.2	4.4	4.6	0.2	3.7	8.0	8.5
Total	**41,000**	**100.0**	**615.6**	**32.4**	**61.3**	**820.8**	**27.2**	**51.5**	**709.3**	**899.6**

Table A-5. Summary of Emissions by Site – Alternative 2 (Maximum Development)

Source Group	Total Compressor		NOx			CO			Facility Total	
			Compressors	Separators	Dehydrators	Compressors	Separators	Dehydrators	NOx	CO
	hp	% of total hp	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)
Bayfield	2,000	4.3	29.0	2.5	4.4	38.6	2.1	3.7	35.8	44.4
BP Amoco 1	4,000	8.7	57.9	5.0	4.4	77.3	4.2	3.7	67.3	85.1
BP Amoco 2	3,000	6.5	43.5	3.7	4.4	57.9	3.1	3.7	51.6	64.8
BP Amoco 3	3,000	6.5	43.5	3.7	4.4	57.9	3.1	3.7	51.6	64.8
BP Amoco 4	4,000	8.7	57.9	5.0	4.4	77.3	4.2	3.7	67.3	85.1
Cross Timbers	2,500	5.4	36.2	3.1	4.4	48.3	2.6	3.7	43.7	54.6
Independent 1	1,000	2.2	14.5	1.2	4.4	19.3	1.0	3.7	20.1	24.0
Independent 2	2,000	4.3	29.0	2.5	4.4	38.6	2.1	3.7	35.8	44.4
Independent 3	2,000	4.3	29.0	2.5	4.4	38.6	2.1	3.7	35.8	44.4
Elmridge 1	5,000	10.9	72.4	6.2	4.4	96.6	5.2	3.7	83.0	105.5
Elmridge 2	12,000	26.1	195.5	14.9	4.4	260.7	12.5	3.7	214.8	276.9
Petrox 1	620	1.3	9.0	0.8	4.4	12.0	0.6	3.7	14.1	16.3
Petrox 2	1,900	4.1	27.5	2.4	4.4	36.7	2.0	3.7	34.3	42.4
Petrox 3	620	1.3	9.0	0.8	4.4	12.0	0.6	3.7	14.1	16.3
Petrox 4	620	1.3	9.0	0.8	4.4	12.0	0.6	3.7	14.1	16.3
Pure 1	1,500	3.3	21.7	1.9	4.4	29.0	1.6	3.7	28.0	34.2
Pure 2	240	0.5	3.5	0.3	4.4	4.6	0.3	3.7	8.2	8.6
Total	**46,000**	**100.0**	**688.0**	**57.2**	**74.5**	**917.4**	**48.0**	**62.5**	**819.7**	**1027.9**

Table A-6. Summary of Emissions by Site – Alternative 3 (No Wells in HD Mountains)

Source Group	Total Compressor		NOx			CO			Facility Total	
			Compressors	Separators	Dehydrators	Compressors	Separators	Dehydrators	NOx	CO
	hp	% of total hp	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)
Bayfield	2,000	7.1	29.0	1.6	4.4	38.6	1.4	3.7	35.0	43.7
BP Amoco 3	3,000	10.7	43.5	2.5	4.4	57.9	2.1	3.7	50.3	63.7
BP Amoco 4	4,000	14.2	57.9	3.3	4.4	77.3	2.8	3.7	65.6	83.7
Cross Timbers	2,500	8.9	36.2	2.1	4.4	48.3	1.7	3.7	42.7	53.7
Elmridge 1	5,000	17.8	72.4	4.1	4.4	96.6	3.5	3.7	80.9	103.7
Elmridge 2	12,000	42.6	195.5	9.9	4.4	260.7	8.3	3.7	209.8	272.7
Petrox 1	620	2.2	9.0	0.5	4.4	12.0	0.4	3.7	13.9	16.1
Petrox 2	1,900	6.8	27.5	1.6	4.4	36.7	1.3	3.7	33.5	41.7
Petrox 3	620	2.2	9.0	0.5	4.4	12.0	0.4	3.7	13.9	16.1
Pure 1	1,500	5.3	21.7	1.2	4.4	29.0	1.0	3.7	27.3	33.7
Total	**28,140**	**100.0**	**501.8**	**23.2**	**43.8**	**669.0**	**19.5**	**36.8**	**572.9**	**728.8**

Table A-7. Summary of Emissions by Site – Alternative 4 (Current Development)

Source Group	Total Compressor		NOx			CO			Facility Total	
			Compressors	Separators	Dehydrators	Compressors	Separators	Dehydrators	NOx	CO
	hp	% of total hp	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)
Bayfield	2,000	6.6	29.0	1.4	4.4	38.6	1.1	3.7	34.7	43.4
BP Amoco 3	3,000	9.9	43.5	2.0	4.4	57.9	1.7	3.7	49.9	63.3
BP Amoco 4	4,000	13.2	57.9	2.7	4.4	77.3	2.3	3.7	65.0	83.2
Cross Timbers	2,500	8.2	36.2	1.7	4.4	48.3	1.4	3.7	42.3	53.4
Elmridge 1	5,000	16.4	72.4	3.4	4.4	96.6	2.8	3.7	80.2	103.1
Elmridge 2	12,000	39.5	195.5	8.1	4.4	260.7	6.8	3.7	208.1	271.2
Petrox 2	1,900	6.3	9.0	1.3	4.4	12.0	1.1	3.7	14.6	16.7
Total	**30,400**	**100.0**	**443.5**	**20.6**	**30.7**	**591.4**	**17.3**	**25.8**	**494.8**	**634.4**

Table A-8. Summary of Emissions by Site – Alternative 5 (No Action)

Source Group	Total Compressor		NOx			CO			Facility Total	
			Compressors	Separators	Dehydrators	Compressors	Separators	Dehydrators	NOx	CO
	hp	% of total hp	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)	(t/yr)
Bayfield	2,000	14.0	29.0	1.8	4.4	38.6	1.5	3.7	35.2	43.8
BP Amoco 3	3,000	21.1	43.5	2.7	4.4	57.9	2.3	3.7	50.6	63.9
Cross Timbers	2,500	17.6	36.2	2.3	4.4	48.3	1.9	3.7	42.9	53.9
Elmridge 1	5,000	35.1	72.4	4.5	4.4	96.6	3.8	3.7	81.3	104.1
Pure 1	1,500	10.5	21.7	1.4	4.4	29.0	1.1	3.7	27.5	33.8
Pure 2	240	1.7	3.5	0.2	4.4	4.6	0.2	3.7	8.1	8.5
Total	**14,240**	**100.0**	**206.3**	**12.9**	**26.3**	**275.0**	**10.9**	**22.1**	**245.5**	**308.0**

Table A-9. Potential Central Compressor Emissions and Modeling Assumptions (Bayfield)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R7W, Sec 1	6,934	37° 14' 43"	-107° 34' 34"	Private

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
BAY1	Natural Gas Engine	2,000	271,500	4,125,000	0.83	29.0	1.11	38.6	0.13	4.4	7.5	644	28.6	0.46	4.9	4.9
Compressor Engine Subtotal		**2,000**			**0.83**	**29.0**	**1.11**	**38.6**	**0.13**	**4.4**						
BAYDEH	Dehydration Unit[5]		271,500	4,125,010	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.20	2.0	2.0
BAYSEP	Separator[5]		271,500	4,125,020	0.07	2.5	0.06	2.1	0.00	0.0	3.0	533	6.4	0.20	2.0	2.0
Facility Total					**1.03**	**35.8**	**1.28**	**44.4**	**0.13**	**4.4**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-10. Potential Central Compressor Emissions and Modeling Assumptions (BP Amoco 1)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R6W, Sec 5	7,141	37° 14' 16"	-107° 33' 05"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
BP1A	Natural Gas Engine	1,333	273,670	4,124,111	0.56	19.3	0.74	25.8	0.09	3.0	4.6	644	18.4	0.46	3.0	3.0
BP1B	Natural Gas Engine	1,333	273,670	4,124,121	0.56	19.3	0.74	25.8	0.09	3.0	4.6	644	18.4	0.46	3.0	3.0
BP1C	Natural Gas Engine	1,333	273,670	4,124,131	0.56	19.3	0.74	25.8	0.09	3.0	4.6	644	18.4	0.46	3.0	3.0
Compressor Engine Subtotal		**4,000**			**1.67**	**57.9**	**2.22**	**77.3**	**0.26**	**8.9**						
BP1DEH	Dehydration Unit[5]		273,670	4,124,141	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
BP1SEP	Separator[5]		273,670	4,124,151	0.14	5.0	0.12	4.2	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.94**	**67.3**	**2.45**	**85.1**	**0.26**	**8.9**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-11. Potential Central Compressor Emissions and Modeling Assumptions (BP Amoco 2)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34NU, R6W, Sec 32U	6,799	37° 08' 51"	-107° 32' 00"	Federal

Unit ID	Source Type	Size (1) (hp)	UTM		NOx (2)		CO (3)		HAP (4)		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
BP2A	Natural Gas Engine	1,500	275,030	4,114,050	0.63	21.7	0.83	29.0	0.10	3.3	4.6	644	29.9	0.38	3.0	3.0
BP2B	Natural Gas Engine	1,500	275,030	4,114,060	0.63	21.7	0.83	29.0	0.10	3.3	4.6	644	29.9	0.38	3.0	3.0
Compressor Engine Subtotal		**3,000**			**1.25**	**43.5**	**1.67**	**57.9**	**0.19**	**6.7**						
BP2DEH	Dehydration Unit(5)		275,030	4,114,070	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
BP2SEP	Separator(5)		275,030	4,114,080	0.11	3.7	0.09	3.1	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.48**	**51.6**	**1.86**	**64.8**	**0.19**	**6.7**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-12. Potential Central Compressor Emissions and Modeling Assumptions (BP Amoco 3)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T35N, R6W, Sec 31	6,996	37° 15' 35"	-107° 34' 09"	Private

Unit ID	Source Type	Size (1) (hp)	UTM		NOx (2)		CO (3)		HAP (4)		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
BP3A	Natural Gas Engine	1,500	272,164	4,126,575	0.63	21.7	0.83	29.0	0.10	3.3	4.6	644	29.9	0.38	3.0	3.0
BP3B	Natural Gas Engine	1,500	272,164	4,126,585	0.63	21.7	0.83	29.0	0.10	3.3	4.6	644	29.9	0.38	3.0	3.0
Compressor Engine Subtotal		**3,000**			**1.25**	**43.5**	**1.67**	**57.9**	**0.19**	**6.7**						
BP3DEH	Dehydration Unit(5)		272,164	4,126,595	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
BP3SEP	Separator(5)		272,164	4,126,605	0.11	3.7	0.09	3.1	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.48**	**51.6**	**1.86**	**64.8**	**0.19**	**6.7**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-13. Potential Central Compressor Emissions and Modeling Assumptions (BP Amoco 4)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R8W, Sec 11	7,082	37° 14' 00"	-107° 43' 00"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
BP4A	Natural Gas Engine	1,333	259,000	4,124,000	0.56	19.3	0.74	25.8	0.09	3.0	4.6	644	18.4	0.46	3.0	3.0
BP4B	Natural Gas Engine	1,333	259,000	4,124,010	0.56	19.3	0.74	25.8	0.09	3.0	4.6	644	18.4	0.46	3.0	3.0
BP4C	Natural Gas Engine	1,333	259,000	4,124,020	0.56	19.3	0.74	25.8	0.09	3.0	4.6	644	18.4	0.46	3.0	3.0
BP4DEH																
BP4SEP																
Compressor Engine Subtotal		**4,000**			**1.67**	**57.9**	**2.22**	**77.3**	**0.26**	**8.9**						
BP4DEH	Dehydration Unit[5]		259,000	4,124,030	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
BP4SEP	Separator[5]		259,000	4,124,040	0.14	5.0	0.12	4.2	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.94**	**67.3**	**2.45**	**85.1**	**0.26**	**8.9**						

Table A-14. Potential Central Compressor Emissions and Modeling Assumptions (Cross Timbers)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R8W, Sec 9	6,934	37° 14' 30"	-107° 44' 22"	State

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
HUB1	Natural Gas Engine	1,250	257,000	4,125,000	0.52	18.1	0.69	24.1	0.08	2.8	4.6	644	17.3	0.46	3.0	3.0
HUB2	Natural Gas Engine	1,250	257,000	4,125,010	0.52	18.1	0.69	24.1	0.08	2.8	4.6	644	17.3	0.46	3.0	3.0
Compressor Engine Subtotal		**2,500**			**1.04**	**36.2**	**1.39**	**48.3**	**0.16**	**5.6**						
HUBDEH	Dehydration Unit[5]		257,000	4,125,020	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
HUBSEP	Separator[5]		257,000	4,125,030	0.09	3.1	0.08	2.6	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.26**	**43.7**	**1.57**	**54.6**	**0.16**	**5.6**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-15. Potential Central Compressor Emissions and Modeling Assumptions (Elmridge 1)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T33NU, R5W, Sec 2	6,399	37° 08’ 18”	-107° 23’ 00”	Private

Unit ID	Source Type	Size [(1)] (hp)	UTM		NOx [(2)]		CO [(3)]		HAP [(4)]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
ELM1A	Natural Gas Engine	1,250	288,301	4,112,688	0.52	18.1	0.69	24.1	0.08	2.8	6.6	644	17.3	0.46	3.9	3.9
ELM1B	Natural Gas Engine	1,250	288,301	4,112,698	0.52	18.1	0.69	24.1	0.08	2.8	6.6	644	17.3	0.46	3.9	3.9
ELM1C	Natural Gas Engine	1,250	288,301	4,112,708	0.52	18.1	0.69	24.1	0.08	2.8	6.6	644	17.3	0.46	3.9	3.9
ELM1D	Natural Gas Engine	1,250	288,301	4,112,718	0.52	18.1	0.69	24.1	0.08	2.8	6.6	644	17.3	0.46	3.9	3.9
Compressor Engine Subtotal		**5,000**			**2.08**	**72.4**	**2.78**	**96.6**	**0.32**	**11.1**						
ELM1DEHY	Dehydration Unit[(5)]		288,301	4,112,728	0.126	4.4	0.11	3.7	0.00	0.0	3.5	533	6.4	0.15	2.3	2.3
ELM1SEP	Separator[(5)]		288,301	4,112,738	0.09	6.2	0.15	5.2	0.00	0.0	3.5	533	6.4	0.15	2.3	2.3
Facility Total					**2.30**	**83.0**	**3.03**	**105.5**	**0.32**	**11.1**						

[(1)] Assumed unit capacity is based on typical installations
[(2)] Assumed NOx emission rate – 1.50 g/hp-hr
[(3)] Assumed CO emission rate – 2.00 g/hp-hr
[(4)] Assumed HAP emission rate – 0.23 g/hp-hr
[(5)] Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-16. Potential Central Compressor Emissions and Modeling Assumptions (Elmridge 2)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T33NU, R5W, Sec 2	6,399	37° 08' 59"	-107° 32' 22"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
ELM2A	Natural Gas Engine	1,500	274,470	4,114,300	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2B	Natural Gas Engine	1,500	274,470	4,114,310	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2C	Natural Gas Engine	1,500	274,470	4,114,320	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2D	Natural Gas Engine	1,500	274,470	4,114,330	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2E	Natural Gas Engine	1,500	274,470	4,114,340	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2F	Natural Gas Engine	1,500	274,470	4,114,350	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2G	Natural Gas Engine	1,500	274,470	4,114,360	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2H	Natural Gas Engine	1,500	274,470	4,114,370	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
ELM2I	Natural Gas Engine	1,500	274,470	4,114,380	0.63	21.7	0.83	29.0	0.10	3.3	9.5	644	29.2	0.38	5.9	5.9
Compressor Engine Subtotal		**12,000**			**5.63**	**195.5**	**7.50**	**260.7**	**0.86**	**30.0**						
ELM2DEHY	Dehydration Unit[5]		274,470	4,114,270	0.126	4.4	0.11	3.7	0.00	0.0	3.5	533	6.4	0.15	2.0	2.0
ELM2SEP	Separator[5]		274,470	4,114,280	0.11	7.5	0.36	12.5	0.00	0.0	3.5	533	6.4	0.15	2.0	2.0
ELM2SEPa	Separator[5]		274,470	4,114,290	0.11	7.5	0.36	12.5	0.00	0.0	3.5	533	6.4	0.15	2.0	2.0
Facility Total					**5.97**	**214.8**	**8.33**	**289.5**	**0.86**	**30.0**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-17. Potential Central Compressor Emissions and Modeling Assumptions (Independent 1)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34NU, R6W, Sec 28U	7,514	37° 09' 38"	-107° 30' 36"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
IP1	Natural Gas Engine	1,000	277,120	4,115,417	0.42	14.5	0.56	19.3	0.06	2.2	3.1	644	24.8	0.30	2.0	2.0
Compressor Engine Subtotal		**1,000**			**0.42**	**14.5**	**0.56**	**19.3**	**0.06**	**2.2**						
IP1DEH	Dehydration Unit[5]		277,120	4,115,427	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
IP1SEP	Separator[5]		277,120	4,115,437	0.04	1.2	0.03	1.0	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**0.58**	**20.1**	**0.69**	**24.0**	**0.06**	**2.2**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-18. Potential Central Compressor Emissions and Modeling Assumptions (Independent 2)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34NU, R6W, Sec 8U	7,196	37° 12' 31"	-107° 31' 43"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
IP2A	Natural Gas Engine	2,000	275,600	4,120,800	0.83	29.0	1.11	38.6	0.13	4.4	7.5	644	25.3	0.46	4.9	4.9
Compressor Engine Subtotal		**2,000**			**0.83**	**29.0**	**1.11**	**38.6**	**0.13**	**4.4**						
IP2DEH	Dehydration Unit[5]		275,600	4,120,810	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
IP2SEP	Separator[5]		275,600	4,120,820	0.07	2.5	0.06	2.1	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.03**	**35.8**	**1.28**	**44.4**	**0.13**	**4.4**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-19. Potential Central Compressor Emissions and Modeling Assumptions (Independent 3)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34NU R6W, Sec 20U	7,426	37° 10' 21"	-107° 31' 05"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
IP3A	Natural Gas Engine	2,000	276,435	4,116,788	0.83	29.0	1.11	38.6	0.13	4.4	7.5	644	25.3	0.46	4.9	4.9
Compressor Engine Subtotal		**2,000**			**0.83**	**29.0**	**1.11**	**38.6**	**0.13**	**4.4**						
IP3DEH	Dehydration Unit[5]		276,435	4,116,798	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
IP3SEP	Separator[5]		276,435	4,116,778	0.07	2.5	0.06	2.1	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**1.03**	**35.8**	**1.28**	**44.4**	**0.13**	**4.4**						

[1] Assumed unit capacity is based on typical installations
[2] Assumed NOx emission rate – 1.50 g/hp-hr
[3] Assumed CO emission rate – 2.00 g/hp-hr
[4] Assumed HAP emission rate – 0.23 g/hp-hr
[5] Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-20. Potential Central Compressor Emissions and Modeling Assumptions (Petrox 1)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34NU, R5W, Sec 36U	6,396	37° 09' 01"	-107° 20' 15"	Federal

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
PET1	Natural Gas Engine	620	292,405	4,113,912	0.26	9.0	0.34	12.0	0.04	1.4	3.1	644	24.1	0.30	2.0	2.0
Compressor Engine Subtotal		**620**			**0.26**	**9.0**	**0.34**	**12.0**	**0.04**	**1.4**						
PET1DEH	Dehydration Unit[5]		292,405	4,113,922	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
PET1SEP	Separator[5]		292,405	4,113,932	0.02	0.8	0.02	0.6	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**0.41**	**14.1**	**0.47**	**16.3**	**0.04**	**1.4**						

[1] Assumed unit capacity is based on typical installations
[2] Assumed NOx emission rate – 1.50 g/hp-hr
[3] Assumed CO emission rate – 2.00 g/hp-hr
[4] Assumed HAP emission rate – 0.23 g/hp-hr
[5] Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-21. Potential Central Compressor Emissions and Modeling Assumptions (Petrox 2)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34NU, R5W, Sec 9U	7,613	37° 12' 29"	-107° 24' 35"	Federal

Unit ID	Source Type	Size (1) (hp)	UTM		NOx (2)		CO (3)		HAP (4)		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
PET2	Natural Gas Engine	1,900	286,151	4,120,460	0.79	27.5	1.06	36.7	0.12	4.2	9.1	644	26.3	0.46	4.9	4.9
Compressor Engine Subtotal		**1,900**			**0.79**	**27.5**	**1.06**	**36.7**	**0.12**	**4.2**						
PET2DEH	Dehydration Unit(5)		286,151	4,120,470	0.13	4.4	0.11	3.7	0.00	0.0	3.1	533	6.4	0.15	2.0	2.0
PET2SEP	Separator(5)		286,151	4,120,480	0.03	1.2	0.06	2.0	0.00	0.0	3.1	533	6.4	0.15	2.0	2.0
PET2SEPa	Separator(5)		286,151	4,120,450	0.03	1.2	0.06	2.0	0.00	0.0	3.1	533	6.4	0.15	2.0	2.0
Facility Total					**0.99**	**34.3**	**1.28**	**44.3**	**0.12**	**4.2**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-22. Potential Central Compressor Emissions and Modeling Assumptions (Petrox 3)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R5W, Sec 8	7,616	37° 13' 54"	-107° 26' 42"	

Unit ID	Source Type	Size (1) (hp)	UTM		NOx (2)		CO (3)		HAP (4)		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
PET3	Natural Gas Engine	620	283,100	4,123,180	0.26	9.0	0.34	12.0	0.04	1.4	3.1	644	24.1	0.30	2.0	2.0
Compressor Engine Subtotal		**620**			**0.26**	**9.0**	**0.34**	**12.0**	**0.04**	**1.4**						
PET3DEH	Dehydration Unit(5)		283,100	4,123,190	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
PET3SEP	Separator(5)		283,100	4,123,200	0.02	0.8	0.02	0.6	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**0.41**	**14.1**	**0.47**	**16.3**	**0.04**	**1.4**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-23. Potential Central Compressor Emissions and Modeling Assumptions (Petrox 4)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R5W, Sec 7	8,197	37° 13’ 52”	-107° 27’ 47”	

Unit ID	Source Type	Size [(1)] (hp)	UTM		NOx [(2)]		CO [(3)]		HAP [(4)]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
PET4	Natural Gas Engine	620	281,500	4,123,161	0.26	9.0	0.34	12.0	0.04	1.4	3.1	644	24.1	0.30	2.0	2.0
Compressor Engine Subtotal		**620**			**0.26**	**9.0**	**0.34**	**12.0**	**0.04**	**1.4**						
PET4DEH	Dehydration Unit[(5)]		281,500	4,123,171	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
PET4SEP	Separator[(5)]		281,500	4,123,181	0.02	0.8	0.02	0.6	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**0.41**	**14.1**	**0.47**	**16.3**	**0.04**	**1.4**						

[(1)] Assumed unit capacity is based on typical installations
[(2)] Assumed NOx emission rate – 1.50 g/hp-hr
[(3)] Assumed CO emission rate – 2.00 g/hp-hr
[(4)] Assumed HAP emission rate – 0.23 g/hp-hr
[(5)] Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-24. Potential Central Compressor Emissions and Modeling Assumptions (Pure 1)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34.5N, R9W, Sec 36	7,036	37° 14’ 52”	-107° 48’ 02”	State

Unit ID	Source Type	Size [(1)] (hp)	UTM		NOx [(2)]		CO [(3)]		HAP [(4)]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
PUR1	Natural Gas Engine	1,500	251,600	4,125,830	0.63	21.7	0.83	29.0	0.10	3.3	4.6	644	29.9	0.38	3.0	3.0
Compressor Engine Subtotal		**1,500**			**0.63**	**21.7**	**0.83**	**29.0**	**0.10**	**3.3**						
PUR1DEH	Dehydration Unit[(5)]		251,600	4,125,840	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
PUR1SEP	Separator[(5)]		251,600	4,125,850	0.05	1.9	0.05	1.6	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**0.80**	**28.0**	**0.98**	**34.2**	**0.10**	**3.3**						

[(1)] Assumed unit capacity is based on typical installations
[(2)] Assumed NOx emission rate – 1.50 g/hp-hr
[(3)] Assumed CO emission rate – 2.00 g/hp-hr
[(4)] Assumed HAP emission rate – 0.23 g/hp-hr
[(5)] Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-25. Potential Central Compressor Emissions and Modeling Assumptions (Pure 2)

Location	Elevation (ft)	Latitude	Longitude	Jurisdiction
T34N, R9W, Sec 2	6,803	37° 14' 28"	-107° 49' 32"	Private

Unit ID	Source Type	Size [1] (hp)	UTM		NOx [2]		CO [3]		HAP [4]		Stack Parameters				Building Size	
			Easting (m)	Northing (m)	(g/s)	(t/yr)	(g/s)	(t/yr)	(g/s)	(t/yr)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Height (m)	Width (m)
PUR2	Natural Gas Engine	240	249,350	4,125,160	0.10	3.5	0.13	4.6	0.02	0.5	3.0	583	21.5	0.18	2.0	2.0
Compressor Engine Subtotal		**240**			**0.10**	**3.5**	**0.13**	**4.6**	**0.02**	**0.5**						
PUR2DEH	Dehydration Unit[5]		249,350	4,125,170	0.13	4.4	0.11	3.7	0.00	0.0	3.0	533	6.4	0.18	2.0	2.0
PUR2SEP	Separator[5]		249,350	4,125,180	0.01	0.3	0.01	0.3	0.00	0.0	3.0	533	6.4	0.15	2.0	2.0
Facility Total					**0.23**	**8.2**	**0.25**	**8.6**	**0.02**	**0.5**						

(1) Assumed unit capacity is based on typical installations
(2) Assumed NOx emission rate – 1.50 g/hp-hr
(3) Assumed CO emission rate – 2.00 g/hp-hr
(4) Assumed HAP emission rate – 0.23 g/hp-hr
(5) Dehydration/separator emissions based on 10 MMBtu/hr heater at each compressor site

Table A-26 Separator Emission Calculations

Single Well Emission Rate	NOx	CO	HAP
lb/MMscf [1]	100	84	11.3
lb/hr [2]	0.025	0.021	0.002825
t/yr [2]	0.11	0.09	0.01

[1] EPA (AP-42 Section 1.4 emission factors)
[2] Based on average natural gas heat capacity of 1,000 BTU/scf, and individual separator flame rate of 0.25 MMBtu/hr

Alternative	Number of wells	NOx (t/yr)	CO (t/yr)	HAP (t/yr)
1 (Proposed Action)	296	32.4	27.2	3.66
2 (Maximum Development)	522	57.2	48.0	6.46
3 (No Wells in HD Mountains)	212	23.2	19.5	2.62
4 (Current Management)	188	20.6	17.3	2.33
5 (No Action)	118	12.9	10.9	1.46

Note: Assumes separators operate year-around (8760 hr/yr)

Table A-27 Dehydrator Emission Calculations

Single Well Emission Rate	NOx	CO	HAP
lb/MMscf [1]	100	84	11.3
lb/hr [2]	1	0.84	0.11
t/yr [2]	4.38	3.68	0.49

Note: Assumes separators operate year-around (8760 hr/yr)
[1] EPA (AP-42 Section 1.4 emission factors)
[2] Based on average natural gas heat capacity of 1,000 BTU/scf, and individual dehydrator flame rate of 10.0 MMBtu/hr

Table A-28 Small Wellhead Engine Emission Calculations

Operator / Area	Wells with Wellhead Engines (percent)
BP Amoco	50
Huber	100
Pure	50
Eastern Portion	50

Single Well Emission Rate [(1)]	NOx	CO	HAP
lb/hp-hr	0.00441	0.019	0.000290749
lb/hr	0.2	0.9	0.01
t/yr	0.9	4.0	0.1

[(1)] Assumes a 48 hp 4 stroke rich burn wellhead engine

Alternative	Total wells	Huber wells	Non-Huber wells	Wellhead engines
1 (Proposed Action)	296	17	282	158
2 (Maximum Development)	522	22	504	274
3 (No Wells in HD Mountains)	212	17	200	117
4 (Current Management)	188	17	172	103
5 (No Action)	118	15	118	74

Alternative	Wellhead engines	NOx (t/yr)	CO (t/yr)	HAP (t/yr)
1 (Proposed Action)	158	731	631	9.7
2 (Maximum Development)	274	1,267	1,095	16.7
3 (No Wells in HD Mountains)	117	541	467	7.2
4 (Current Management)	103	476	411	6.3
5 (No Action)	74	342	296	4.5

Table A-29. Small Wellhead Engine Emission Inventory (Alternative 1)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Huber engine	1	5	264640	4126938	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	2	13	258942	4123212	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	3	207	263842	4126960	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	4	230	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	5	237	261268	4123811	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	6	249	262668	4123106	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	7	1	263008	4131981	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	8	2	259133	4129870	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	9	176	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	10	177	261302	4131252	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	11	179	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	12	185	257531	4129694	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	13	187	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	14	192	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	15	193	254934	4128881	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	16	196	254120	4128349	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	17	204	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	1	3	282897	4126002	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	2	6	283641	4120431	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	3	8	285894	4121706	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	4	10	277316	4126370	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	5	12	292360	4113882	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	6	15	261315	4125476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	7	17	282848	4120673	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	8	19	280281	4120962	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	9	21	280546	4117513	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	10	23	280340	4119850	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	11	25	283587	4118322	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	12	27	280658	4118398	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	13	29	282768	4117566	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	14	31	282573	4113463	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	15	33	282831	4116566	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	16	35	283702	4115877	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	17	37	285237	4116837	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	18	39	282722	4115791	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	19	41	285108	4115285	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	20	43	285941	4116597	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	21	45	276507	4115953	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	22	47	274816	4115887	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	23	49	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	24	51	288535	4117309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	25	53	286852	4117462	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	26	55	288428	4120088	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	27	57	287640	4120551	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	28	59	287431	4115782	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	29	61	285349	4114280	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	30	63	286047	4117260	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	31	65	282805	4119009	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	32	67	274000	4115243	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	33	69	280586	4119067	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	34	71	267191	4129310	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	35	73	273532	4127582	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	36	75	269499	4129358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	37	77	254934	4128881	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	38	79	269384	4125140	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	39	81	276639	4124278	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	40	83	275043	4127652	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	41	85	268570	4124608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	42	87	271849	4124407	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-29. Small Wellhead Engine Emission Inventory (Alternative 1) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	43	89	274977	4121880	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	44	91	270121	4122899	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	45	93	275731	4116862	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	46	95	277106	4121823	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	47	97	274947	4120770	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	48	99	268435	4122945	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	49	101	248207	4123526	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	50	103	266885	4124654	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	51	105	263647	4123190	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	52	107	270186	4122009	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	53	109	289013	4115076	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	54	111	274215	4126564	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	55	113	259681	4130410	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	56	115	281938	4119808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	57	117	276397	4115179	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	58	119	280969	4116725	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	59	121	255890	4128187	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	60	123	263707	4125297	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	61	125	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	62	127	252554	4123397	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	63	129	273489	4122696	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	64	131	274843	4120217	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	65	133	264329	4122171	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	66	135	249334	4122604	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	67	137	271870	4125184	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	68	139	257985	4123905	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	69	141	271806	4126074	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	70	143	267833	4126849	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	71	145	262158	4123898	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	72	147	286812	4115908	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	73	149	284366	4114083	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	74	151	281992	4115032	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	75	153	286782	4118241	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	76	155	284120	4118309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	77	157	282132	4120470	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	78	159	288280	4114206	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	79	161	285790	4114158	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	80	163	282619	4115238	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	81	165	264731	4130156	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	82	167	273402	4126031	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	83	169	273955	4113578	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	84	171	281694	4117261	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	85	173	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	86	175	271851	4127738	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	87	180	289976	4118050	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	88	182	272626	4123608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	89	184	281321	4123378	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	90	188	279846	4128080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	91	190	281249	4124046	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	92	194	285007	4121729	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	93	197	296270	4113898	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	94	199	283718	4123427	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	95	201	285948	4120372	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	96	203	288433	4120309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	97	206	281439	4127927	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	98	209	282966	4121781	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	99	211	289873	4113944	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	100	212	283386	4124324	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	101	214	285422	4120608	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-29. Small Wellhead Engine Emission Inventory (Alternative 1) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	43	89	274977	4121880	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	44	91	270121	4122899	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	45	93	275731	4116862	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	46	95	277106	4121823	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	47	97	274947	4120770	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	48	99	268435	4122945	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	49	101	248207	4123526	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	50	103	266885	4124654	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	51	105	263647	4123190	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	52	107	270186	4122009	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	53	109	289013	4115076	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	54	111	274215	4126564	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	55	113	259681	4130410	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	56	115	281938	4119808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	57	117	276397	4115179	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	58	119	280969	4116725	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	59	121	255890	4128187	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	60	123	263707	4125297	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	61	125	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	62	127	252554	4123397	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	63	129	273489	4122696	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	64	131	274843	4120217	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	65	133	264329	4122171	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	66	135	249334	4122604	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	67	137	271870	4125184	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	68	139	257985	4123905	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	69	141	271806	4126074	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	70	143	267833	4126849	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	71	145	262158	4123898	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	72	147	286812	4115908	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	73	149	284366	4114083	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	74	151	281992	4115032	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	75	153	286782	4118241	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	76	155	284120	4118309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	77	157	282132	4120470	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	78	159	288280	4114206	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	79	161	285790	4114158	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	80	163	282619	4115238	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	81	165	264731	4130156	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	82	167	273402	4126031	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	83	169	273955	4113578	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	84	171	281694	4117261	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	85	173	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	86	175	271851	4127738	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	87	180	289976	4118050	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	88	182	272626	4123608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	89	184	281321	4123378	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	90	188	279846	4128080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	91	190	281249	4124046	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	92	194	285007	4121729	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	93	197	296270	4113898	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	94	199	283718	4123427	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	95	201	285948	4120372	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	96	203	288433	4120309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	97	206	281439	4127927	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	98	209	282966	4121781	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	99	211	289873	4113944	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	100	212	283386	4124324	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	101	214	285422	4120608	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-29. Small Wellhead Engine Emission Inventory (Alternative 1) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	102	216	288435	4116867	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	103	218	295549	4113471	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	104	220	273443	4124253	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	105	222	283412	4121880	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	106	224	290652	4116701	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	107	226	264640	4126938	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	108	228	282056	4124358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	109	231	277363	4128146	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	110	233	287211	4114122	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	111	235	260454	4123279	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	112	238	296251	4113122	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	113	240	263008	4131981	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	114	241	281705	4114262	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	115	243	260634	4126495	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	116	245	259497	4123973	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	117	247	281627	4124924	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	118	250	282909	4123004	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	119	252	284534	4120630	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	120	254	263091	4128647	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	121	256	289512	4117284	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	122	258	286690	4121575	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	123	260	282009	4119140	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	124	262	285362	4118277	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	125	264	286075	4118370	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	126	266	287451	4116559	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	127	268	283997	4113537	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	128	269	284423	4119744	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	129	271	283606	4122542	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	130	273	274998	4125988	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	131	275	268658	4127826	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	132	277	284323	4115860	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	133	279	276353	4116846	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	134	281	276086	4113522	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	135	283	277161	4113826	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	136	285	285418	4113501	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	137	287	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	138	289	262961	4130317	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	139	291	262870	4127098	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	140	293	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	141	295	267216	4130197	4.6	4.0	0.1	1.5	0.2	3.8	477
Total Emissions					**727**	**632**	**15.8**				

Table A-30. Small Wellhead Engine Emission Inventory (Alternative 2)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Huber engine	1	1	263008	4131981	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	2	2	259133	4129870	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	3	3	263091	4128647	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	4	5	264640	4126938	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	5	6	271025	4126761	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	6	8	270212	4126228	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	7	10	266019	4125455	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	8	12	260454	4123279	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	9	13	258942	4123212	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	10	15	284474	4121742	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	11	17	289873	4113944	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	12	19	289820	4115389	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	13	21	290652	4116701	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	14	23	289953	4117162	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	15	25	289190	4118625	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	16	27	289976	4118050	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	17	29	292360	4113882	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	18	31	293869	4113846	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	19	33	293409	4113191	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	20	35	294938	4113931	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	21	37	295549	4113471	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	22	39	296251	4113122	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	23	41	279846	4128080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	24	43	280629	4127505	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	25	45	281439	4127927	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	26	47	281384	4125819	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	27	49	282276	4126018	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	28	51	274918	4122991	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	29	53	274862	4124214	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	30	55	273443	4124253	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	31	57	272626	4123608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	32	59	277363	4128146	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	33	61	276595	4125945	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	34	63	280560	4124841	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	35	65	282056	4124358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	36	67	281321	4123378	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	37	69	282013	4122694	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	38	71	282946	4124446	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	39	73	283718	4123427	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	40	75	282909	4123004	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	41	77	282966	4121781	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	42	79	285118	4122614	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	43	81	285894	4121706	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	44	83	283641	4120431	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	45	85	285422	4120608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	46	87	285845	4119819	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	47	89	287640	4120551	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	48	91	286911	4119793	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	49	93	288433	4120309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	50	95	288383	4118312	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	51	97	287676	4118441	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	52	99	286802	4119018	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	53	101	286075	4118370	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	54	103	285382	4119054	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	55	105	286749	4116909	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	56	107	287554	4117111	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	57	109	288435	4116867	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	58	111	284120	4118309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	59	113	282565	4120014	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-30. Small Wellhead Engine Emission Inventory (Alternative 2) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	60	115	282001	4118808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	61	117	281210	4115719	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	62	119	281705	4114262	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	63	121	283467	4113662	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	64	123	284366	4114083	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	65	125	285349	4114280	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	66	127	286576	4113583	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	67	129	287211	4114122	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	68	131	288299	4114983	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	69	133	287500	4115003	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	70	135	287431	4115782	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	71	137	285039	4116065	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	72	139	285907	4115265	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	73	141	284323	4115860	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	74	143	284011	4117534	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	75	145	285941	4116597	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	76	147	277161	4113826	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	77	149	276086	4113522	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	78	151	275488	4114425	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	79	153	273982	4114577	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	80	155	274798	4115221	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	81	157	274816	4115887	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	82	159	276507	4115953	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	83	161	276353	4116846	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	84	163	260818	4132932	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	85	165	261438	4132914	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	86	167	263119	4132755	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	87	169	264714	4132711	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	88	171	256623	4132053	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	89	173	258219	4132006	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	90	174	259194	4131979	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	91	175	259814	4131961	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	92	176	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	93	178	264689	4131823	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	94	180	266192	4131670	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	95	182	254920	4131436	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	96	184	256604	4131387	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	97	186	258200	4131341	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	98	188	254388	4131451	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	99	190	264670	4131157	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	100	192	265645	4131130	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	101	194	261302	4131252	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	102	196	267149	4130977	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	103	198	272024	4130843	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	104	200	273619	4130800	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	105	202	272644	4130826	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	106	204	275835	4130741	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	107	205	276811	4130714	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	108	207	277431	4130698	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	109	209	278406	4130672	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	110	211	252675	4130502	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	111	213	254270	4130455	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	112	214	254980	4130435	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	113	215	255958	4130517	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	114	217	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	115	218	259681	4130410	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	116	220	264731	4130156	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	117	222	267216	4130197	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	118	224	251680	4129865	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-30. Small Wellhead Engine Emission Inventory (Alternative 2) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	119	226	252658	4129947	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	120	228	254254	4129901	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	121	229	270404	4129999	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	122	230	254963	4129880	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	123	232	271908	4129847	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	124	234	273504	4129804	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	125	236	275191	4129869	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	126	237	275723	4129855	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	127	239	251148	4129881	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	128	241	257531	4129694	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	129	242	279003	4129768	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	130	244	278379	4129673	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	131	246	255935	4129740	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	132	248	265513	4129579	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	133	249	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	134	251	269499	4129358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	135	253	276769	4129161	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	136	255	278986	4129103	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	137	257	279960	4129077	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	138	259	281468	4129038	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	139	261	250143	4128911	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	140	263	251742	4128975	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	141	265	252626	4128838	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	142	266	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	143	267	254934	4128881	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	144	268	255913	4128964	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	145	270	250038	4128359	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	146	272	269472	4128359	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	147	274	251722	4128309	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	148	275	254120	4128349	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	149	277	278959	4128104	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	150	279	255890	4128187	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	151	281	268658	4127826	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	152	283	271851	4127738	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	153	285	278321	4127454	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	154	287	283023	4127443	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	155	289	249388	4127378	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	156	291	283466	4127431	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	157	292	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	158	294	259589	4127192	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	159	296	263842	4126960	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	160	297	249371	4126823	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	161	299	269426	4126693	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	162	301	274215	4126564	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	163	303	283089	4126552	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	164	305	283709	4126536	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	165	307	279890	4126413	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	166	309	257438	4126476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	167	311	262227	4126339	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	168	313	273402	4126031	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	169	315	283695	4125982	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	170	317	278901	4125884	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	171	319	280497	4125842	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	172	321	247833	4125870	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	173	323	251561	4125870	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	174	325	261315	4125476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	175	327	264505	4125275	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	176	329	269384	4125140	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	177	331	282073	4125024	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-30. Small Wellhead Engine Emission Inventory (Alternative 2) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	178	333	258904	4124990	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	179	335	260501	4124944	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	180	337	248253	4125080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	181	339	246738	4124903	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	182	341	278875	4124885	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	183	343	279850	4124860	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	184	345	266885	4124654	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	185	347	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	186	348	265462	4124583	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	187	350	246186	4124253	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	188	352	279832	4124194	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	189	354	280454	4124178	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	190	356	250980	4124221	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	191	358	257985	4123905	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	192	359	261268	4123811	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	193	361	264462	4123721	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	194	363	248207	4123526	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	195	365	249892	4123476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	196	367	277236	4123374	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	197	369	278209	4123237	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	198	371	246688	4123238	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	199	373	280427	4123179	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	200	375	246245	4123252	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	201	377	244644	4123189	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	202	379	268435	4122945	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	203	380	262668	4123106	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	204	382	270121	4122899	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	205	384	244631	4122745	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	206	386	278816	4122666	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	207	388	280413	4122625	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	208	390	273492	4122808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	209	392	276595	4122613	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	210	394	259452	4122420	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	211	396	269121	4122038	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	212	398	273380	4121922	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	213	400	274977	4121880	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	214	402	281455	4121709	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	215	404	278703	4121781	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	216	406	280390	4121736	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	217	408	274947	4120770	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	218	410	276456	4120730	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	219	412	277432	4120704	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	220	414	279650	4120646	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	221	416	290031	4120269	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	222	418	275817	4120080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	223	420	277414	4120038	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	224	422	279015	4120107	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	225	424	289132	4119848	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	226	426	290730	4119808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	227	428	274814	4119108	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	228	430	276415	4119176	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	229	432	277391	4119150	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	230	434	279610	4119092	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	231	436	290705	4118809	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	232	438	275687	4118529	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	233	440	277373	4118485	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	234	442	278971	4118443	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	235	444	274772	4117554	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	236	446	277968	4117469	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-30. Small Wellhead Engine Emission Inventory (Alternative 2) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	237	448	277258	4117488	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	238	450	283653	4117432	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	239	452	290666	4117255	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	240	454	277240	4116822	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	241	456	278930	4116889	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	242	458	275731	4116862	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	243	460	277217	4115934	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	244	462	279525	4115874	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	245	464	291513	4115569	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	246	466	277910	4115250	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	247	468	279508	4115208	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	248	470	290700	4115034	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	249	472	292117	4114888	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	250	474	279393	4114212	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	251	476	281081	4114168	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	252	478	291563	4114013	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	253	480	279201	4113661	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	254	482	280977	4113615	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	255	484	291547	4113347	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	256	488	281938	4119808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	257	490	280586	4119067	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	258	492	281880	4117589	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	259	494	280969	4116725	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	260	496	283240	4115222	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	261	498	281639	4115152	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	262	500	284423	4119744	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	263	501	284408	4119190	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	264	503	283587	4118322	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	265	505	280281	4120962	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	266	507	281320	4119936	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	267	509	280658	4118398	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	268	511	280546	4117513	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	269	513	280505	4115959	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	270	515	282831	4116566	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	271	517	282573	4113463	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	272	519	283679	4114989	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	273	521	283636	4116767	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	274	523	282722	4115791	4.6	4.0	0.1	1.5	0.2	3.8	477
Total Emissions					**1,260**	**1,096**	**27.4**				

Table A-31. Small Wellhead Engine Emission Inventory (Alternative 3)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Huber engine	1	5	264640	4126938	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	2	13	258942	4123212	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	3	148	263842	4126960	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	4	171	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	5	178	261268	4123811	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	6	190	262668	4123106	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	7	1	263008	4131981	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	8	2	259133	4129870	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	9	117	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	10	118	261302	4131252	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	11	120	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	12	126	257531	4129694	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	13	128	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	14	133	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	15	134	254934	4128881	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	16	137	254120	4128349	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	17	145	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	1	3	263091	4128647	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	2	6	271025	4126761	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	3	8	270212	4126228	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	4	10	266019	4125455	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	5	12	260454	4123279	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	6	15	284474	4121742	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	7	17	289873	4113944	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	8	19	289820	4115389	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	9	21	290652	4116701	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	10	23	289953	4117162	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	11	25	289190	4118625	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	12	27	289976	4118050	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	13	29	292360	4113882	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	14	31	293869	4113846	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	15	33	293409	4113191	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	16	35	294938	4113931	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	17	37	295549	4113471	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	18	39	296251	4113122	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	19	41	279846	4128080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	20	43	280629	4127505	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	21	45	281439	4127927	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	22	47	281384	4125819	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	23	49	282276	4126018	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	24	51	274918	4122991	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	25	53	274862	4124214	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	26	55	273443	4124253	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	27	57	272626	4123608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	28	59	277363	4128146	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	29	61	276595	4125945	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	30	63	280560	4124841	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	31	65	282056	4124358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	32	67	281321	4123378	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	33	69	282013	4122694	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	34	71	282946	4124446	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	35	73	283718	4123427	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	36	75	282909	4123004	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	37	77	282966	4121781	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	38	79	285118	4122614	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	39	81	285894	4121706	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	40	83	283641	4120431	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	41	85	285422	4120608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	42	87	285845	4119819	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-31. Small Wellhead Engine Emission Inventory (Alternative 3) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	43	89	287640	4120551	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	44	91	286911	4119793	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	45	93	288433	4120309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	46	95	288383	4118312	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	47	97	287676	4118441	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	48	99	286802	4119018	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	49	101	286075	4118370	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	50	103	285382	4119054	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	51	105	286749	4116909	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	52	107	287554	4117111	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	53	109	288435	4116867	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	54	111	284120	4118309	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	55	113	282565	4120014	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	56	115	282001	4118808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	57	119	281705	4114262	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	58	122	283997	4113537	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	59	124	285790	4114158	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	60	127	286576	4113583	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	61	130	288280	4114206	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	62	132	288313	4115538	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	63	136	286812	4115908	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	64	139	285907	4115265	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	65	141	284323	4115860	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	66	143	284011	4117534	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	67	146	285418	4113501	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	68	149	276086	4113522	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	69	151	275488	4114425	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	70	153	273982	4114577	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	71	155	274798	4115221	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	72	157	274816	4115887	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	73	159	276507	4115953	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	74	161	276353	4116846	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	75	163	260818	4132932	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	76	165	261438	4132914	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	77	167	263119	4132755	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	78	169	264714	4132711	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	79	172	257598	4132025	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	80	174	259194	4131979	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	81	176	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	82	179	265661	4131685	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	83	181	267167	4131643	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	84	183	255895	4131407	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	85	185	257491	4131361	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	86	187	267959	4131399	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	87	189	264049	4131174	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	88	192	265645	4131130	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	89	194	261302	4131252	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	90	196	267149	4130977	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	91	198	272024	4130843	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	92	200	273619	4130800	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	93	202	272644	4130826	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	94	204	275835	4130741	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	95	206	279027	4130656	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	96	208	270429	4130887	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	97	210	280001	4130630	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	98	212	253296	4130484	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	99	214	254980	4130435	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	100	215	255958	4130517	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	101	217	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-31. Small Wellhead Engine Emission Inventory (Alternative 3) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	102	219	262961	4130317	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	103	221	266235	4130003	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	104	223	268808	4130043	4.6	4.0	0.1	1.5	0.2	3.8	477
Total Emissions					**557**	**484**	**12.1**				

Table A-32. Small Wellhead Engine Emission Inventory (Alternative 4)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Huber engine	1	1	264640	4126938	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	2	2	258942	4123212	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	3	5	261268	4123811	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	4	13	263842	4126960	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	5	70	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	6	76	262668	4123106	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	7	110	263008	4131981	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	8	157	259133	4129870	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	9	158	261302	4131252	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	10	160	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	11	163	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	12	164	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	13	166	257531	4129694	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	14	171	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	15	173	254934	4128881	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	16	181	254120	4128349	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	17	186	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	1	3	263091	4128647	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	2	6	271025	4126761	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	3	8	270212	4126228	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	4	10	266019	4125455	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	5	12	260454	4123279	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	6	15	285007	4121729	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	7	17	288280	4114206	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	8	19	287197	4113567	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	9	21	283997	4113537	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	10	23	287506	4115225	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	11	25	285904	4115154	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	12	27	284349	4116860	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	13	29	289953	4117162	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	14	31	289176	4118070	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	15	33	286891	4119015	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	16	35	285937	4119928	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	17	37	285422	4120608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	18	39	286072	4118259	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	19	41	279761	4124862	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	20	43	280163	4126629	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	21	45	279751	4127860	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	22	47	277173	4114270	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	23	49	276086	4113522	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	24	51	273982	4114577	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	25	53	275619	4115977	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	26	55	278045	4117023	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	27	57	277572	4119256	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	28	59	275704	4119195	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	29	61	277346	4120817	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	30	63	278793	4121778	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	31	65	278212	4123348	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	32	67	276442	4116843	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	33	69	289992	4118716	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	34	72	259681	4130410	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	35	74	266235	4130003	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	36	77	269499	4129358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	37	79	275170	4129093	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	38	81	278338	4128120	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	39	83	275043	4127652	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	40	85	282048	4127468	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	41	87	259589	4127192	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	42	89	269426	4126693	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-32. Small Wellhead Engine Emission Inventory (Alternative 4) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	43	91	257438	4126476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	44	93	271806	4126074	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	45	95	274998	4125988	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	46	97	267787	4125184	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	47	99	271870	4125184	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	48	101	250024	4124916	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	49	103	268570	4124608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	50	105	282056	4124358	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	51	107	276639	4124278	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	52	109	254173	4124127	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	53	112	275725	4123303	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	54	114	252554	4123397	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	55	116	254151	4123350	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	56	118	263647	4123190	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	57	120	268435	4122945	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	58	122	270121	4122899	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	59	124	283524	4122766	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	60	126	273492	4122808	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	61	128	276595	4122613	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	62	130	269121	4122038	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	63	132	273380	4121922	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	64	134	284474	4121742	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	65	136	277106	4121823	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	66	138	279032	4120773	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	67	140	274134	4120236	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	68	142	274107	4119237	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	69	144	277995	4118468	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	70	146	277258	4117488	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	71	148	288446	4117311	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	72	150	275731	4116862	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	73	152	290649	4116590	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	74	154	279508	4115208	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	75	156	289965	4114053	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	76	161	265513	4129579	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	77	165	255913	4128964	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	78	168	255890	4128187	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	79	170	271851	4127738	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	80	174	262227	4126339	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	81	176	261315	4125476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	82	178	258904	4124990	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	83	180	248253	4125080	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	84	183	262158	4123898	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	85	185	248207	4123526	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	86	188	264329	4122171	4.6	4.0	0.1	1.5	0.2	3.8	477
Total Emissions					**474**	**412**	**10.3**				

Table A-33. Small Wellhead Engine Emission Inventory (Alternative 5)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Huber engine	1	207	263842	4126960	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	2	230	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	3	237	261268	4123811	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	4	249	262668	4123106	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	5	hub1	264640	4126938	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	6	hub2	258942	4123212	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	7	176	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	8	177	261302	4131252	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	9	179	258263	4130450	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	10	185	257531	4129694	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	11	187	260723	4129603	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	12	192	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	13	193	254934	4128881	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	14	196	254120	4128349	4.6	4.0	0.1	1.5	0.2	3.8	477
Huber engine	15	204	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	1	1	290652	4116701	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	2	3	289953	4117162	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	3	5	289190	4118625	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	4	7	289976	4118050	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	5	9	287640	4120551	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	6	11	288428	4120088	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	7	13	287601	4118998	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	8	15	288313	4115538	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	9	17	271025	4126761	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	10	19	270212	4126228	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	11	21	284474	4121742	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	12	23	260793	4132044	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	13	25	262451	4131109	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	14	27	259681	4130410	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	15	29	264731	4130156	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	16	31	267216	4130197	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	17	33	265513	4129579	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	18	35	262407	4129555	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	19	37	267191	4129310	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	20	39	253338	4128927	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	21	41	255913	4128964	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	22	43	254120	4128349	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	23	45	255890	4128187	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	24	47	263956	4127845	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	25	49	275043	4127652	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	26	51	254268	4127345	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	27	53	262870	4127098	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	28	55	267833	4126849	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	29	57	274215	4126564	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	30	59	268616	4126272	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	31	61	271806	4126074	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	32	63	274998	4125988	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	33	65	261315	4125476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	34	67	264505	4125275	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	35	69	269384	4125140	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	36	71	258904	4124990	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	37	73	250024	4124916	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	38	75	266885	4124654	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	39	77	262712	4124660	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	40	79	271849	4124407	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	41	81	250980	4124221	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	42	83	257985	4123905	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	43	85	262158	4123898	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	44	87	248207	4123526	4.6	4.0	0.1	1.5	0.2	3.8	477

Table A-33. Small Wellhead Engine Emission Inventory (Alternative 5) (continued)

Source Description	Well Count	Record Number	UTM Easting (m)	UTM Northing (m)	NOx (t/yr)	CO (t/yr)	HAP (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
wellhead engine	45	89	249892	4123476	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	46	91	277236	4123374	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	47	93	263647	4123190	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	48	95	268435	4122945	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	49	97	269323	4122921	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	50	99	271718	4122856	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	51	101	249334	4122604	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	52	103	252975	4122608	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	53	105	264329	4122171	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	54	107	270186	4122009	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	55	109	274977	4121880	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	56	111	274947	4120770	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	57	113	274843	4120217	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	58	115	274772	4117554	4.6	4.0	0.1	1.5	0.2	3.8	477
wellhead engine	59	117	275731	4116862	4.6	4.0	0.1	1.5	0.2	3.8	477
Total Emissions					**340**	**296**	**7.4**				

Table A-34. Near Field Modeling Input Values (Alternative 1)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Elmridge 1	ELM1A	288,301	4,112,688	0.52	0.69	0.08	6.6	644	17.3	0.46	3.9	3.9	6,399
2	Elmridge 1	ELM1B	288,301	4,112,698	0.52	0.69	0.08	6.6	644	17.3	0.46	3.9	3.9	6,399
3	Elmridge 1	ELM1C	288,301	4,112,708	0.52	0.69	0.08	6.6	644	17.3	0.46	3.9	3.9	6,399
4	Elmridge 1	ELM1D	288,301	4,112,718	0.52	0.69	0.08	6.6	644	17.3	0.46	3.9	3.9	6,399
5	Elmridge 1	ELM1DEHY	288,301	4,112,728	0.13	0.11	0.00	3.5	533	6.4	0.15	2.3	2.3	6,399
6	Elmridge 1	ELM1SEP	288,301	4,112,738	0.09	0.15	0.00	3.5	533	6.4	0.15	2.3	2.3	6,399
7	Elmridge 2	ELM2A	274,470	4,114,300	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
8	Elmridge 2	ELM2B	274,470	4,114,310	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
9	Elmridge 2	ELM2C	274,470	4,114,320	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
10	Elmridge 2	ELM2D	274,470	4,114,330	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
11	Elmridge 2	ELM2E	274,470	4,114,340	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
12	Elmridge 2	ELM2F	274,470	4,114,350	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
13	Elmridge 2	ELM2G	274,470	4,114,360	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
14	Elmridge 2	ELM2H	274,470	4,114,370	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
15	Elmridge 2	ELM2I	274,470	4,114,380	0.63	0.83	0.10	9.5	644	29.2	0.38	5.9	5.9	6,996
16	Elmridge 2	ELM2DEHY	274,470	4,114,270	0.13	0.11	0.00	3.5	533	6.4	0.15	2.0	2.0	6,996
17	Elmridge 2	ELM2SEP	274,470	4,114,280	0.11	0.36	0.00	3.5	533	6.4	0.2	2.0	2.0	6,996
18	Elmridge 2	ELM2SEPa	274,470	4,114,290	0.11	0.36	0.00	3.5	533	6.4	0.2	2.0	2.0	6,996
19	PETROX 1	PET1	292,405	4,113,912	0.26	0.34	0.04	3.1	644	24.1	0.3	2.0	2.0	6,396
20	PETROX 1	PET1DEH	292,405	4,113,922	0.13	0.11	0.00	3.0	533	6.4	0.2	2.0	2.0	6,396
21	PETROX 1	PET1SEP	292,405	4,113,932	0.02	0.02	0.00	3.0	533	6.4	0.2	2.0	2.0	6,396
22	PETROX 2	PET2	286,151	4,120,460	0.79	1.06	0.12	9.1	644	26.3	0.46	4.9	4.9	7,613
23	PETROX 2	PET2DEH	286,151	4,120,470	0.13	0.11	0.00	3.1	533	6.4	0.2	2.0	2.0	7,613
24	PETROX 2	PET2SEP	286,151	4,120,480	0.03	0.06	0.00	3.1	533	6.4	0.2	2.0	2.0	7,613
25	PETROX 2	PET2SEPa	286,151	4,120,450	0.03	0.06	0.00	3.1	533	6.4	0.2	2.0	2.0	7,613
26	BP AMOCO 1	BP1A	273,670	4,124,111	0.56	0.74	0.09	4.6	644	18.4	0.46	3.0	3.0	7,141
27	BP AMOCO 1	BP1B	273,670	4,124,121	0.56	0.74	0.09	4.6	644	18.4	0.46	3.0	3.0	7,141
28	BP AMOCO 1	BP1C	273,670	4,124,131	0.56	0.74	0.09	4.6	644	18.4	0.46	3.0	3.0	7,141
29	BP AMOCO 1	BP1SEP	273,670	4,124,141	0.13	0.11	0.00	3	533	6.4	0.15	2.0	2.0	7,141
30	BP AMOCO 1	BP1DEH	273,670	4,124,151	0.14	0.12	0.00	3	533	6.4	0.15	2.0	2.0	7,141
31	BP AMOCO 2	BP2A	275,030	4,114,050	0.63	0.83	0.10	4.6	644	29.9	0.38	3.0	3.0	6,799
32	BP AMOCO 2	BP2B	275,030	4,114,060	0.63	0.83	0.10	4.6	644	29.9	0.38	3.0	3.0	6,799
33	BP AMOCO 2	BP2SEP	275,030	4,114,070	0.13	0.11	0.00	3	533	6.4	0.2	2.0	2.0	6,799
34	BP AMOCO 2	BP2DEH	275,030	4,114,080	0.11	0.09	0.00	3	533	6.4	0.2	2.0	2.0	6,799
35	PETROX 3	PET3	283,100	4,123,180	0.26	0.34	0.04	3.05	644	24.1	0.3	2.0	2.0	7,616

Table A-34. Near Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	PETROX 3	PET3SEP	283,100	4,123,190	0.13	0.11	0.04	3	533	6.4	0.2	2.0	2.0	7,616
37	PETROX 3	PET3DEH	283,100	4,123,200	0.02	0.02	0.04	3	533	6.4	0.2	2.0	2.0	7,616
38	PETROX 4	PET4	281,500	4,123,161	0.26	0.34	0.04	3.05	644	24.1	0.3	2.0	2.0	8,197
39	PETROX 4	PET4SEP	281,500	4,123,171	0.13	0.11	0.00	3	533	6.4	0.2	2.0	2.0	8,197
40	PETROX 4	PET4DEH	281,500	4,123,181	0.02	0.02	0.00	3	533	6.4	0.2	2.0	2.0	8,197
41	PURE 1	PUR1	251,600	4,125,830	0.63	0.83	0.10	4.6	644	29.9	0.38	3.0	3.0	7,036
42	PURE 1	PUR1SEP	251,600	4,125,840	0.13	0.11	0.10	3	533	6.4	0.2	2.0	2.0	7,036
43	PURE 1	PUR1DEH	251,600	4,125,850	0.05	0.05	0.10	3	533	6.4	0.2	2.0	2.0	7,036
44	PURE 2	PUR2	249,350	4,125,160	0.10	0.13	0.02	3	583	21.5	0.18	2.0	2.0	6,803
45	PURE 2	PUR2SEP	249,350	4,125,170	0.13	0.11	0.00	3	533	6.44	0.18	2.0	2.0	6,803
46	PURE 2	PUR2DEH	249,350	4,125,180	0.01	0.01	0.00	3	533	6.44	0.15	2.0	2.0	6,803
47	BP 3	BP3A	272,164	4,126,575	0.63	0.83	0.10	4.6	644	29.9	0.38	3.0	3.0	6,996
48	BP 3	BP3B	272,164	4,126,585	0.63	0.83	0.10	4.6	644	29.9	0.38	3.0	3.0	6,996
49	BP 3	BP3SEP	272,164	4,126,595	0.13	0.11	0.00	3	533	6.4	0.2	2.0	2.0	6,996
50	BP 3	BP3DEH	272,164	4,126,605	0.11	0.09	0.00	3	533	6.4	0.2	2.0	2.0	6,996
51	BP 4	BP4A	259,000	4,124,000	0.56	0.74	0.09	4.6	644	18.4	0.46	3.0	3.0	7,082
52	BP 4	BP4B	259,000	4,124,010	0.56	0.74	0.09	4.6	644	18.4	0.46	3.0	3.0	7,082
53	BP 4	BP4C	259,000	4,124,020	0.56	0.74	0.09	4.6	644	18.4	0.46	3.0	3.0	7,082
54	BP 4	BP4SEP	259,000	4,124,030	0.13	0.11	0.00	3	533	6.4	0.2	2.0	2.0	7,082
55	BP 4	BP4DEH	259,000	4,124,040	0.14	0.12	0.00	3	533	6.4	0.2	2.0	2.0	7,082
56	Cross Timbers	HUB1	257,000	4,125,000	0.52	0.69	0.08	4.6	644.0	17.3	0.5	3.0	3.0	6,934
57	Cross Timbers	HUB2	257,000	4,125,010	0.52	0.69	0.08	4.6	644.0	17.3	0.5	3.0	3.0	6,934
58	Cross Timbers	HUBSEP	257,000	4,125,020	0.13	0.11	0.00	3.0	533.0	6.4	0.2	2.0	2.0	6,934
59	Cross Timbers	HUBDEH	257,000	4,125,030	0.09	0.08	0.00	3.0	533.0	6.4	0.2	2.0	2.0	6,934
60	Bayfield	BAY1	271,500	4,125,000	0.83	1.11	0.13	7.5	644.0	28.6	0.5	4.9	4.9	6,996
61	Bayfield	BAYDEH	271,500	4,125,010	0.13	0.11	0.00	3.0	533.0	6.4	0.2	2.0	2.0	6,996
62	Bayfield	BAYSEP	271,500	4,125,020	0.07	0.06	0.00	3.0	533.0	6.4	0.2	2.0	2.0	6,996
63	Huber engine	5	264,640	4,126,938	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,478
64	Huber engine	13	258,942	4,123,212	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
65	Huber engine	207	263,842	4,126,960	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,744
66	Huber engine	230	262,712	4,124,660	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
67	Huber engine	237	261,268	4,123,811	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,022
68	Huber engine	249	262,668	4,123,106	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
69	Huber engine	1	263,008	4,131,981	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,970
70	Huber engine	2	259,133	4,129,870	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,498

(1) 0.0017584 g/s HAP emission

Table A-34. Near Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Huber engine	176	260,793	4,132,044	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,875
72	Huber engine	177	261,302	4,131,252	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,738
73	Huber engine	179	258,263	4,130,450	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,574
74	Huber engine	185	257,531	4,129,694	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,383
75	Huber engine	187	260,723	4,129,603	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,564
76	Huber engine	192	253,338	4,128,927	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,272
77	Huber engine	193	254,934	4,128,881	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,311
78	Huber engine	196	254,120	4,128,349	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
79	Huber engine	204	254,268	4,127,345	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,052
80	wellhead engine	3	282,897	4,126,002	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,957
81	wellhead engine	6	283,641	4,120,431	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
82	wellhead engine	8	285,894	4,121,706	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,410
83	wellhead engine	10	277,316	4,126,370	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,446
84	wellhead engine	12	292,360	4,113,882	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,396
85	wellhead engine	15	261,315	4,125,476	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,206
86	wellhead engine	17	282,848	4,120,673	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
87	wellhead engine	19	280,281	4,120,962	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,102
88	wellhead engine	21	280,546	4,117,513	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
89	wellhead engine	23	280,340	4,119,850	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
90	wellhead engine	25	283,587	4,118,322	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,085
91	wellhead engine	27	280,658	4,118,398	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
92	wellhead engine	29	282,768	4,117,566	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
93	wellhead engine	31	282,573	4,113,463	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,803
94	wellhead engine	33	282,831	4,116,566	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,344
95	wellhead engine	35	283,702	4,115,877	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,738
96	wellhead engine	37	285,237	4,116,837	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,197
97	wellhead engine	39	282,722	4,115,791	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,029
98	wellhead engine	41	285,108	4,115,285	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,596
99	wellhead engine	43	285,941	4,116,597	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,816
100	wellhead engine	45	276,507	4,115,953	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,895
101	wellhead engine	47	274,816	4,115,887	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
102	wellhead engine	49	258,263	4,130,450	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,596
103	wellhead engine	51	288,535	4,117,309	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
104	wellhead engine	53	286,852	4,117,462	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,275
105	wellhead engine	55	288,428	4,120,088	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,252

(1) 0.0017584 g/s HAP emission

Table A-34. Near Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	UTM Easting (m)	UTM Northing (m)	Emission Rate NOx (g/s)	Emission Rate CO (g/s)	Emission Rate HAP (g/s)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
106	wellhead engine	57	287,640	4,120,551	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,328
107	wellhead engine	59	287,431	4,115,782	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
108	wellhead engine	61	285,349	4,114,280	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,537
109	wellhead engine	63	286,047	4,117,260	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,816
110	wellhead engine	65	282,805	4,119,009	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
111	wellhead engine	67	274,000	4,115,243	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
112	wellhead engine	69	280,586	4,119,067	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
113	wellhead engine	71	267,191	4,129,310	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,403
114	wellhead engine	73	273,532	4,127,582	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,206
115	wellhead engine	75	269,499	4,129,358	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,177
116	wellhead engine	77	254,934	4,128,881	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,403
117	wellhead engine	79	269,384	4,125,140	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,045
118	wellhead engine	81	276,639	4,124,278	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,347
119	wellhead engine	83	275,043	4,127,652	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
120	wellhead engine	85	268,570	4,124,608	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,045
121	wellhead engine	87	271,849	4,124,407	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
122	wellhead engine	89	274,977	4,121,880	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,131
123	wellhead engine	91	270,121	4,122,899	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
124	wellhead engine	93	275,731	4,116,862	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,482
125	wellhead engine	95	277,106	4,121,823	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,350
126	wellhead engine	97	274,947	4,120,770	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
127	wellhead engine	99	268,435	4,122,945	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
128	wellhead engine	101	248,207	4,123,526	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,819
129	wellhead engine	103	266,885	4,124,654	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
130	wellhead engine	105	263,647	4,123,190	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,147
131	wellhead engine	107	270,186	4,122,009	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,954
132	wellhead engine	109	289,013	4,115,076	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,799
133	wellhead engine	111	274,215	4,126,564	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
134	wellhead engine	113	259,681	4,130,410	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,629
135	wellhead engine	115	281,938	4,119,808	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
136	wellhead engine	117	276,397	4,115,179	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,154
137	wellhead engine	119	280,969	4,116,725	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
138	wellhead engine	121	255,890	4,128,187	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,219
139	wellhead engine	123	263,707	4,125,297	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,596
140	wellhead engine	125	262,712	4,124,660	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,544

(1) 0.0017584 g/s HAP emission

Table A-34. Near Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
141	wellhead engine	127	252,554	4,123,397	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,960
142	wellhead engine	129	273,489	4,122,696	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,147
143	wellhead engine	131	274,843	4,120,217	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
144	wellhead engine	133	264,329	4,122,171	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
145	wellhead engine	135	249,334	4,122,604	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,796
146	wellhead engine	137	271,870	4,125,184	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,072
147	wellhead engine	139	257,985	4,123,905	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,180
148	wellhead engine	141	271,806	4,126,074	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
149	wellhead engine	143	267,833	4,126,849	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
150	wellhead engine	145	262,158	4,123,898	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,337
151	wellhead engine	147	286,812	4,115,908	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
152	wellhead engine	149	284,366	4,114,083	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,016
153	wellhead engine	151	281,992	4,115,032	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
154	wellhead engine	153	286,782	4,118,241	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,413
155	wellhead engine	155	284,120	4,118,309	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,085
156	wellhead engine	157	282,132	4,120,470	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
157	wellhead engine	159	288,280	4,114,206	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,737
158	wellhead engine	161	285,790	4,114,158	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
159	wellhead engine	163	282,619	4,115,238	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,252
160	wellhead engine	165	264,731	4,130,156	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,692
161	wellhead engine	167	273,402	4,126,031	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
162	wellhead engine	169	273,955	4,113,578	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,796
163	wellhead engine	171	281,694	4,117,261	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,597
164	wellhead engine	173	260,723	4,129,603	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,797
165	wellhead engine	175	271,851	4,127,738	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,469
166	wellhead engine	180	289,976	4,118,050	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
167	wellhead engine	182	272,626	4,123,608	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,052
168	wellhead engine	184	281,321	4,123,378	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,226
169	wellhead engine	188	279,846	4,128,080	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,800
170	wellhead engine	190	281,249	4,124,046	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,397
171	wellhead engine	194	285,007	4,121,729	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,596
172	wellhead engine	197	296,270	4,113,898	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
173	wellhead engine	199	283,718	4,123,427	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,596
174	wellhead engine	201	285,948	4,120,372	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,649
175	wellhead engine	203	288,433	4,120,309	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,311

(1) 0.0017584 g/s HAP emission

Table A-34. Near Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
176	wellhead engine	206	281,439	4,127,927	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,800
177	wellhead engine	209	282,966	4,121,781	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,997
178	wellhead engine	211	289,873	4,113,944	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,596
179	wellhead engine	212	283,386	4,124,324	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,764
180	wellhead engine	214	285,422	4,120,608	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,059
181	wellhead engine	216	288,435	4,116,867	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
182	wellhead engine	218	295,549	4,113,471	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
183	wellhead engine	220	273,443	4,124,253	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,104
184	wellhead engine	222	283,412	4,121,880	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,997
185	wellhead engine	224	290,652	4,116,701	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,796
186	wellhead engine	226	264,640	4,126,938	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,596
187	wellhead engine	228	282,056	4,124,358	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,210
188	wellhead engine	231	277,363	4,128,146	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
189	wellhead engine	233	287,211	4,114,122	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,000
190	wellhead engine	235	260,454	4,123,279	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
191	wellhead engine	238	296,251	4,113,122	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
192	wellhead engine	240	263,008	4,131,981	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,997
193	wellhead engine	241	281,705	4,114,262	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,397
194	wellhead engine	243	260,634	4,126,495	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
195	wellhead engine	245	259,497	4,123,973	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,186
196	wellhead engine	247	281,627	4,124,924	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,157
197	wellhead engine	250	282,909	4,123,004	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,718
198	wellhead engine	252	284,534	4,120,630	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,059
199	wellhead engine	254	263,091	4,128,647	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,997
200	wellhead engine	256	289,512	4,117,284	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,996
201	wellhead engine	258	286,690	4,121,575	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
202	wellhead engine	260	282,009	4,119,140	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
203	wellhead engine	262	285,362	4,118,277	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,397
204	wellhead engine	264	286,075	4,118,370	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,997
205	wellhead engine	266	287,451	4,116,559	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,275
206	wellhead engine	268	283,997	4,113,537	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,016
207	wellhead engine	269	284,423	4,119,744	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	8,797
208	wellhead engine	271	283,606	4,122,542	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,728
209	wellhead engine	273	274,998	4,125,988	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,196
210	wellhead engine	275	268,658	4,127,826	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,127

(1) 0.0017584 g/s HAP emission

Table A-34. Near Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
211	wellhead engine	277	284,323	4,115,860	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,738
212	wellhead engine	279	276,353	4,116,846	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,482
213	wellhead engine	281	276,086	4,113,522	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	6,993
214	wellhead engine	283	277,161	4,113,826	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,544
215	wellhead engine	285	285,418	4,113,501	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,537
216	wellhead engine	287	253,338	4,128,927	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,396
217	wellhead engine	289	262,961	4,130,317	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,800
218	wellhead engine	291	262,870	4,127,098	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,659
219	wellhead engine	293	254,268	4,127,345	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,127
220	wellhead engine	295	267,216	4,130,197	0.13	0.11	(1)	1.524	477	3.8	0.2	1.0668	1.0668	7,521

(1) 0.0017584 g/s HAP emission

Table A-35. Near Field Modeling Input Values (Alternative 2)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Elmridge 1	ELM1A	288,301	4,112,688	0.521	0.694	0.08	6.60	644	17.3	0.46	3.9	3.9	6,399
2	Elmridge 1	ELM1B	288,301	4,112,698	0.521	0.694	0.08	6.60	644	17.3	0.46	3.9	3.9	6,399
3	Elmridge 1	ELM1C	288,301	4,112,708	0.521	0.694	0.08	6.60	644	17.3	0.46	3.9	3.9	6,399
4	Elmridge 1	ELM1D	288,301	4,112,718	0.521	0.694	0.08	6.60	644	17.3	0.46	3.9	3.9	6,399
5	Elmridge 1	ELM1DEHY	288,301	4,112,728	0.126	0.106	0.00	3.50	533	6.4	0.15	2.3	2.3	6,399
6	Elmridge 1	ELM1SEP	288,301	4,112,738	0.089	0.150	0.00	3.50	533	6.4	0.15	2.3	2.3	6,399
7	Elmridge 2	ELM2A	274,470	4,114,300	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
8	Elmridge 2	ELM2B	274,470	4,114,310	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
9	Elmridge 2	ELM2C	274,470	4,114,320	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
10	Elmridge 2	ELM2D	274,470	4,114,330	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
11	Elmridge 2	ELM2E	274,470	4,114,340	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
12	Elmridge 2	ELM2F	274,470	4,114,350	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
13	Elmridge 2	ELM2G	274,470	4,114,360	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
14	Elmridge 2	ELM2H	274,470	4,114,370	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
15	Elmridge 2	ELM2I	274,470	4,114,380	0.625	0.833	0.10	9.50	644	29.2	0.38	5.9	5.9	6,996
16	Elmridge 2	ELM2DEHY	274,470	4,114,270	0.126	0.106	0.00	3.50	533	6.4	0.2	2.0	2.0	6,996
17	Elmridge 2	ELM2SEP	274,470	4,114,280	0.110	0.360	0.00	3.50	533	6.4	0.2	2.0	2.0	6,996
18	Elmridge 2	ELM2SEPa	274,470	4,114,290	0.110	0.360	0.00	3.50	533	6.4	0.2	2.0	2.0	6,996
19	PETROX 1	PET1	292,405	4,113,912	0.258	0.344	0.04	3.05	644	24.1	0.3	2.0	2.0	6,396
20	PETROX 1	PET1DEH	292,405	4,113,922	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	6,396
21	PETROX 1	PET1SEP	292,405	4,113,932	0.022	0.019	0.00	3.00	533	6.4	0.2	2.0	2.0	6,396
22	PETROX 2	PET2	286,151	4,120,460	0.792	1.056	0.12	9.10	644	26.3	0.46	4.9	4.9	7,613
23	PETROX 2	PET2DEH	286,151	4,120,470	0.126	0.106	0.00	3.10	533	6.4	0.2	2.0	2.0	7,613
24	PETROX 2	PET2SEP	286,151	4,120,480	0.034	0.057	0.00	3.10	533	6.4	0.2	2.0	2.0	7,613
25	PETROX 2	PET2SEPa	286,151	4,120,450	0.034	0.057	0.00	3.10	533	6.4	0.2	2.0	2.0	7,613
25	BP AMOCO 1	BP1A	273,670	4,124,111	0.556	0.741	0.09	4.60	644	18.4	0.46	3.0	3.0	7,141
26	BP AMOCO 1	BP1B	273,670	4,124,121	0.556	0.741	0.09	4.60	644	18.4	0.46	3.0	3.0	7,141
27	BP AMOCO 1	BP1C	273,670	4,124,131	0.556	0.741	0.09	4.60	644	18.4	0.46	3.0	3.0	7,141
28	BP AMOCO 1	BP1DEH	273,670	4,124,141	0.126	0.106	0.00	3.00	533	6.4	0.15	2.0	2.0	7,141
29	BP AMOCO 1	BP1SEP	273,670	4,124,151	0.143	0.120	0.00	3.00	533	6.4	0.15	2.0	2.0	7,141
30	BP AMOCO 2	BP2A	275,030	4,114,050	0.625	0.833	0.10	4.60	644	29.9	0.38	3.0	3.0	6,799
31	BP AMOCO 2	BP2B	275,030	4,114,060	0.625	0.833	0.10	4.60	644	29.9	0.38	3.0	3.0	6,799
32	BP AMOCO 2	BP2DEH	275,030	4,114,070	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	6,799
33	BP AMOCO 2	BP2SEP	275,030	4,114,080	0.107	0.090	0.00	3.00	533	6.4	0.2	2.0	2.0	6,799
34	PETROX 3	PET3	283,100	4,123,180	0.258	0.344	0.04	3.05	644	24.1	0.3	2.0	2.0	7,616
35	PETROX 3	PET3DEH	283,100	4,123,190	0.126	0.106	0.00	3.00	533	6.4	0.1524	2.0	2.0	7,616

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	PETROX 3	PET3SEP	283,100	4,123,200	0.022	0.019	0.00	3.00	533	6.4	0.1524	2.0	2.0	7,616
37	PETROX 4	PET4	281,500	4,123,161	0.258	0.344	0.04	3.05	644	24.1	0.3	2.0	2.0	8,197
38	PETROX 4	PET4DEH	281,500	4,123,171	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	8,197
39	PETROX 4	PET4SEP	281,500	4,123,181	0.022	0.019	0.00	3.00	533	6.4	0.2	2.0	2.0	8,197
40	PURE 1	PUR1	251,600	4,125,830	0.625	0.833	0.10	4.60	644	29.9	0.38	3.0	3.0	7,036
41	PURE 1	PUR1DEH	251,600	4,125,840	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	7,036
42	PURE 1	PUR1SEP	251,600	4,125,850	0.054	0.045	0.00	3.00	533	6.4	0.2	2.0	2.0	7,036
43	PURE 2	PUR2	249,350	4,125,160	0.100	0.133	0.02	3.00	583	21.5	0.18	2.0	2.0	6,803
44	PURE 2	PUR2DEH	249,350	4,125,170	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	6,803
45	PURE 2	PUR2SEP	249,350	4,125,180	0.009	0.007	0.00	3.00	533	6.4	0.2	2.0	2.0	6,803
46	BP 3	BP3A	272,164	4,126,575	0.625	0.833	0.10	4.60	644	29.9	0.38	3.0	3.0	6,996
47	BP 3	BP3B	272,164	4,126,585	0.625	0.833	0.10	4.60	644	29.9	0.38	3.0	3.0	6,996
48	BP 3	BP3DEH	272,164	4,126,595	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	6,996
49	BP 3	BP3SEP	272,164	4,126,605	0.107	0.090	0.00	3.00	533	6.4	0.2	2.0	2.0	6,996
50	BP 4	BP4A	259,000	4,124,000	0.556	0.741	0.09	4.60	644	18.4	0.46	3.0	3.0	7082.0
51	BP 4	BP4B	259,000	4,124,010	0.556	0.741	0.09	4.60	644	18.4	0.46	3.0	3.0	7082.0
52	BP 4	BP4C	259,000	4,124,020	0.556	0.741	0.09	4.60	644	18.4	0.46	3.0	3.0	7082.0
53	BP 4	BP4DEH	259,000	4,124,030	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	7082.0
54	BP 4	BP4SEP	259,000	4,124,040	0.143	0.120	0.00	3.00	533	6.4	0.2	2.0	2.0	7082.0
55	Cross Timbers	HUB1	257,000	4,125,000	0.521	0.694	0.08	4.60	644.0	17.3	0.5	3.0	3.0	6,934
56	Cross Timbers	HUB2	257,000	4,125,010	0.521	0.694	0.08	4.60	644.0	17.3	0.5	3.0	3.0	6,934
57	Cross Timbers	HUBDEH	257,000	4,125,020	0.126	0.106	0.00	3.00	533.0	6.4	0.2	2.0	2.0	6,934
58	Cross Timbers	HUBSEP	257,000	4,125,030	0.089	0.075	0.00	3.00	533.0	6.4	0.2	2.0	2.0	6,934
59	Independent 1	IP1	277,120	4,115,417	0.417	0.556	0.06	3.05	644	24.8	0.3	2.0	2.0	7,514
60	Independent 1	IP1DEH	277,120	4,115,427	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	7,514
61	Independent 1	IP1SEP	277,120	4,115,437	0.036	0.030	0.00	3.00	533	6.4	0.2	2.0	2.0	7,514
62	Independent 2	IP2A	275,600	4,120,800	0.833	1.111	0.13	7.50	644	25.3	0.46	4.9	4.9	7,196
63	Independent 2	IP2DEH	275,600	4,120,810	0.126	0.106	0.00	3.00	533	6.4	0.15	2.0	2.0	7,196
64	Independent 2	IP2SEP	275,600	4,120,820	0.071	0.060	0.00	3.00	533	6.4	0.15	2.0	2.0	7,196
65	Independent 3	IP3A	276,435	4,116,788	0.833	1.111	0.13	7.50	644	25.3	0.46	4.9	4.9	7,426
66	Independent 3	IP3DEH	276,435	4,116,778	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	7,426
67	Independent 3	IP3SEP	276,435	4,116,778	0.071	0.060	0.00	3.00	533	6.4	0.2	2.0	2.0	7,426
68	Bayfield	BAY1	271,500	4,125,000	0.833	1.111	0.13	7.50	644	28.6	0.5	4.9	4.9	6,996
69	Bayfield	BAYDEH	271,500	4,125,010	0.126	0.106	0.00	3.00	533	6.4	0.2	2.0	2.0	6,996
70	Bayfield	BAYSEP	271,500	4,125,020	0.071	0.060	0.00	3.00	533	6.4	0.2	2.0	2.0	6,996

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Huber engine	5	263,008	4,131,981	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,970
72	Huber engine	13	259,133	4,129,870	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,498
73	Huber engine	296	263,091	4,128,647	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,797
74	Huber engine	347	264,640	4,126,938	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,478
75	Huber engine	359	271,025	4,126,761	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
76	Huber engine	380	270,212	4,126,228	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,291
77	Huber engine	1	266,019	4,125,455	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,377
78	Huber engine	2	260,454	4,123,279	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,157
79	Huber engine	174	258,942	4,123,212	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
80	Huber engine	175	284,474	4,121,742	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,544
81	Huber engine	176	289,873	4,113,944	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,586
82	Huber engine	213	289,820	4,115,389	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,796
83	Huber engine	214	290,652	4,116,701	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,609
84	Huber engine	217	289,953	4,117,162	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,796
85	Huber engine	228	289,190	4,118,625	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
86	Huber engine	230	289,976	4,118,050	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,396
87	Huber engine	241	292,360	4,113,882	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,396
88	Huber engine	249	293,869	4,113,846	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
89	Huber engine	266	293,409	4,113,191	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,862
90	Huber engine	267	294,938	4,113,931	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,790
91	Huber engine	275	295,549	4,113,471	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,790
92	Huber engine	292	296,251	4,113,122	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,528
93	wellhead engine	3	279,846	4,128,080	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,800
94	wellhead engine	6	280,629	4,127,505	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,800
95	wellhead engine	8	281,439	4,127,927	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,800
96	wellhead engine	10	281,384	4,125,819	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,397
97	wellhead engine	12	282,276	4,126,018	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,256
98	wellhead engine	15	274,918	4,122,991	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
99	wellhead engine	17	274,862	4,124,214	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
100	wellhead engine	19	273,443	4,124,253	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,104
101	wellhead engine	21	272,626	4,123,608	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,052
102	wellhead engine	23	277,363	4,128,146	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
103	wellhead engine	25	276,595	4,125,945	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,446
104	wellhead engine	27	280,560	4,124,841	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,728
105	wellhead engine	29	282,056	4,124,358	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,210

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
106	wellhead engine	31	281,321	4,123,378	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,226
107	wellhead engine	33	282,013	4,122,694	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,125
108	wellhead engine	35	282,946	4,124,446	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,764
109	wellhead engine	37	283,718	4,123,427	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,596
110	wellhead engine	39	282,909	4,123,004	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,718
111	wellhead engine	41	282,966	4,121,781	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
112	wellhead engine	43	285,118	4,122,614	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,596
113	wellhead engine	45	285,894	4,121,706	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,410
114	wellhead engine	47	283,641	4,120,431	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
115	wellhead engine	49	285,422	4,120,608	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,059
116	wellhead engine	51	285,845	4,119,819	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,354
117	wellhead engine	53	287,640	4,120,551	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,328
118	wellhead engine	55	286,911	4,119,793	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,580
119	wellhead engine	57	288,433	4,120,309	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,311
120	wellhead engine	59	288,383	4,118,312	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,209
121	wellhead engine	61	287,676	4,118,441	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,209
122	wellhead engine	63	286,802	4,119,018	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,436
123	wellhead engine	65	286,075	4,118,370	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
124	wellhead engine	67	285,382	4,119,054	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,640
125	wellhead engine	69	286,749	4,116,909	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,275
126	wellhead engine	71	287,554	4,117,111	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
127	wellhead engine	73	288,435	4,116,867	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
128	wellhead engine	75	284,120	4,118,309	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,085
129	wellhead engine	77	282,565	4,120,014	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,597
130	wellhead engine	79	282,001	4,118,808	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
131	wellhead engine	81	281,210	4,115,719	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,584
132	wellhead engine	83	281,705	4,114,262	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,397
133	wellhead engine	85	283,467	4,113,662	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,075
134	wellhead engine	87	284,366	4,114,083	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,016
135	wellhead engine	89	285,349	4,114,280	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,537
136	wellhead engine	91	286,576	4,113,583	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,000
137	wellhead engine	93	287,211	4,114,122	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,000
138	wellhead engine	95	288,299	4,114,983	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,911
139	wellhead engine	97	287,500	4,115,003	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,911
140	wellhead engine	99	287,431	4,115,782	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM Easting (m)	UTM Northing (m)	Emission Rate NOx (g/s)	Emission Rate CO (g/s)	Emission Rate HAP (g/s)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
141	wellhead engine	101	285,039	4,116,065	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,797
142	wellhead engine	103	285,907	4,115,265	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
143	wellhead engine	105	284,323	4,115,860	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,738
144	wellhead engine	107	284,011	4,117,534	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,085
145	wellhead engine	109	285,941	4,116,597	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,816
146	wellhead engine	111	277,161	4,113,826	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,544
147	wellhead engine	113	276,086	4,113,522	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,993
148	wellhead engine	115	275,488	4,114,425	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,875
149	wellhead engine	117	273,982	4,114,577	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
150	wellhead engine	119	274,798	4,115,221	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
151	wellhead engine	121	274,816	4,115,887	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
152	wellhead engine	123	276,507	4,115,953	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,895
153	wellhead engine	125	276,353	4,116,846	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,482
154	wellhead engine	127	260,818	4,132,932	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,164
155	wellhead engine	129	261,438	4,132,914	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,164
156	wellhead engine	131	263,119	4,132,755	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,941
157	wellhead engine	133	264,714	4,132,711	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
158	wellhead engine	135	256,623	4,132,053	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,079
159	wellhead engine	137	258,219	4,132,006	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,062
160	wellhead engine	139	259,194	4,131,979	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,770
161	wellhead engine	141	259,814	4,131,961	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,797
162	wellhead engine	143	260,793	4,132,044	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,875
163	wellhead engine	145	264,689	4,131,823	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,777
164	wellhead engine	147	266,192	4,131,670	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
165	wellhead engine	149	254,920	4,131,436	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
166	wellhead engine	151	256,604	4,131,387	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,600
167	wellhead engine	153	258,200	4,131,341	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,596
168	wellhead engine	155	254,388	4,131,451	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
169	wellhead engine	157	264,670	4,131,157	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,626
170	wellhead engine	159	265,645	4,131,130	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,596
171	wellhead engine	161	261,302	4,131,252	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,964
172	wellhead engine	163	267,149	4,130,977	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,583
173	wellhead engine	165	272,024	4,130,843	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
174	wellhead engine	167	273,619	4,130,800	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
175	wellhead engine	169	272,644	4,130,826	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
176	wellhead engine	171	275,835	4,130,741	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,029
177	wellhead engine	173	276,811	4,130,714	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,902
178	wellhead engine	178	277,431	4,130,698	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,902
179	wellhead engine	180	278,406	4,130,672	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,783
180	wellhead engine	182	252,675	4,130,502	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,544
181	wellhead engine	184	254,270	4,130,455	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
182	wellhead engine	186	254,980	4,130,435	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,826
183	wellhead engine	188	255,958	4,130,517	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
184	wellhead engine	190	258,263	4,130,450	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,574
185	wellhead engine	192	259,681	4,130,410	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,629
186	wellhead engine	194	264,731	4,130,156	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,692
187	wellhead engine	196	267,216	4,130,197	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,521
188	wellhead engine	198	251,680	4,129,865	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,314
189	wellhead engine	200	252,658	4,129,947	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,715
190	wellhead engine	202	254,254	4,129,901	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,439
191	wellhead engine	204	270,404	4,129,999	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,593
192	wellhead engine	205	254,963	4,129,880	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,492
193	wellhead engine	207	271,908	4,129,847	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,797
194	wellhead engine	209	273,504	4,129,804	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,505
195	wellhead engine	211	275,191	4,129,869	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,387
196	wellhead engine	215	275,723	4,129,855	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,400
197	wellhead engine	218	251,148	4,129,881	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
198	wellhead engine	220	257,531	4,129,694	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,383
199	wellhead engine	222	279,003	4,129,768	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,649
200	wellhead engine	224	278,379	4,129,673	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,482
201	wellhead engine	226	255,935	4,129,740	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,636
202	wellhead engine	229	265,513	4,129,579	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,797
203	wellhead engine	232	260,723	4,129,603	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,564
204	wellhead engine	234	269,499	4,129,358	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,177
205	wellhead engine	236	276,769	4,129,161	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
206	wellhead engine	237	278,986	4,129,103	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,449
207	wellhead engine	239	279,960	4,129,077	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,593
208	wellhead engine	242	281,468	4,129,038	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,780
209	wellhead engine	244	250,143	4,128,911	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,187
210	wellhead engine	246	251,742	4,128,975	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,229

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
211	wellhead engine	248	252,626	4,128,838	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
212	wellhead engine	251	253,338	4,128,927	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,272
213	wellhead engine	253	254,934	4,128,881	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,311
214	wellhead engine	255	255,913	4,128,964	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,400
215	wellhead engine	257	250,038	4,128,359	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,416
216	wellhead engine	259	269,472	4,128,359	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,127
217	wellhead engine	261	251,722	4,128,309	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,170
218	wellhead engine	263	254,120	4,128,349	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
219	wellhead engine	265	278,959	4,128,104	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,600
220	wellhead engine	268	255,890	4,128,187	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,219
221	wellhead engine	270	268,658	4,127,826	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,127
222	wellhead engine	272	271,851	4,127,738	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,469
223	wellhead engine	274	278,321	4,127,454	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,701
224	wellhead engine	277	283,023	4,127,443	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,128
225	wellhead engine	279	249,388	4,127,378	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
226	wellhead engine	281	283,466	4,127,431	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,128
227	wellhead engine	283	254,268	4,127,345	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,052
228	wellhead engine	285	259,589	4,127,192	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,446
229	wellhead engine	287	263,842	4,126,960	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,744
230	wellhead engine	289	249,371	4,126,823	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
231	wellhead engine	291	269,426	4,126,693	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,154
232	wellhead engine	294	274,215	4,126,564	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
233	wellhead engine	297	283,089	4,126,552	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,128
234	wellhead engine	299	283,709	4,126,536	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,197
235	wellhead engine	301	279,890	4,126,413	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,230
236	wellhead engine	303	257,438	4,126,476	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,091
237	wellhead engine	305	262,227	4,126,339	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
238	wellhead engine	307	273,402	4,126,031	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
239	wellhead engine	309	283,695	4,125,982	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,026
240	wellhead engine	311	278,901	4,125,884	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,197
241	wellhead engine	313	280,497	4,125,842	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,230
242	wellhead engine	315	247,833	4,125,870	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,275
243	wellhead engine	317	251,561	4,125,870	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,045
244	wellhead engine	319	261,315	4,125,476	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,206
245	wellhead engine	321	264,505	4,125,275	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,239

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
246	wellhead engine	323	269,384	4,125,140	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,045
247	wellhead engine	325	282,073	4,125,024	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,157
248	wellhead engine	327	258,904	4,124,990	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
249	wellhead engine	329	260,501	4,124,944	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,206
250	wellhead engine	331	248,253	4,125,080	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
251	wellhead engine	333	246,738	4,124,903	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
252	wellhead engine	335	278,875	4,124,885	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,256
253	wellhead engine	337	279,850	4,124,860	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,459
254	wellhead engine	339	266,885	4,124,654	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
255	wellhead engine	341	262,712	4,124,660	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
256	wellhead engine	343	265,462	4,124,583	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,239
257	wellhead engine	345	246,186	4,124,253	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,796
258	wellhead engine	348	279,832	4,124,194	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,426
259	wellhead engine	350	280,454	4,124,178	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,426
260	wellhead engine	352	250,980	4,124,221	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
261	wellhead engine	354	257,985	4,123,905	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,180
262	wellhead engine	356	261,268	4,123,811	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,022
263	wellhead engine	358	264,462	4,123,721	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,311
264	wellhead engine	361	248,207	4,123,526	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,819
265	wellhead engine	363	249,892	4,123,476	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,796
266	wellhead engine	365	277,236	4,123,374	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,380
267	wellhead engine	367	278,209	4,123,237	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,672
268	wellhead engine	369	246,688	4,123,238	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,783
269	wellhead engine	371	280,427	4,123,179	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,138
270	wellhead engine	373	246,245	4,123,252	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,754
271	wellhead engine	375	244,644	4,123,189	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,082
272	wellhead engine	377	268,435	4,122,945	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
273	wellhead engine	379	262,668	4,123,106	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
274	wellhead engine	382	270,121	4,122,899	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
275	wellhead engine	384	244,631	4,122,745	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,082
276	wellhead engine	386	278,816	4,122,666	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,931
277	wellhead engine	388	280,413	4,122,625	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,970
278	wellhead engine	390	273,492	4,122,808	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,147
279	wellhead engine	392	276,595	4,122,613	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,380
280	wellhead engine	394	259,452	4,122,420	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
281	wellhead engine	396	269,121	4,122,038	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,944
282	wellhead engine	398	273,380	4,121,922	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,996
283	wellhead engine	400	274,977	4,121,880	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,131
284	wellhead engine	402	281,455	4,121,709	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,502
285	wellhead engine	404	278,703	4,121,781	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,685
286	wellhead engine	406	280,390	4,121,736	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,397
287	wellhead engine	408	274,947	4,120,770	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
288	wellhead engine	410	276,456	4,120,730	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,377
289	wellhead engine	412	277,432	4,120,704	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,669
290	wellhead engine	414	279,650	4,120,646	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,102
291	wellhead engine	416	290,031	4,120,269	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
292	wellhead engine	418	275,817	4,120,080	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,406
293	wellhead engine	420	277,414	4,120,038	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,600
294	wellhead engine	422	279,015	4,120,107	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,469
295	wellhead engine	424	289,132	4,119,848	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
296	wellhead engine	426	290,730	4,119,808	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,396
297	wellhead engine	428	274,814	4,119,108	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
298	wellhead engine	430	276,415	4,119,176	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,442
299	wellhead engine	432	277,391	4,119,150	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,754
300	wellhead engine	434	279,610	4,119,092	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,744
301	wellhead engine	436	290,705	4,118,809	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,341
302	wellhead engine	438	275,687	4,118,529	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,442
303	wellhead engine	440	277,373	4,118,485	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,305
304	wellhead engine	442	278,971	4,118,443	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,597
305	wellhead engine	444	274,772	4,117,554	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,196
306	wellhead engine	446	277,968	4,117,469	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,295
307	wellhead engine	448	277,258	4,117,488	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,082
308	wellhead engine	450	283,653	4,117,432	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
309	wellhead engine	452	290,666	4,117,255	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,796
310	wellhead engine	454	277,240	4,116,822	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,082
311	wellhead engine	456	278,930	4,116,889	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,456
312	wellhead engine	458	275,731	4,116,862	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,482
313	wellhead engine	460	277,217	4,115,934	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,895
314	wellhead engine	462	279,525	4,115,874	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,266
315	wellhead engine	464	291,513	4,115,569	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,599

Table A-35. Near Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
316	wellhead engine	466	277,910	4,115,250	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
317	wellhead engine	468	279,508	4,115,208	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,039
318	wellhead engine	470	290,700	4,115,034	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,504
319	wellhead engine	472	292,117	4,114,888	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,596
320	wellhead engine	474	279,393	4,114,212	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,764
321	wellhead engine	476	281,081	4,114,168	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,397
322	wellhead engine	478	291,563	4,114,013	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,396
323	wellhead engine	480	279,201	4,113,661	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,764
324	wellhead engine	482	280,977	4,113,615	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,397
325	wellhead engine	484	291,547	4,113,347	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	6,393
326	wellhead engine	488	281,938	4,119,808	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
327	wellhead engine	490	280,586	4,119,067	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
328	wellhead engine	492	281,880	4,117,589	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
329	wellhead engine	494	280,969	4,116,725	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,597
330	wellhead engine	496	283,240	4,115,222	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,252
331	wellhead engine	498	281,639	4,115,152	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,597
332	wellhead engine	500	284,423	4,119,744	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
333	wellhead engine	501	284,408	4,119,190	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,797
334	wellhead engine	503	283,587	4,118,322	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,085
335	wellhead engine	505	280,281	4,120,962	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,102
336	wellhead engine	507	281,320	4,119,936	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,728
337	wellhead engine	509	280,658	4,118,398	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,597
338	wellhead engine	511	280,546	4,117,513	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,597
339	wellhead engine	513	280,505	4,115,959	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,584
340	wellhead engine	515	282,831	4,116,566	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,344
341	wellhead engine	517	282,573	4,113,463	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,803
342	wellhead engine	519	283,679	4,114,989	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,167
343	wellhead engine	521	283,636	4,116,767	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	7,997
344	wellhead engine	523	282,722	4,115,791	0.133	0.115	0.002	1.52	477	3.8	0.2	1.1	1.1	8,029

Table A-36. Near Field Modeling Input Values (Alternative 5)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Elmridge 1	ELM1A	288,301	4,112,688	0.52	0.69	0.08	6.6	644	17.3	0.5	3.9	3.9	6399
2	Elmridge 1	ELM1B	288,301	4,112,698	0.52	0.69	0.08	6.6	644	17.3	0.5	3.9	3.9	6399
3	Elmridge 1	ELM1C	288,301	4,112,708	0.52	0.69	0.08	6.6	644	17.3	0.5	3.9	3.9	6399
4	Elmridge 1	ELM1D	288,301	4,112,718	0.52	0.69	0.08	6.6	644	17.3	0.5	3.9	3.9	6399
5	Elmridge 1	ELM1DEHY	288,301	4,112,728	0.13	0.11	0.00	3.5	533	6.4	0.2	2.3	2.3	6399
6	Elmridge 1	ELM1SEP	288,301	4,112,738	0.09	0.15	0.00	3.5	533	6.4	0.2	2.3	2.3	6399
7	PURE 1	PUR1	251,600	4,125,830	0.63	0.83	0.10	4.6	644	29.9	0.4	3.0	3.0	7036
8	PURE 1	PUR1SEP	251,600	4,125,840	0.13	0.11	0.00	3.0	533	6.4	0.2	2.0	2.0	7036
9	PURE 1	PUR1DEH	251,600	4,125,850	0.05	0.05	0.00	3.0	533	6.4	0.2	2.0	2.0	7036
10	PURE 2	PUR2	249,350	4,125,160	0.10	0.13	0.02	3.0	583	21.5	0.2	2.0	2.0	6803
11	PURE 2	PUR2SEP	249,350	4,125,170	0.13	0.11	0.00	3.0	533	6.4	0.2	2.0	2.0	6803
12	PURE 2	PUR2DEH	249,350	4,125,180	0.01	0.01	0.00	3.0	533	6.4	0.2	2.0	2.0	6803
13	BP 3	BP3A	272,164	4,126,575	0.63	0.83	0.10	29.9	644	29.9	0.4	3.0	3.0	6996
14	BP 3	BP3B	272,164	4,126,585	0.6	0.83	0.1	29.9	644	29.9	0.4	3.0	3.0	6996
15	BP 3	BP3SEP	272,164	4,126,595	0.1	0.11	0.0	6.4	533	6.4	0.2	2.0	2.0	6996
16	BP 3	BP3DEH	272,164	4,126,605	0.1	0.09	0.0	6.4	533	6.4	0.2	2.0	2.0	6996
17	Cross Timbers	HUB1	257,000	4,125,000	0.5	0.69	0.1	4.6	644	17.3	0.5	3.0	3.0	6934
18	Cross Timbers	HUB2	257,000	4,125,010	0.5	0.69	0.1	4.6	644	17.3	0.5	3.0	3.0	6934
19	Cross Timbers	HUBDEH	257,000	4,125,020	0.1	0.11	0.0	3.0	533	6.4	0.2	2.0	2.0	6934
20	Cross Timbers	HUBSEP	257,000	4,125,030	0.1	0.08	0.0	3.0	533	6.4	0.2	2.0	2.0	6934
21	Bayfield	BAY1	271,500	4,125,000	0.8	1.1	0.1	7.5	644	28.6	0.5	4.9	4.9	6996
22	Bayfield	BAYDEH	271,500	4,125,010	0.1	0.1	0.0	3.0	533	6.4	0.2	2.0	2.0	6996
23	Bayfield	BAYSEP	271,500	4,125,020	0.1	0.1	0.0	3.0	533	6.4	0.2	2.0	2.0	6996
24	Huber engine	207	263,842	4,126,960	0.13	0.11	0.002	1.5	477	3.8	0.20	1.1	1.1	7744
25	Huber engine	230	262,712	4,124,660	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7396
26	Huber engine	237	261,268	4,123,811	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7022
27	Huber engine	249	262,668	4,123,106	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
28	Huber engine	hub1	264,640	4,126,938	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7478
29	Huber engine	hub2	258,942	4,123,212	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
30	Huber engine	176	260,793	4,132,044	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7875
31	Huber engine	177	261,302	4,131,252	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7738
32	Huber engine	179	258,263	4,130,450	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7574
33	Huber engine	185	257,531	4,129,694	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7383
34	Huber engine	187	260,723	4,129,603	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7564
35	Huber engine	192	253,338	4,128,927	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7272

Table A-36. Near Field Modeling Input Values (Alternative 5) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	Huber engine	193	254,934	4,128,881	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7311
37	Huber engine	196	254,120	4,128,349	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
38	Huber engine	204	254,268	4,127,345	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7052
39	wellhead engine	1	290,652	4,116,701	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6796
40	wellhead engine	3	289,953	4,117,162	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
41	wellhead engine	5	289,190	4,118,625	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7045
42	wellhead engine	7	289,976	4,118,050	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
43	wellhead engine	9	287,640	4,120,551	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7328
44	wellhead engine	11	288,428	4,120,088	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7252
45	wellhead engine	13	287,601	4,118,998	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7249
46	wellhead engine	15	288,313	4,115,538	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
47	wellhead engine	17	271,025	4,126,761	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
48	wellhead engine	19	270,212	4,126,228	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7291
49	wellhead engine	21	284,474	4,121,742	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7997
50	wellhead engine	23	260,793	4,132,044	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7997
51	wellhead engine	25	262,451	4,131,109	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7823
52	wellhead engine	27	259,681	4,130,410	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7629
53	wellhead engine	29	264,731	4,130,156	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7692
54	wellhead engine	31	267,216	4,130,197	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7521
55	wellhead engine	33	265,513	4,129,579	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7797
56	wellhead engine	35	262,407	4,129,555	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7797
57	wellhead engine	37	267,191	4,129,310	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7403
58	wellhead engine	39	253,338	4,128,927	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7396
59	wellhead engine	41	255,913	4,128,964	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7400
60	wellhead engine	43	254,120	4,128,349	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7200
61	wellhead engine	45	255,890	4,128,187	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7219
62	wellhead engine	47	263,956	4,127,845	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7797
63	wellhead engine	49	275,043	4,127,652	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7396
64	wellhead engine	51	254,268	4,127,345	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7127
65	wellhead engine	53	262,870	4,127,098	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7659
66	wellhead engine	55	267,833	4,126,849	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
67	wellhead engine	57	274,215	4,126,564	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
68	wellhead engine	59	268,616	4,126,272	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7059
69	wellhead engine	61	271,806	4,126,074	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
70	wellhead engine	63	274,998	4,125,988	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196

Table A-36. Near Field Modeling Input Values (Alternative 5) (continued)

Source Count	Source Description	Unit ID	UTM		Emission Rate			Stack Parameters				Building		Elevation (ft)
			Easting (m)	Northing (m)	NOx (g/s)	CO (g/s)	HAP (g/s)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	wellhead engine	65	261,315	4,125,476	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7206
72	wellhead engine	67	264,505	4,125,275	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7239
73	wellhead engine	69	269,384	4,125,140	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7045
74	wellhead engine	71	258,904	4,124,990	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
75	wellhead engine	73	250,024	4,124,916	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6796
76	wellhead engine	75	266,885	4,124,654	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7396
77	wellhead engine	77	262,712	4,124,660	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7544
78	wellhead engine	79	271,849	4,124,407	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
79	wellhead engine	81	250,980	4,124,221	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
80	wellhead engine	83	257,985	4,123,905	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7180
81	wellhead engine	85	262,158	4,123,898	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7337
82	wellhead engine	87	248,207	4,123,526	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6819
83	wellhead engine	89	249,892	4,123,476	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6796
84	wellhead engine	91	277,236	4,123,374	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7380
85	wellhead engine	93	263,647	4,123,190	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7147
86	wellhead engine	95	268,435	4,122,945	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
87	wellhead engine	97	269,323	4,122,921	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6977
88	wellhead engine	99	271,718	4,122,856	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7039
89	wellhead engine	101	249,334	4,122,604	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6796
90	wellhead engine	103	252,975	4,122,608	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6960
91	wellhead engine	105	264,329	4,122,171	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6996
92	wellhead engine	107	270,186	4,122,009	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	6954
93	wellhead engine	109	274,977	4,121,880	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7131
94	wellhead engine	111	274,947	4,120,770	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
95	wellhead engine	113	274,843	4,120,217	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
96	wellhead engine	115	274,772	4,117,554	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7196
97	wellhead engine	117	275,731	4,116,862	0.13	0.11	0.002	1.5	477	3.8	0.2	1.1	1.1	7482

Table A-37. Far Field Modeling Input Values (Alternative 1)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Elmridge 1	ELM1A	0.52	288,301	4,112,688	6.6	0.46	17.3	644	3.9	3.9	6,399
2	Elmridge 1	ELM1B	0.52	288,301	4,112,698	6.6	0.46	17.3	644	3.9	3.9	6,399
3	Elmridge 1	ELM1C	0.52	288,301	4,112,708	6.6	0.46	17.3	644	3.9	3.9	6,399
4	Elmridge 1	ELM1D	0.52	288,301	4,112,718	6.6	0.46	17.3	644	3.9	3.9	6,399
5	Elmridge 1	ELM1DEHY	0.13	288,301	4,112,728	3.5	0.15	6.4	533	2.3	2.3	6,399
6	Elmridge 1	ELM1SEP	0.09	288,301	4,112,738	3.5	0.15	6.4	533	2.3	2.3	6,399
7	Elmridge 2	ELM2A	0.63	274,470	4,114,300	9.5	0.38	29.2	644	5.9	5.9	6,996
8	Elmridge 2	ELM2B	0.63	274,470	4,114,310	9.5	0.38	29.2	644	5.9	5.9	6,996
9	Elmridge 2	ELM2C	0.63	274,470	4,114,320	9.5	0.38	29.2	644	5.9	5.9	6,996
10	Elmridge 2	ELM2D	0.63	274,470	4,114,330	9.5	0.38	29.2	644	5.9	5.9	6,996
11	Elmridge 2	ELM2E	0.63	274,470	4,114,340	9.5	0.38	29.2	644	5.9	5.9	6,996
12	Elmridge 2	ELM2F	0.63	274,470	4,114,350	9.5	0.38	29.2	644	5.9	5.9	6,996
13	Elmridge 2	ELM2G	0.63	274,470	4,114,360	9.5	0.38	29.2	644	5.9	5.9	6,996
14	Elmridge 2	ELM2H	0.63	274,470	4,114,370	9.5	0.38	29.2	644	5.9	5.9	6,996
15	Elmridge 2	ELM2I	0.63	274,470	4,114,380	9.5	0.38	29.2	644	5.9	5.9	6,996
16	Elmridge 2	ELM2DEHY	0.13	274,470	4,114,270	3.5	0.15	6.4	533	2.0	2.0	6,996
17	Elmridge 2	ELM2SEP	0.11	274,470	4,114,280	3.5	0.15	6.4	533	2.0	2.0	6,996
18	Elmridge 2	ELM2SEPa	0.11	274,470	4,114,290	3.5	0.15	6.4	533	2.0	2.0	6,996
19	PETROX 1	PET1	0.26	292,405	4,113,912	3.1	0.30	24.1	644	2.0	2.0	6,396
20	PETROX 1	PET1DEH	0.13	292,405	4,113,922	3.0	0.15	6.4	533	2.0	2.0	6,396
21	PETROX 1	PET1SEP	0.02	292,405	4,113,932	3.0	0.15	6.4	533	2.0	2.0	6,396
22	PETROX 2	PET2	0.79	286,151	4,120,460	9.1	0.46	26.3	644	4.9	4.9	7,613
23	PETROX 2	PET2DEH	0.13	286,151	4,120,470	3.1	0.15	6.4	533	2.0	2.0	7,613
24	PETROX 2	PET2SEP	0.03	286,151	4,120,480	3.1	0.15	6.4	533	2.0	2.0	7,613
25	PETROX 2	PET2SEPa	0.03	286,151	4,120,450	3.1	0.15	6.4	533	2.0	2.0	7,613
26	BP AMOCO 1	BP1A	0.56	273,670	4,124,111	4.6	0.46	18.4	644	3.0	3.0	7,141
27	BP AMOCO 1	BP1B	0.56	273,670	4,124,121	4.6	0.46	18.4	644	3.0	3.0	7,141
28	BP AMOCO 1	BP1C	0.56	273,670	4,124,131	4.6	0.46	18.4	644	3.0	3.0	7,141
29	BP AMOCO 1	BP1SEP	0.13	273,670	4,124,141	3	0.15	6.4	533	2.0	2.0	7,141
30	BP AMOCO 1	BP1DEH	0.14	273,670	4,124,151	3	0.15	6.4	533	2.0	2.0	7,141
31	BP AMOCO 2	BP2A	0.63	275,030	4,114,050	4.6	0.38	29.9	644	3.0	3.0	6,799
32	BP AMOCO 2	BP2B	0.63	275,030	4,114,060	4.6	0.38	29.9	644	3.0	3.0	6,799
33	BP AMOCO 2	BP2SEP	0.13	275,030	4,114,070	3	0.15	6.4	533	2.0	2.0	6,799
34	BP AMOCO 2	BP2DEH	0.11	275,030	4,114,080	3	0.15	6.4	533	2.0	2.0	6,799
35	PETROX 3	PET3	0.26	283,100	4,123,180	3.05	0.30	24.1	644	2.0	2.0	7,616

Table A-37. Far Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM Easting (m)	UTM Northing (m)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
36	PETROX 3	PET3SEP	0.13	283,100	4,123,190	3	0.15	6.4	533	2.0	2.0	7,616
37	PETROX 3	PET3DEH	0.02	283,100	4,123,200	3	0.15	6.4	533	2.0	2.0	7,616
38	PETROX 4	PET4	0.26	281,500	4,123,161	3.05	0.30	24.1	644	2.0	2.0	8,197
39	PETROX 4	PET4SEP	0.13	281,500	4,123,171	3	0.15	6.4	533	2.0	2.0	8,197
40	PETROX 4	PET4DEH	0.02	281,500	4,123,181	3	0.15	6.4	533	2.0	2.0	8,197
41	PURE 1	PUR1	0.63	251,600	4,125,830	4.6	0.38	29.9	644	3.0	3.0	7,036
42	PURE 1	PUR1SEP	0.13	251,600	4,125,840	3	0.15	6.4	533	2.0	2.0	7,036
43	PURE 1	PUR1DEH	0.05	251,600	4,125,850	3	0.15	6.4	533	2.0	2.0	7,036
44	PURE 2	PUR2	0.10	249,350	4,125,160	3	0.18	21.5	583	2.0	2.0	6,803
45	PURE 2	PUR2SEP	0.13	249,350	4,125,170	3	0.18	6.44	533	2.0	2.0	6,803
46	PURE 2	PUR2DEH	0.01	249,350	4,125,180	3	0.15	6.44	533	2.0	2.0	6,803
47	BP 3	BP3A	0.63	272,164	4,126,575	4.6	0.38	29.9	644	3.0	3.0	6,996
48	BP 3	BP3B	0.63	272,164	4,126,585	4.6	0.38	29.9	644	3.0	3.0	6,996
49	BP 3	BP3SEP	0.13	272,164	4,126,595	3	0.15	6.4	533	2.0	2.0	6,996
50	BP 3	BP3DEH	0.11	272,164	4,126,605	3	0.15	6.4	533	2.0	2.0	6,996
51	BP 4	BP4A	0.56	259,000	4,124,000	4.6	0.46	18.4	644	3.0	3.0	7,082
52	BP 4	BP4B	0.56	259,000	4,124,010	4.6	0.46	18.4	644	3.0	3.0	7,082
53	BP 4	BP4C	0.56	259,000	4,124,020	4.6	0.46	18.4	644	3.0	3.0	7,082
54	BP 4	BP4SEP	0.13	259,000	4,124,030	3	0.15	6.4	533	2.0	2.0	7,082
55	BP 4	BP4DEH	0.14	259,000	4,124,040	3	0.15	6.4	533	2.0	2.0	7,082
56	Cross Timbers	HUB1	0.52	257,000	4,125,000	4.6	0.46	17.3	644.0	3.0	3.0	6,934
57	Cross Timbers	HUB2	0.52	257,000	4,125,010	4.6	0.46	17.3	644.0	3.0	3.0	6,934
58	Cross Timbers	HUBSEP	0.13	257,000	4,125,020	3.0	0.15	6.4	533.0	2.0	2.0	6,934
59	Cross Timbers	HUBDEH	0.09	257,000	4,125,030	3.0	0.15	6.4	533.0	2.0	2.0	6,934
60	Bayfield	BAY1	0.83	271,500	4,125,000	7.5	0.46	28.6	644.0	4.9	4.9	6,996
61	Bayfield	BAYDEH	0.13	271,500	4,125,010	3.0	0.20	6.4	533.0	2.0	2.0	6,996
62	Bayfield	BAYSEP	0.07	271,500	4,125,020	3.0	0.20	6.4	533.0	2.0	2.0	6,996
63	wellhead engine	101	1.06	248,207	4,123,526	1.524	0.20	3.8	477	1.0668	1.0668	6,767
64	Huber engine	193	1.06	254,934	4,128,881	1.524	0.20	3.8	477	1.0668	1.0668	7,311
65	Huber engine	2	1.06	259,133	4,129,870	1.524	0.20	3.8	477	1.0668	1.0668	7,282
66	Huber engine	237	1.06	261,268	4,123,811	1.524	0.20	3.8	477	1.0668	1.0668	7,022
67	wellhead engine	289	1.06	262,961	4,130,317	1.524	0.20	3.8	477	1.0668	1.0668	7,800
68	Huber engine	5	1.06	264,640	4,126,938	1.524	0.20	3.8	477	1.0668	1.0668	7,478
69	wellhead engine	85	1.06	268,570	4,124,608	1.524	0.20	3.8	477	1.0668	1.0668	7,045
70	wellhead engine	175	1.06	271,851	4,127,738	1.524	0.20	3.8	477	1.0668	1.0668	7,106

Table A-37. Far Field Modeling Input Values (Alternative 1) (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	wellhead engine	67	1.06	274,000	4,115,243	1.524	0.20	3.8	477	1.0668	1.0668	6,996
72	wellhead engine	93	1.06	275,731	4,116,862	1.524	0.20	3.8	477	1.0668	1.0668	7,118
73	wellhead engine	10	1.06	277,316	4,126,370	1.524	0.20	3.8	477	1.0668	1.0668	7,446
74	wellhead engine	119	1.06	280,969	4,116,725	1.524	0.20	3.8	477	1.0668	1.0668	8,407
75	wellhead engine	151	1.06	281,992	4,115,032	1.524	0.20	3.8	477	1.0668	1.0668	8,597
76	wellhead engine	65	1.06	282,805	4,119,009	1.524	0.20	3.8	477	1.0668	1.0668	8,797
77	wellhead engine	25	1.06	283,587	4,118,322	1.524	0.20	3.8	477	1.0668	1.0668	8,085
78	wellhead engine	149	1.06	284,366	4,114,083	1.524	0.20	3.8	477	1.0668	1.0668	7,514
79	wellhead engine	285	1.06	285,418	4,113,501	1.524	0.20	3.8	477	1.0668	1.0668	8,016
80	wellhead engine	258	1.06	286,690	4,121,575	1.524	0.20	3.8	477	1.0668	1.0668	7,396
81	wellhead engine	159	1.06	288,280	4,114,206	1.524	0.20	3.8	477	1.0668	1.0668	7,193
82	wellhead engine	180	0.80	289,976	4,118,050	1.524	0.20	3.8	477	1.0668	1.0668	6,996

Table A-38. Far Field Modeling Input Values (Alternative 2)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM Easting (m)	UTM Northing (m)	Stack Parameters Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
1	Elmridge 1	ELM1A	0.521	288,301	4,112,688	6.60	0.5	17.3	644	3.9	3.9	6,399
2	Elmridge 1	ELM1B	0.521	288,301	4,112,698	6.60	0.5	17.3	644	3.9	3.9	6,399
3	Elmridge 1	ELM1C	0.521	288,301	4,112,708	6.60	0.5	17.3	644	3.9	3.9	6,399
4	Elmridge 1	ELM1D	0.521	288,301	4,112,718	6.60	0.5	17.3	644	3.9	3.9	6,399
5	Elmridge 1	ELM1DEHY	0.126	288,301	4,112,728	3.50	0.2	6.4	533	2.3	2.3	6,399
6	Elmridge 1	ELM1SEP	0.089	288,301	4,112,738	3.50	0.2	6.4	533	2.3	2.3	6,399
7	Elmridge 2	ELM2A	0.625	274,470	4,114,300	9.50	0.4	29.2	644	5.9	5.9	6,996
8	Elmridge 2	ELM2B	0.625	274,470	4,114,310	9.50	0.4	29.2	644	5.9	5.9	6,996
9	Elmridge 2	ELM2C	0.625	274,470	4,114,320	9.50	0.4	29.2	644	5.9	5.9	6,996
10	Elmridge 2	ELM2D	0.625	274,470	4,114,330	9.50	0.4	29.2	644	5.9	5.9	6,996
11	Elmridge 2	ELM2E	0.625	274,470	4,114,340	9.50	0.4	29.2	644	5.9	5.9	6,996
12	Elmridge 2	ELM2F	0.625	274,470	4,114,350	9.50	0.4	29.2	644	5.9	5.9	6,996
13	Elmridge 2	ELM2G	0.625	274,470	4,114,360	9.50	0.4	29.2	644	5.9	5.9	6,996
14	Elmridge 2	ELM2H	0.625	274,470	4,114,370	9.50	0.4	29.2	644	5.9	5.9	6,996
15	Elmridge 2	ELM2I	0.625	274,470	4,114,380	9.50	0.4	29.2	644	5.9	5.9	6,996
16	Elmridge 2	ELM2DEHY	0.126	274,470	4,114,270	3.50	0.2	6.4	533	2.0	2.0	6,996
17	Elmridge 2	ELM2SEP	0.110	274,470	4,114,280	3.50	0.2	6.4	533	2.0	2.0	6,996
18	Elmridge 2	ELM2SEPa	0.110	274,470	4,114,290	3.50	0.2	6.4	533	2.0	2.0	6,996
19	PETROX 1	PET1	0.258	292,405	4,113,912	3.05	0.3	24.1	644	2.0	2.0	6,396
20	PETROX 1	PET1DEH	0.126	292,405	4,113,922	3.00	0.2	6.4	533	2.0	2.0	6,396
21	PETROX 1	PET1SEP	0.022	292,405	4,113,932	3.00	0.2	6.4	533	2.0	2.0	6,396
22	PETROX 2	PET2	0.792	286,151	4,120,460	9.10	0.5	26.3	644	4.9	4.9	7,613
23	PETROX 2	PET2DEH	0.126	286,151	4,120,470	3.10	0.2	6.4	533	2.0	2.0	7,613
24	PETROX 2	PET2SEP	0.034	286,151	4,120,480	3.10	0.2	6.4	533	2.0	2.0	7,613
25	PETROX 2	PET2SEPa	0.034	286,151	4,120,450	3.10	0.2	6.4	533	2.0	2.0	7,613
26	BP AMOCO 1	BP1A	0.556	273,670	4,124,111	4.60	0.5	18.4	644	3.0	3.0	7,141
27	BP AMOCO 1	BP1B	0.556	273,670	4,124,121	4.60	0.5	18.4	644	3.0	3.0	7,141
28	BP AMOCO 1	BP1C	0.556	273,670	4,124,131	4.60	0.5	18.4	644	3.0	3.0	7,141
29	BP AMOCO 1	BP1DEH	0.126	273,670	4,124,141	3.00	0.2	6.4	533	2.0	2.0	7,141
30	BP AMOCO 1	BP1SEP	0.143	273,670	4,124,151	3.00	0.2	6.4	533	2.0	2.0	7,141
31	BP AMOCO 2	BP2A	0.625	275,030	4,114,050	4.60	0.4	29.9	644	3.0	3.0	6,799
32	BP AMOCO 2	BP2B	0.625	275,030	4,114,060	4.60	0.4	29.9	644	3.0	3.0	6,799
33	BP AMOCO 2	BP2DEH	0.126	275,030	4,114,070	3.00	0.2	6.4	533	2.0	2.0	6,799
34	BP AMOCO 2	BP2SEP	0.107	275,030	4,114,080	3.00	0.2	6.4	533	2.0	2.0	6,799
35	PETROX 3	PET3	0.258	283,100	4,123,180	3.05	0.3	24.1	644	2.0	2.0	7,616

Table A-38. Far Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM Easting (m)	UTM Northing (m)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
36	PETROX 3	PET3DEH	0.126	283,100	4,123,190	3.00	0.2	6.4	533	2.0	2.0	7,616
37	PETROX 3	PET3SEP	0.022	283,100	4,123,200	3.00	0.2	6.4	533	2.0	2.0	7,616
38	PETROX 4	PET4	0.258	281,500	4,123,161	3.05	0.3	24.1	644	2.0	2.0	8,197
39	PETROX 4	PET4DEH	0.126	281,500	4,123,171	3.00	0.2	6.4	533	2.0	2.0	8,197
40	PETROX 4	PET4SEP	0.022	281,500	4,123,181	3.00	0.2	6.4	533	2.0	2.0	8,197
41	PURE 1	PUR1	0.625	251,600	4,125,830	4.60	0.4	29.9	644	3.0	3.0	7,036
42	PURE 1	PUR1DEH	0.126	251,600	4,125,840	3.00	0.2	6.4	533	2.0	2.0	7,036
43	PURE 1	PUR1SEP	0.054	251,600	4,125,850	3.00	0.2	6.4	533	2.0	2.0	7,036
44	PURE 2	PUR2	0.100	249,350	4,125,160	3.00	0.2	21.5	583	2.0	2.0	6,803
45	PURE 2	PUR2DEH	0.126	249,350	4,125,170	3.00	0.2	6.4	533	2.0	2.0	6,803
46	PURE 2	PUR2SEP	0.009	249,350	4,125,180	3.00	0.2	6.4	533	2.0	2.0	6,803
47	BP 3	BP3A	0.625	272,164	4,126,575	4.60	0.4	29.9	644	3.0	3.0	6,996
48	BP 3	BP3B	0.625	272,164	4,126,585	4.60	0.4	29.9	644	3.0	3.0	6,996
49	BP 3	BP3DEH	0.126	272,164	4,126,595	3.00	0.2	6.4	533	2.0	2.0	6,996
50	BP 3	BP3SEP	0.107	272,164	4,126,605	3.00	0.2	6.4	533	2.0	2.0	6,996
51	BP 4	BP4A	0.556	259,000	4,124,000	4.60	0.5	18.4	644	3.0	3.0	7,082
52	BP 4	BP4B	0.556	259,000	4,124,010	4.60	0.5	18.4	644	3.0	3.0	7,082
53	BP 4	BP4C	0.556	259,000	4,124,020	4.60	0.5	18.4	644	3.0	3.0	7,082
54	BP 4	BP4DEH	0.126	259,000	4,124,030	3.00	0.2	6.4	533	2.0	2.0	7,082
55	BP 4	BP4SEP	0.143	259,000	4,124,040	3.00	0.2	6.4	533	2.0	2.0	7,082
56	Cross Timbers	HUB1	0.521	257,000	4,125,000	4.60	0.5	17.3	644.0	3.0	3.0	6,934
57	Cross Timbers	HUB2	0.521	257,000	4,125,010	4.60	0.5	17.3	644.0	3.0	3.0	6,934
58	Cross Timbers	HUBDEH	0.126	257,000	4,125,020	3.00	0.2	6.4	533.0	2.0	2.0	6,934
59	Cross Timbers	HUBSEP	0.089	257,000	4,125,030	3.00	0.2	6.4	533.0	2.0	2.0	6,934
60	Independent 1	IP1	0.417	277,120	4,115,417	3.05	0.3	24.8	644	2.0	2.0	7,514
61	Independent 1	IP1DEH	0.126	277,120	4,115,427	3.00	0.2	6.4	533	2.0	2.0	7,514
62	Independent 1	IP1SEP	0.036	277,120	4,115,437	3.00	0.2	6.4	533	2.0	2.0	7,514
63	Independent 2	IP2A	0.833	275,600	4,120,800	7.50	0.5	25.3	644	4.9	4.9	7,196
64	Independent 2	IP2DEH	0.126	275,600	4,120,810	3.00	0.2	6.4	533	2.0	2.0	7,196
65	Independent 2	IP2SEP	0.071	275,600	4,120,820	3.00	0.2	6.4	533	2.0	2.0	7,196
66	Independent 3	IP3A	0.833	276,435	4,116,788	7.50	0.5	25.3	644	4.9	4.9	7,426
67	Independent 3	IP3DEH	0.126	276,435	4,116,778	3.00	0.2	6.4	533	2.0	2.0	7,426
68	Independent 3	IP3SEP	0.071	276,435	4,116,778	3.00	0.2	6.4	533	2.0	2.0	7,426
69	Bayfield	BAY1	0.833	271,500	4,125,000	7.50	0.5	28.6	644	4.9	4.9	6,996
70	Bayfield	BAYDEH	0.126	271,500	4,125,010	3.00	0.2	6.4	533	2.0	2.0	6,996

Table A-38. Far Field Modeling Input Values (Alternative 2) (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Bayfield	BAYSEP	0.071	271,500	4,125,020	3.00	0.2	6.4	533	2.0	2.0	6,996
72	wellhead engine	384	1.064	244,631	4,122,745	1.52	0.2	3.8	477	1.1	1.1	6,816
73	wellhead engine	337	1.064	248,253	4,125,080	1.52	0.2	3.8	477	1.1	1.1	6,901
74	wellhead engine	323	1.064	251,561	4,125,870	1.52	0.2	3.8	477	1.1	1.1	7,039
75	Huber engine	275	1.064	254,120	4,128,349	1.52	0.2	3.8	477	1.1	1.1	7,196
76	Huber engine	214	1.064	254,980	4,130,435	1.52	0.2	3.8	477	1.1	1.1	7,826
77	Huber engine	241	1.064	257,531	4,129,694	1.52	0.2	3.8	477	1.1	1.1	7,383
78	Huber engine	174	1.064	259,194	4,131,979	1.52	0.2	3.8	477	1.1	1.1	7,770
79	Huber engine	176	1.064	260,793	4,132,044	1.52	0.2	3.8	477	1.1	1.1	7,875
80	Huber engine	347	1.064	262,712	4,124,660	1.52	0.2	3.8	477	1.1	1.1	7,396
81	wellhead engine	190	1.064	264,670	4,131,157	1.52	0.2	3.8	477	1.1	1.1	7,596
82	wellhead engine	180	1.064	266,192	4,131,670	1.52	0.2	3.8	477	1.1	1.1	7,419
83	wellhead engine	299	1.064	269,426	4,126,693	1.52	0.2	3.8	477	1.1	1.1	7,052
84	wellhead engine	232	1.064	271,908	4,129,847	1.52	0.2	3.8	477	1.1	1.1	7,478
85	wellhead engine	234	1.064	273,504	4,129,804	1.52	0.2	3.8	477	1.1	1.1	7,341
86	wellhead engine	53	1.064	274,862	4,124,214	1.52	0.2	3.8	477	1.1	1.1	7,124
87	wellhead engine	458	1.064	275,731	4,116,862	1.52	0.2	3.8	477	1.1	1.1	7,118
88	wellhead engine	392	1.064	276,595	4,122,613	1.52	0.2	3.8	477	1.1	1.1	7,180
89	wellhead engine	448	1.064	277,258	4,117,488	1.52	0.2	3.8	477	1.1	1.1	8,062
90	wellhead engine	446	1.064	277,968	4,117,469	1.52	0.2	3.8	477	1.1	1.1	8,256
91	wellhead engine	317	1.064	278,901	4,125,884	1.52	0.2	3.8	477	1.1	1.1	7,865
92	wellhead engine	474	1.064	279,393	4,114,212	1.52	0.2	3.8	477	1.1	1.1	7,396
93	wellhead engine	307	1.064	279,890	4,126,413	1.52	0.2	3.8	477	1.1	1.1	7,793
94	wellhead engine	513	1.064	280,505	4,115,959	1.52	0.2	3.8	477	1.1	1.1	8,197
95	wellhead engine	476	1.064	281,081	4,114,168	1.52	0.2	3.8	477	1.1	1.1	8,102
96	wellhead engine	498	1.064	281,639	4,115,152	1.52	0.2	3.8	477	1.1	1.1	8,597
97	wellhead engine	49	1.064	282,276	4,126,018	1.52	0.2	3.8	477	1.1	1.1	7,839
98	wellhead engine	287	1.064	283,023	4,127,443	1.52	0.2	3.8	477	1.1	1.1	7,938
99	wellhead engine	450	1.064	283,653	4,117,432	1.52	0.2	3.8	477	1.1	1.1	7,593
100	wellhead engine	123	1.064	284,366	4,114,083	1.52	0.2	3.8	477	1.1	1.1	7,514
101	wellhead engine	85	1.064	285,422	4,120,608	1.52	0.2	3.8	477	1.1	1.1	7,682
102	wellhead engine	99	1.064	286,802	4,119,018	1.52	0.2	3.8	477	1.1	1.1	7,396
103	wellhead engine	131	1.064	288,299	4,114,983	1.52	0.2	3.8	477	1.1	1.1	6,780
104	wellhead engine	23	1.064	289,953	4,117,162	1.52	0.2	3.8	477	1.1	1.1	6,796
105	wellhead engine	464	0.665	291,513	4,115,569	1.52	0.2	3.8	477	1.1	1.1	6,399
106	wellhead engine	29	0.665	292,360	4,113,882	1.52	0.2	3.8	477	1.1	1.1	6,396

Table A-39. Far Field Modeling Input Values (Alternative 5)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Elmridge 1	ELM1A	0.52	288,301	4,112,688	6.6	0.5	17.3	644	3.9	3.9	6,399
2	Elmridge 1	ELM1B	0.52	288,301	4,112,698	6.6	0.5	17.3	644	3.9	3.9	6,399
3	Elmridge 1	ELM1C	0.52	288,301	4,112,708	6.6	0.5	17.3	644	3.9	3.9	6,399
4	Elmridge 1	ELM1D	0.52	288,301	4,112,718	6.6	0.5	17.3	644	3.9	3.9	6,399
5	Elmridge 1	ELM1DEHY	0.13	288,301	4,112,728	3.5	0.2	6.4	533	2.3	2.3	6,399
6	Elmridge 1	ELM1SEP	0.09	288,301	4,112,738	3.5	0.2	6.4	533	2.3	2.3	6,399
7	PURE 1	PUR1	0.63	251,600	4,125,830	4.6	0.4	29.9	644	3.0	3.0	7,036
8	PURE 1	PUR1DEH	0.13	251,600	4,125,840	3	0.2	6.4	533	2.0	2.0	7,036
9	PURE 1	PUR1SEP	0.05	251,600	4,125,850	3	0.2	6.4	533	2.0	2.0	7,036
10	PURE 2	PUR2	0.10	249,350	4,125,160	3	0.2	21.5	583	2.0	2.0	6,803
11	PURE 2	PUR2DEH	0.13	249,350	4,125,170	3	0.2	6.4	533	2.0	2.0	6,803
12	PURE 2	PUR2SEP	0.01	249,350	4,125,180	3	0.2	6.4	533	2.0	2.0	6,803
13	BP 3	BP3A	0.63	272,164	4,126,575	4.6	0.4	29.9	644.0	3.0	3.0	6996
14	BP 3	BP3B	0.6	272,164	4,126,585	4.6	0.4	29.9	644.0	3.0	3.0	6,996
15	BP 3	BP3DEH	0.1	272,164	4,126,595	3	0.2	6.4	533.0	2.0	2.0	6,996
16	BP 3	BP3SEP	0.1	272,164	4,126,605	3	0.2	6.4	533.0	2.0	2.0	6,996
17	Cross Timbers	HUB1	0.5	257,000	4,125,000	4.6	0.5	17.3	644	3.0	3.0	6,934
18	Cross Timbers	HUB2	0.5	257,000	4,125,010	4.6	0.5	17.3	644	3.0	3.0	6,934
19	Cross Timbers	HUBDEH	0.1	257,000	4,125,020	3.0	0.2	6.4	533	2.0	2.0	6,934
20	Cross Timbers	HUBSEP	0.1	257,000	4,125,030	3.0	0.2	6.4	533	2.0	2.0	6,934
21	Bayfield	BAY1	0.8	271,500	4,125,000	7.5	0.5	28.6	644.0	4.9	4.9	6,996.0
22	Bayfield	BAYDEH	0.1	271,500	4,125,010	3	0.2	6.4	533.0	2.0	2.0	6,996.0
23	Bayfield	BAYSEP	0.1	271,500	4,125,020	3	0.2	6.4	533.0	2.0	2.0	6,996.0
24	wellhead engine	87	1.06	248,207	4,123,526	1.5	0.2	3.8	477	1.1	1.1	7,183
25	Huber engine	196	1.06	254,120	4,128,349	1.5	0.2	3.8	477	1.1	1.1	7,196
26	wellhead engine	83	1.06	257,985	4,123,905	1.5	0.2	3.8	477	1.1	1.1	7,196
27	Huber engine	237	1.06	261,268	4,123,811	1.5	0.2	3.8	477	1.1	1.1	7,022
28	wellhead engine	77	1.06	262,712	4,124,660	1.5	0.2	3.8	477	1.1	1.1	7,239
29	wellhead engine	29	1.06	264,731	4,130,156	1.5	0.2	3.8	477	1.1	1.1	7,797
30	wellhead engine	97	1.06	269,323	4,122,921	1.5	0.2	3.8	477	1.1	1.1	6,996
31	wellhead engine	57	1.06	274,215	4,126,564	1.5	0.2	3.8	477	1.1	1.1	7,091
32	wellhead engine	91	1.06	277,236	4,123,374	1.5	0.2	3.8	477	1.1	1.1	6,934
33	wellhead engine	7	0.27	289,976	4,118,050	1.5	0.2	3.8	477	1.1	1.1	7,396

Appendix B – Colorado Emission Inventory

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Table B-1. Potential Colorado Emission Sources Located Outside the Study Area

Source Count	Facility Name	Source Description
1	AMOCO PRODUCTION CO LEMO 17U-01 UNIT #1	CATERPILLAR 3304 80 HP
2	AMOCO PRODUCTION CO SOUTH EAST TIFFANY	AJAX DPC,180 HP, ENGINE
3	CELSIUS ENERGY CO ISLAND BUTTES WELL 6	AJAX DPC 600 LE SN 83809
4	CELSIUS ENERGY CO ISLAND BUTTES WELL 6	AJAX MDO DP60
5	EMERALD GAS OPERATING COMPANY	CATERPILLAR ICE G3512 LE
6	EMERALD GAS OPERATING COMPANY	WAUKESHA L7042 SN:305951
7	ERTEL INC ERTEL FUNERAL HOME	AJAX MOD DP 60

Table B-2. Existing Colorado Emission Sources Represented by Background Data

Source Count	Facility Name	Source Description
1	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CUMMINS 140HP LATERAL
2	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	SAND & GRAVEL PIT
3	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CONCRETE BATCH PLANT
4	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CONCRETE BATCH PLANT
5	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CAT G3408TA, SN: 87-111
6	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	WAUKESHA F1197, SN:398947
7	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	GLYCOL REBOILER H-102A
8	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	GLYCOL REBOILER H-102B
9	44 CANYON LLC C/O HALLWOOD PETROLUEM INC	CUMMINS 365 KW DIESEL GEN
10	44 CANYON LLC C/O HALLWOOD PETROLEUM	REGENERATION GAS HEATER
11	AMAX OIL & GAS INC MCDERMOTT COMP STA	REMEDI-SOIL VAP EXT CONT
12	AMAX OIL & GAS INC MCDERMOTT COMP STA	WAUKESHA 24756 ENG. 405HP
13	AMERADA HESS CORP FASSETT GAS UNIT 2	CRUSHER SN:C52536
14	AMERADA HESS CORP FORD OLSON GA UN A 2	CRUSHER SN:C52536
15	AMERADA HESS CORP MILLER GAS UNIT 2	CONCRETE BATCH PLANT
16	AMERADA HESS CORP OLSON SMITH GAS UNIT	CONCRETE BATCH PLANT
17	AMOCO PRODUCTION ELDRIDGE 31-1	(7) AJAX E-42 ENGINES38HP
18	AMOCO PRODUCTION HENRICKSON UNIT B #1	WAUKESHA 303HP COMPRESSOR
19	AMOCO PRODUCTION CO PICNIC FLATS	WEST DEHYDRATION UNIT
20	AMOCO PRODUCTION CO PICNIC FLATS	AJAX DPC360LE
21	AMOCO PRODUCTION CO CONRAD G.U. A#1	GRAVEL MINING OPERATION
22	AMOCO PRODUCTION CO HOTTER G.U. A#1	PORTABLE DIESEL-FIRED_HTR
23	AMOCO PRODUCTION CO LINDER G.U. A#1	GRAVEL MINING OPERATION
24	AMOCO PRODUCTION CO ANDERSON WELL 28-3	S. UTE 22-33 ENGINE
25	AMOCO PRODUCTION CO BARNES LEIDY G.U.A#1	GRAVEL MINING OPERATION

Table B-2. Existing Colorado Emission Sources Represented by Background Data (continued)

Source Count	Facility Name	Source Description
26	AMOCO PRODUCTION CO FLORIDA RIVER COMP	(2)WAUKESHA VRG-220 ENGS.
27	AMOCO PRODUCTION CO FLORIDA RIVER COMP	AJAX DPC-600 495HP CMPRSR
28	AMOCO PRODUCTION CO FLORIDA RIVER COMP	WAUKESHA L7042GL 862HP
29	AMOCO PRODUCTION CO GEARHART WELL #1-6	S. UTE 42-4 ENGINE
30	AMOCO PRODUCTION CO IGNACIO H2O COLL.SYS	GRAVEL MINING OPERATION
31	AMOCO PRODUCTION CO J.W.WARD GU A#1	CIP 50 BBL/DAY STEAMER
32	AMOCO PRODUCTION CO LORETT FEDERAL GU #1	WAUKESHA ENGINE NEED INFO
33	AMOCO PRODUCTION CO SALVADOR COMP STA	WAUKESHA VRG-155-U 20HP
34	AMOCO PRODUCTION CO ELDRIDGE 25-1	(7) AJAX E-42 ENGINES38HP
35	AMOCO PRODUCTION CO ELDRIDGE 30-1	(2) AJAX DP-60 ENGINES
36	AMOCO PRODUCTION CO ROBIN FRAZIER A	SCHOFIELD AUTO 31X-5 ENG.
37	AMOCO PRODUCTION CO ROBIN FRAZIER A	COLO. 32-7 #1 ENGINE
38	APACHE CORP	WAUKESHA F2895G ENGINE
39	APACHE CORP	AJAX DPC-180 SALVADOR1
40	APACHE CORP	AJAX DPC-360 #80750 ENG.
41	APACHE CORP	WAUKESHA L7042GL 1000HP
42	APACHE CORP	AJAX 600 HP
43	APACHE CORP	AJAX DPC-60 COMPRESSOR
44	APACHE CORPORATION	SAWMILL
45	BEE LINE GAS COMPANY	S. UTE 24-10 ENGINE
46	BEE LINE GAS COMPANY	BONDAD 34-10 #4-25 ENGINE
47	BEE LINE GAS COMPANY	COLO. 32-7 #5 ENGINE
48	BEE LINE GAS COMPANY	COLO. 32-7 #4 ENGINE
49	BLASTING & MINING INC	ORE CRUSHER
50	BEE LINE GAS COMPANY	S. UTE 24-10 ENGINE
51	BLASTING & MINING INC	TEEPEE WOOD BURNER-SOUTH
52	BLASTING & MINING INC	TEEPEE WOOD BURNER-NORTH
53	BLASTING & MINING INC	COMBUSTION SOURCES (FOUR)
54	BLASTING & MINING INC	MINE PORTAL HEATER
55	CELSIUS ENERGY	PLANT INLET HEATER
56	CELSIUS ENERGY	HOT OIL HEATER
57	CELSIUS ENERGY	PRODUCTION TEST PACK HTR.
58	CELSIUS ENERGY	WAUKESHA ENG FOR INJ PUMP
59	CELSIUS ENERGY	CATERPILLAR SN: 71B900
60	CELSIUS ENERGY CO	WAUKESHA SN: 398948

Table B-2. Existing Colorado Emission Sources Represented by Background Data (continued)

Source Count	Facility Name	Source Description
61	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	(2)CAT 3512 743HP ENGINES
62	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	SMITH GLYCOL REBOILER
63	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	WAUKESHA L7042G ENGINE
64	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	WAUKESHA SN: 399354
65	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	WAUKESHA SN: 400640
66	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	WAUKESHA SN: 400637
67	EL PASO NATURAL GAS CO FLORIDA RIVER CS	WAUKESHA ENGINE 400012
68	EL PASO NATURAL GAS CO FLORIDA RIVER CS	WAUKESHA ENGINE 400013
69	EL PASO NATURAL GAS CO FLORIDA RIVER CS	WAUKESHA VRG 330, 400793
70	ELM RIDGE EXPLORATION	EMERGENCY FLARE-VFOS03 FC
71	FUEL RESOURCES DEV CO FORTY FOUR CANYON	8 ENGINES
72	FUEL RESOURCES DEV CO HIGH FLUME 10 9	WILLIAMS INLET HTR. 854-1
73	FUEL RESOURCES DEV CO HIGH FLUME 10 9	WLLMS HOT OIL HTR #854-1
74	FUEL RESOURCES DEV CO HIGH FLUME 10 9	CE NATCO PROD PACK HEATER
75	FUEL RESOURCES DEV CO LA POSTA#3/S.UTE56	TURBINE #2 (SEE PT 005)
76	FUEL RESOURCES DEV CO MCCULLOCH 20 2	300 HP NATURAL GAS ENGINE
77	FUEL RESOURCES DEV CO MCCULLOCH 21 1	WAUKESHA F29GL 470HP
78	FUEL RESOURCES DEV CO MCCULLOCH 28 1	WAUKESHA F2895 GL 549 HP
79	FUEL RESOURCES DEV CO MCCULLOCH 28 1	WAUKESHA F24GL 300HP
80	FUEL RESOURCES DEV CO S UTE 10 2	ROCK CRUSHER, GENERATOR
81	FUEL RESOURCES DEV CO S UTE 15 1	ROCK CRUSHER, GENERATOR
82	FUEL RESOURCES DEV CO S UTE 16 5 WELL	WAUKESHA VRG220U ENGINE
83	FUEL RESOURCES DEV CO SAWMILL CANYON	CATERPILLAR G3412TA LCR
84	FUEL RESOURCES DEV CO SAWMILL CANYON	INLET HEATER

Table B-2. Existing Colorado Emission Sources Represented by Background Data (continued)

Source Count	Facility Name	Source Description
85	FUEL RESOURCES DEV CO SED FEDERAL4 1	SAND & GRAVEL PIT
86	FUEL RESOURCES DEV CO SFC LA PALOMA1 2	CATERPILLAR NAT GAS GENER
87	GEODYNE RESOURCES INC	SOLAR CENTAUR SN: 4440C
88	GEODYNE RESOURCES INC	AJAX DP115 PUMPJACK ENG.
89	GLEN WELLS CONST	GLYCOL DEHYDRATOR SKID #1
90	HALLIBURTON ENERGY SVCS	ICE AJAX DPC-105 89HP COM
91	HOMESTAKE MINING CO BULLDOG MOUNTAIN	WAUKESHA 135 47HP #66486
92	HOMESTAKE MINING CO BULLDOG MOUNTAIN	(3) FORD/CSG649 ENG
93	HOMESTAKE MINING CO BULLDOG MOUNTAIN	(2) AJAX E-42 38HP ICE'S
94	HOOD MORTUARY	WAUKESHA ENGINE 400019
95	HOOD MORTUARY	WAUKESHA ENGINE 399749
96	LMH ENVIRONMENTAL INC	WAUKESHA 140 ENGINE 55HP
97	MARKWEST RESOURCES INC	CLOSED AMINE SWETNG PLANT
98	MARKWEST RESOURCES INC	CATERPILLAR, SN:71B1982
99	MERCY MEDICAL CTR	WAUKESHA 330 ENGINE 47HP
100	MID AMERICA PIPELINE CO DOLORES STA	WOOD BOILER
101	MID AMERICA PIPELINE CO DOLORES STA	INLET HEATER OIL-FIRED
102	MID AMERICA PIPELINE CO DOLORES STA	GLYCOL REBOILER H-102A
103	MID AMERICA PIPELINE CO DOLORES STA	GLYCOL REBOILER H-102B
104	MID AMERICA PIPELINE CO IGNACIO STA	INLET HEATER OIL-FIRED
105	MID AMERICA PIPELINE CO IGNACIO STA	GLYCOL REBOILER H-102A
106	MID AMERICA PIPELINE CO IGNACIO STA	GLYCOL REBOILER H-102B
107	NORTHWEST PIPELINE CORP PLEASANT VIEW	WILLIAMS LINE HEATER
108	NORTHWEST PIPELINE CORP PLEASANT VIEW	CATERPILLAR,SN:6NB00535
109	OHIO MATCH CO	WAUKESHA VR310 ENGINE
110	PABLO OPERATING CO	GENCO BURNER - NO 2 OIL
111	PABLO OPERATING CO JAQUES #5-F WELL	GENCO BURNER - NO 2 OIL
112	PALO PETROLEUM	(3)RECIP. I.C. ENGINES
113	PETROGULF CORP	CUMMINS GTA-743A 240HP
114	PONDEROSA TIMBER	AJAX DP-70 ENGINE 60HP
115	PONDEROSA TIMBER	WAUKESHA 140 ENGINE 55HP
116	PUBLIC SERVICE CO TIFFANY STATION	FORD LSG-875 60HP ENGINE

Table B-2. Existing Colorado Emission Sources Represented by Background Data (continued)

Source Count	Facility Name	Source Description
117	PUBLIC SERVICE CO TIFFANY STATION	WAUKESHA ENG SN:YN3969
118	QUESTAR EXPLORATION & PROD CUTTHROAT A	GLYCOL DEGYDRATOR
119	QUESTAR EXPLORATION & PROD CUTTHROAT A	NAT GAS FIRED IC ENGINE
120	QUESTAR EXPLORATION & PROD CUTTHROAT A	NAT GAS FIRED IC ENGINE
121	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 399817
122	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 399504
123	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 399508
124	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 400636
125	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 400639
126	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 399506
127	QUESTAR EXPLORATION & PROD CUTTHROAT A	WAUKESHA SN: 399819
128	SG INTERESTS 1, LTD - SOUTH IGNACIO CDP	FORD LSG-423 25HP ENGINE
129	SHELL CO2 COMPANY, LTD. HOVENWEEP	CIP 50 BBL/DAY STEAMER
130	SHELL CO2 COMPANY, LTD. HOVENWEEP	CIP 50BBL/DAY STEAMER
131	SHELL CO2 COMPANY, LTD. HOVENWEEP	(2)38HP AJAX E-42 ENGINES
132	SHELL WESTERN E&P INC MCELMO DOME	GLYCOL DEHYDRATOR
133	SMITH ENERGY LP 1988 CACHE OIL FIELD	UNIT 3 LINE HEATER
134	SOUTHWEST HEALTH SYSTEM	(4) AJAX E42 38HP ENGINES
135	SOUTHWEST HEALTH SYSTEM	WAUKESHA 145 ENGINE 64HP
136	TRANSCOLORADO GAS TRANSMISSION CO	SOLAR CENTAUR SN: 4441C
137	TRANSWESTERN PIPELINE CO LA PLATA 'A'	FLARE PIT
138	TRANSWESTERN PIPELINE CO LA PLATA 'A'	WAUK NAT GAS ENG @ 549 HP
139	TRANSWESTERN PIPELINE CO LA PLATA 'A'	WAUK VRG155U PUMP FOR H2O
140	UTE E CENTRAL DELIVERY POINT	CATERPILLAR 3304 70HP ICE
141	UTE E CENTRAL DELIVERY POINT	CAT 342T ENG SN 71R540
142	VASTAR RESOURCES INC. WELL 22-4; 33-10	FORD CSG-649 46HP ENGINE

Table B-2. Existing Colorado Emission Sources Represented by Background Data (continued)

Source Count	Facility Name	Source Description
143	WEST GAS GATHERING INC	DEHYRATOR #1, BONDAD 1
144	WEST GAS GATHERING INC	DEHYDRATOR 2, BONDAD 2
145	WEST GAS GATHERING INC	WAUKESHA L7042GL,BONDAD 2
146	WEST GAS GATHERING INC	WAUKESHA L7042GL, BONDAD2
147	WEST GAS GATHERING INC	AJAX DPC-280 ENG,SN:77939
148	WEST GAS GATHERING INC	GENERAC 74GN, MODEL:CG070
149	WEST GAS GATHERING INC	GENERAC 74GN,MODEL:CG070
150	WILLIAMS FIELD SERVICES BONDAD 33-9 #3	INLET HEATER_- OIL FIRED
151	WILLIAMS FIELD SERVICES IGNACIO B PLT	TULDA HEATER DN 96222
152	WILLIAMS FIELD SERVICES IGNACIO B PLT	FORD CSG649 V6 ENG 60HP
153	WILLIAMS FIELD SERVICES IGNACIO B PLT	FORD CSG649 V6 ENG 60HP
154	WILLIAMS FIELD SERVICES IGNACIO B PLT	AJAX E-42 ENGINE 36HP
155	WILLIAMS FIELD SERVICES IGNACIO B PLT	ICE: WAUKESHA 7042GL
156	WILLIAMS FIELD SVCS	AJAX DPC-80 COMPRESSOR
157	WILLIAMS FIELD SVCS 33 7 24 STEAMER	TURBINE #1 (SEE PT 004)
158	WILLIAMS FIELD SVCS 33 8 22 STEAMER	GRAVEL MINING OPERATION
159	WILLIAMS FIELD SVCS 33 8 5 STEAMER	GRAVEL MINING OPERATION
160	WILLIAMS FIELD SVCS BONDAD 33 9 10	FORD CSG-649 46HP ENGINE
161	WILLIAMS FIELD SVCS BONDAD 33 9 11	(3) SUPERIOR 8G825'S
162	WILLIAMS FIELD SVCS BONDAD 33 9 5	AJAX DPC-300 243HP ENGINE
163	WILLIAMS FIELD SVCS BUENA SUERTA	CATERPILLAR G3306 150 HP
164	WILLIAMS FIELD SVCS BUENA SUERTA	AJAX DPC600 ICE SN:79631
165	WILLIAMS FIELD SVCS BUENA SUERTA	WAUKESHA 7042GL
166	WILLIAMS FIELD SVCS BUENA SUERTA	WAUKESHA 7042GL SN 402863
167	WILLIAMS FIELD SVCS CO 32 7 11	EVAPORATOR HEATER
168	WILLIAMS FIELD SVCS IGNACIO 33 7 18	CAT 3304 COMPRESSR ENGINE
169	WILLIAMS FIELD SVCS IGNACIO 33 7 SITE	CATERPILLAR 398TA 450 HP
170	WILLIAMS FIELD SVCS IGNACIO 33-7#25	WAUKESHA F817GU IC ENGINE

Table B-3. Colorado Reasonably Foreseeable Emission Sources

Source Count	Facility Name	Source Description
1	SG INTERESTS I LTD	CREMATOR A11-1801
2	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	TURBINE SMB1683 GP20388-3
3	EL PASO NATURAL GAS COMPANY IGNACIO FLD	TURBINE #1 MD:10-T1302
4	EL PASO NATURAL GAS COMPANY IGNACIO FLD	TURBINE SN:0528521R
5	AMOCO PRODUCTION CO HOTT INJECTION STA	WAUKESHA ENGINE, 401574
6	GLEN WELLS CONST	RADCO AMINE HEATER #1
7	HALLIBURTON ENERGY SVCS	SOLAR 10-T1300
8	AMERADA HESS CORP CRIGLER UTE LEASE	WAUKESHA VRG 300, 389203
9	AMERADA HESS CORP IGNACIO BLANCO FIELD	WAUKESHA VRG 330, 389791
10	AMERADA HESS CORP HERRERA LEASE	WAUKESHA VRG 330, 399609
11	AMOCO PRODUCTION CO NITROGEN INJECTION	WAUKESHA VRG 330, 386468
12	QUESTAR EXPLORATION & PROD MIR 4-31	FORD CSG-649 SN:17772 ICE
13	SG INTEREST I LTD	AJAX ENG. SN: HRM 85-317T
14	WILLIAMS FIELD SERVICES IGNACIO B PLT	CAT G3516TA 1085HP COMP#4
15	WILLIAMS FIELD SERVICES IGNACIO B PLT	WAUKESHA L5790GL
16	AMERADA HESS CORP JULIAN GAS UNIT 2	AJAX E-42 SJBC-CMA-001
17	RMI ENVIRONMENTAL SVC INC	AJAX M/N E-42 SN: 65254
18	RMI ENVIRONMENTAL SVCS	AJAX DPC 360LE SN 403660
19	MERCY MEDICAL CTR	AJAX DPC 360 ENGINE
20	MOBIL EXPLORATION BONDAD 34 10 4 25	WAUKESHA L 5790 GL ICE
21	AMERADA HESS CORP DAVIS GAS UNIT	AJAX M/N DPC 180 SN 75078
22	MOBIL EXPLORATION CO 32 7 4 &S UTE42 4	NAT GAS ENG
23	MOBIL EXPLORATION CO 32 7 4 &S UTE42 4	NAT GAS ENG
24	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	WAUKESHA ICE H-24GL
25	AMERADA HESS CORP	AJAX 8 1/2 CMA SN: 60705
26	AMERADA HESS CORP HAHN GAS UNIT A 2	FORD CSG 879 SN 09168C-15
27	AMERADA HESS CORP HARMON GAS UNIT A 2	AJAX MN DP60 SJBC-DP60-01
28	WILLIAMS FIELD SVCS MCCARVILLE 1 STA	NAT GAS ENG & 1068 HP
29	APACHE CORPORATION	NAT GAS ENG

Table B-3. Colorado Reasonably Foreseeable Emission Sources (continued)

Source Count	Facility Name	Source Description
30	AMOCO PRODUCTION CO FLORIDA RIVER COMP	WAUKESHA L7042 GL
31	AMOCO PRODUCTION CO FLORIDA RIVER COMP	CATERPILLAR G399TA ENGINE
32	STROEHECKER EXCAVATION	CATERPILLAR 398TA MOD JRG
33	STROEHECKER EXCAVATION	AJAX DPC 360LE SN 403660
34	AMOCO PRODUCTION CO SALVADOR COMP STA	C-BROOKS BOILER SN:47334
35	AMOCO PRODUCTION CO	ANIMAL CREMATOR NAT GAS
36	WILLIAMS FIELD SVCS BUENA SUERTA	CATERPILLAR CA 95 3306NA
37	AMOCO PRODUCTION CO AREA 7 INJECTION STA	WAUKESHA 12V AT27GL
38	AMOCO PRODUCTION CO AREA 7 INJECTION STA	WAUKESHA 12V AT27GL ENGIN
39	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA 12V AT27GL
40	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA 12V AT27GL
41	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA 12V AT27GL 2768H
42	WILLIAMS FIELD SERVICES LONE PINE	CATERPILLAR 3306 90HP ICE
43	AMERADA HESS CORP F U TERRELL GAS UN 2	MIX ASPHALT PLANT BARBER
44	STROEHECKER EXCAVATION	FORD LSG 875 ENGINE
45	MERCY MEDICAL CTR	CAT NAT ENG RATED @ 323HP
46	WESTERN MOBILE NORTHERN	ICE AJAX DPC-230 184 HP
47	ANG/FUEL RES.DEV.CO 44 CANYON COMP.STATN	CAT SN: C111614EK03197
48	ANG/FUEL RES.DEV.CO 44 CANYON COMP.STATN	CATERPILLAR G3512LE 7532
49	AMOCO PRODUCTION CO WHEELER COMP STA	COOPER SN:83937
50	WILLIAMS FIELD SVCS LATERAL 2 B STA	CAT SN: C111614EK03197
51	AMERADA HESS CORP 11 I C ENGINES	WAUKESHA MODEL F-1197-G
52	WILLIAMS FIELD SVCS TRUNK J SITE	TO2 SOLAR CENTAUR 60T700S
53	44 CANYON LLC C/O HALLWOOD PETROLEUM	NAT GAS ENG RATED @ 514 H
54	44 CANYON LLC C/O HALLWOOD PETROLEUM	NAT GAS ENG
55	44 CANYON LLC C/O HALLWOOD PETROLEUM	7 COMPRESSOR ENGINES
56	AMOCO PRODUCTION CO REA 1 DISPSL	TURBINE #2: GE,SN: 282515

Table B-3. Colorado Reasonably Foreseeable Emission Sources (continued)

Source Count	Facility Name	Source Description
57	NORTHWEST PIPELINE CORP LA PLATA B STA	STEAM BOILER #3
58	NORTHWEST PIPELINE CORP LA PLATA B STA	TURBINE #1-GE,SN: 282514
59	NORTHWEST PIPELINE CORP LA PLATA B STA	BOILER - NATGAS FIRED
60	PALO PETROLEUM	SOLAR TURBINE 2470BHP ENG
61	AMOCO PRODUCTION COMPANY	NG HEATER AMINE 39.96BTUH
62	WILLIAMS FIELD SERVICES IGNACIO B PLT	NAT GAS ENG RATED 1380 HP
63	AMOCO PRODUCTION CO HELEN CRAIG G.U.#1	ICE SN:4EK01868
64	AMOCO PRODUCTION CO MCCAW G.U. D#1	NAT GAS ENGINE
65	AMOCO PRODUCTION CO PICCOLI G.U.A #1	CAT G3516 SN:4EK01677
66	AMOCO PRODUCTION CO RAYMOND KOON GUA6#1	CAT G3516 SN: 4EKO1675
67	FUEL RESOURCES DEV CO MCCULLOCH 20 2	300 HP NATURAL GAS ENGINE
68	AMOCO PRODUCTION CO ROBERT DULIN G.U.C#1	RICHMOND FOXY WDW W/ICE
69	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	WAUK L7042GL, SN:402862
70	MARKWEST RESOURCES INC CARLILE COMP.	WAUK 7042 GL, SN: 402863
71	MARKWEST RESOURCES INC CARLILE COMP.	WAUKESHA L7042GL
72	APACHE CORPORATION	WAUKESHA L9390 GL 1460 HP
73	UTE E CENTRAL DELIVERY POINT	WAUKESHA MODEL 1905 170HP
74	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	NAT GAS ENG RATED AT 89 H
75	UTE E CENTRAL DELIVERY POINT	CATERPILLAR 3304 ENGINE
76	AMOCO PRODUCTION CO MAYFIELD COMP STA	AJAX DPC-360 SERIAL#80754
77	AMOCO PRODUCTION CO MAYFIELD COMP STA	AJAX DPC-800 SERIAL#82576
78	AMOCO PRODUCTION CO FLORIDA RIVER COMP	WAUK, L70042GL SN:C11100
79	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CATERPILLAR NAT GAS ENG
80	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	NAT GAS ENG 89 HP
81	NATURAL GAS PROCESSING CO	WAUKESHA RICH BURN MOD F8
82	AMOCO PRODUCTION CO RICHARDSON G.U.G#1	WAUKESHA F1197
83	FUEL RESOURCES DEV CO DEER CANYON UTE 16	CATERPILLAR G3304NA

Table B-4. Colorado Emission Source Modeling Input Values

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM Easting (km)	UTM Northing (km)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
1	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	TURBINE SMB1683 GP20388-3	0.5	196.191	4146.440	6.1	0.5	79.9	750	N/A	N/A	7068
2	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	WAUK L7042GL, SN:402862	0.4	265.992	4104.626	5.5	0.3	30.6	255	N/A	N/A	6396
3	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CATERPILLAR NAT GAS ENG	0.2	273.753	4126.367	4.3	0.3	5.2	865	N/A	N/A	7196
4	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	WAUKESHA ICE H-24GL	0.4	240.152	4099.231	4.9	0.2	38.4	255	N/A	N/A	6426
5	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	NAT GAS ENG RATED AT 89 H	0.2	269.053	4128.105	4.9	0.2	12.8	255	N/A	N/A	7013
6	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	NAT GAS ENG 89 HP	0.3	273.753	4126.367	4.9	0.2	12.8	548	N/A	N/A	7196
7	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	SATURN T-1300 TURBINE #2	0.5	252.500	4113.700	7.0	0.5	80.6	765	N/A	N/A	6511
8	44 CANYON LLC C/O HALLWOOD PETROLEUM INC	CATERPILLAR 3304 ENG 70HP	0.3	253.000	4110.000	2.1	0.1	11.9	844	N/A	N/A	6711
9	44 CANYON LLC, C/O HALLWOOD PETROLEUM	NAT GAS ENG RATED @ 514 H	0.3	252.700	4114.400	4.9	0.2	29.2	255	N/A	N/A	6596
10	44 CANYON LLC, C/O HALLWOOD PETROLEUM	NAT GAS ENG	0.2	252.700	4114.400	4.9	0.2	29.2	255	N/A	N/A	6596
11	44 CANYON LLC, C/O HALLWOOD PETROLEUM	GE,MODEL M-3142, TURBINE	3.7	252.700	4114.400	13.7	1.1	4.3	755	N/A	N/A	6596
12	44 CANYON LLC, C/O HALLWOOD PETROLEUM	7 COMPRESSOR ENGINES	28.7	252.700	4114.400	7.6	0.6	0.0 [a]	672	N/A	N/A	6596

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
13	AMERADA HESS CORP	AJAX 8 1/2 CMA SN: 60705	0.1	240.600	4116.400	0.6	0.1	0.0[a]	255	N/A	N/A	6796
14	AMERADA HESS CORP 11 I C ENGINES	WAUKESHA MODEL F-1197-G	0.5	252.200	4101.100	3.4	0.2	40.6	255	N/A	N/A	7131
15	AMERADA HESS CORP DAVIS GAS UNIT	AJAX M/N DPC 180 SN 75078	0.5	239.000	4116.500	0.6	0.1	50.8	255	N/A	N/A	6813
16	AMERADA HESS CORP F U TERRELL GAS UN 2	MIX ASPHALT PLANT BARBER	0.0	248.600	4141.300	9.1	2.3	3.2	366	N/A	N/A	6596
17	AMERADA HESS CORP HAHN GAS UNIT A 2	FORD CSG 879 SN 09168C-15	0.2	240.600	4116.400	0.6	0.1	50.8	255	N/A	N/A	6796
18	AMERADA HESS CORP HARMON GAS UNIT A 2	AJAX MN DP60 SJBC-DP60-01	0.2	240.600	4116.400	0.6	0.1	50.8	255	N/A	N/A	6796
19	AMERADA HESS CORP JULIAN GAS UNIT 2	AJAX E-42 SJBC-CMA-001	0.1	237.400	4116.500	0.6	0.1	50.8	255	N/A	N/A	7373
20	AMOCO PROD. CO. - J.B. GARDNER A #1	FORD CSG-649	0.3	235.500	4107.000	1.5	0.1	22.0	644	N/A	N/A	6872
21	AMOCO PRODUCTION - EVELYN PAYNE GU #1	SOLAR TAURUS TURBINE #1	2.1	252.500	4114.300	15.2	1.1	30.5	450	N/A	N/A	6596
22	AMOCO PRODUCTION - HENRICKSON UNIT B #1	(180) PORTABLE 42HP COMPS	14.0	250.000	4100.000	2.4	0.2	0.0[a]	922	N/A	N/A	6629
23	AMOCO PRODUCTION - HENRICKSON UNIT B #1	CUMMINS GTA-743A 240HP	0.7	239.500	4099.400	2.4	0.1	31.2	755	N/A	N/A	6396
24	AMOCO PRODUCTION - SO. UTE TRIBAL F#1	SATURN T-1300 TURBINE #3	0.5	252.500	4113.700	7.0	0.5	80.6	765	N/A	N/A	6511
25	AMOCO PRODUCTION CO	COOPER GMVH COMP ENGINE	1.7	193.556	4155.430	12.8	0.7	34.4	561	N/A	N/A	7570

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
26	AMOCO PRODUCTION CO	ANIMAL CREMATOR NAT GAS	0.0	245.700	4124.300	5.2	0.3	10.1	700	N/A	N/A	6498
27	AMOCO PRODUCTION CO PICNIC FLATS	AJAX DPC-360 ENGINE	0.9	227.560	4105.358	6.1	0.3	40.8	644	N/A	N/A	6471
28	AMOCO PRODUCTION CO PICNIC FLATS	S029 AMINE REGENERATOR	0.6	252.700	4114.400	18.3	1.4	13.5	444	N/A	N/A	6596
29	AMOCO PRODUCTION CO PICNIC FLATS	E. DEHYDRATOR GLYCOL RBLR	0.0	252.700	4114.400	4.3	0.2	0.0	866	N/A	N/A	6596
30	AMOCO PRODUCTION CO PICNIC FLATS	AJAX DPC 360 LE	0.4	241.000	4111.300	6.7	0.3	15.1	255	N/A	N/A	6544
31	AMOCO PRODUCTION CO PICNIC FLATS	AJAX DPC-180 COMP. ENGINE	0.2	241.000	4111.300	6.1	0.3	6.8	511	N/A	N/A	6544
32	AMOCO PRODUCTION CO PICNIC FLATS	GAS TURB SOLAR 34.81E6BTU	0.9	252.700	4114.400	9.1	1.0	52.5	704	N/A	N/A	6596
33	AMOCO PRODUCTION CO PICNIC FLATS	AJAX DPC 300, SN: 75514	0.3	241.000	4111.300	6.1	0.2	13.7	522	N/A	N/A	6544
34	AMOCO PRODUCTION CO PICNIC FLATS	FORD CSG-649 46 HP	0.1	241.000	4111.300	0.6	0.1	151.2	644	N/A	N/A	6544
35	AMOCO PRODUCTION CO PICNIC FLATS	CATERPILLAR 3304 70HP ICE	0.3	261.200	4108.200	2.1	0.1	11.9	866	N/A	N/A	6694
36	AMOCO PRODUCTION CO PICNIC FLATS	CATERPILLAR 3304 ENGINE	0.3	267.600	4109.500	2.1	0.1	11.9	866	N/A	N/A	6504
37	AMOCO PRODUCTION CO HELEN CRAIG G.U.#1	ICE SN:4EK01868	0.7	253.221	4109.797	0.0	0.0 [a]	0.0[a]	294	N/A	N/A	6711
38	AMOCO PRODUCTION CO MCCAW G.U. D#1	NAT GAS ENGINE	0.7	253.221	4109.797	6.4	0.4	24.4	255	N/A	N/A	6711
39	AMOCO PRODUCTION CO PICCOLI G.U.A #1	CAT G3516 SN:4EK01677	0.7	253.221	4109.797	0.0[a]	0.0[a]	0.0[a]	294	N/A	N/A	6711
40	AMOCO PRODUCTION CO PINE RIVER 02-29	RICHARD FOXY WDW W/ICE	1.2	260.000	4109.100	2.4	0.2	18.7	671	N/A	N/A	6796

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
41	AMOCO PRODUCTION CO RAYMOND KOON GUA6#1	CAT G3516 SN: 4EKO1675	0.7	253.221	4109.797	6.4	0.4	24.4	255	N/A	N/A	6711
42	AMOCO PRODUCTION CO RICHARDSON G.U.G#1	WAUKESHA F1197	0.2	277.288	4105.998	3.0	0.1	98.2	255	N/A	N/A	6796
43	AMOCO PRODUCTION CO - ROBERT DULIN D #1	FORD CSG-649	0.3	235.400	4105.400	1.5	0.6	2.2	255	N/A	N/A	6790
44	AMOCO PRODUCTION CO ROBERT DULIN G.U.#1	WAUKESHA L 3711G_SN:4068	0.9	260.000	4109.100	3.7	0.2	42.2	294	N/A	N/A	6796
45	AMOCO PRODUCTION CO AREA 7 INJECTION STA	WAUKESHA 12V AT27GL	1.2	248.400	4111.600	8.2	0.6	30.9	517	N/A	N/A	6596
46	AMOCO PRODUCTION CO AREA 7 INJECTION STA	WAUKESHA 12V AT27GL ENGIN	1.2	248.400	4111.600	8.2	0.6	30.9	517	N/A	N/A	6596
47	AMOCO PRODUCTION CO DURANGO AREA	WAUKESHA ENGINE #1	1.0	248.400	4111.600	8.2	0.6	24.4	673	N/A	N/A	6596
48	AMOCO PRODUCTION CO FLORIDA RIVER COMP	WAUK, L70042GL SN:C11100	0.6	273.600	4104.100	6.1	0.3	38.0	727	N/A	N/A	6524
49	AMOCO PRODUCTION CO FLORIDA RIVER COMP	WAUKESHA L7042 GL	0.7	242.300	4109.900	6.4	0.3	50.4	0	N/A	N/A	6481
50	AMOCO PRODUCTION CO FLORIDA RIVER COMP	CATERPILLAR G399TA ENGINE	0.7	242.300	4109.900	6.7	0.3	31.9	664	N/A	N/A	6481
51	AMOCO PRODUCTION CO FLORIDA RIVER COMP	NAT GAS ENG & 943 HP	1.2	260.200	4110.400	8.2	0.6	30.9	671	N/A	N/A	6796
52	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA 12V AT27GL	1.2	248.400	4111.600	8.2	0.6	30.9	671	N/A	N/A	6596

N/A Not available
[(a)] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
53	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA 12V AT27GL	1.2	248.400	4111.600	8.2	0.6	30.9	0	N/A	N/A	6596
54	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA 12V AT27GL 2768H	1.0	248.400	4111.600	8.2	0.6	24.4	752	N/A	N/A	6596
55	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA ENGINE #2	1.0	248.400	4111.600	8.2	0.6	24.4	752	N/A	N/A	6596
56	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA ENGINE #3	1.0	248.400	4111.600	8.2	0.6	24.4	752	N/A	N/A	6596
57	AMOCO PRODUCTION CO HIGH FLUME CS,AREA 6	WAUKESHA ENGINE #4	6.6	248.400	4111.600	13.7	1.8	40.8	728	N/A	N/A	6596
58	AMOCO PRODUCTION CO REA 1 DISPSL	TURBINE #2: GE,SN: 282515	0.3	252.700	4114.400	6.1	0.4	0.0[a]	422	N/A	N/A	6596
59	AMOCO PRODUCTION CO REA 1 DISPSL	REGENERATIO N HEATER	0.3	252.700	4114.400	1.8	0.1	116.7	802	N/A	N/A	6596
60	AMOCO PRODUCTION CO ROBERT DULIN G.U.C#1	RICHMOND FOXY WDW W/ICE	0.9	260.000	4109.100	7.6	0.4	13.5	505	N/A	N/A	6796
61	AMOCO PRODUCTION CO S UTE 23 2	AJAX DPC-600, SN: 82-093P	0.0	251.600	4126.500	21.3	0.6	4.1	466	N/A	N/A	7108
62	AMOCO PRODUCTION CO SALVADOR COMP STA	C-BROOKS BOILER SN:47334	0.0	245.200	4129.900	21.3	0.6	0.9	466	N/A	N/A	6596
63	AMOCO PRODUCTION CO SALVADOR COMP STA	C-BROOKS BOIL SN:47335	0.9	245.200	4129.900	0.9	0.4	0.0[a]	700	N/A	N/A	6596
64	AMOCO PRODUCTION CO SALVADOR COMP STA	AJAX DPC-360 ENGINE	0.6	259.900	4120.500	0.0	0.3	38.1	255	N/A	N/A	6855
65	AMOCO PRODUCTION CO TIFFANY COMPRESSOR	NATURAL GAS ENGINE	0.6	242.300	4109.900	0.0	0.3	38.1	255	N/A	N/A	6481

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
66	AMOCO PRODUCTION CO TIFFANY COMPRESSOR	WAUKESHA NAT GAS ENG	6.6	242.300	4109.900	13.7	1.8	40.8	728	N/A	N/A	6481
67	AMOCO PRODUCTION CO TIFFANY COMPRESSOR	WAUKESHA 3521GL	0.3	242.300	4109.900	4.9	0.2	50.3	255	N/A	N/A	6481
68	AMOCO PRODUCTION CO. - ELDRIDGE 25-2	AJAX DP-70 60HP ENGINE	0.1	238.600	4107.200	0.6	0.1	51.8	561	N/A	N/A	6862
69	AMOCO PRODUCTION COMPANY	NG HEATER AMINE 39.96BTUH	1.2	253.200	4115.600	2.1	0.1	109.1	603	N/A	N/A	6642
70	ANG/FUEL RES.DEV.CO 44 CANYON COMP.STATN	CAT SN: C111614EK03197	0.7	251.600	4126.500	6.1	0.3	17.0	255	N/A	N/A	7108
71	ANG/FUEL RES.DEV.CO 44 CANYON COMP.STATN	CATERPILLAR G3512LE 7532	0.9	251.600	4126.500	7.6	0.4	14.4	255	N/A	N/A	7108
72	APACHE CORPORATION	WAUKESHA L9390 GL 1460 HP	0.8	267.200	4106.800	0.9	0.4	19.0	255	N/A	N/A	6422
73	BLASTING & MINING INC	WAUKESHA VRG22 SN:398981	0.1	262.500	4098.400	2.1	0.1	35.4	839	N/A	N/A	7006
74	CELSIUS ENERGY CO CUTTHROAT WELL 3	WAUKESHA VRG 220 SN 38889	0.1	254.900	4112.700	2.1	0.1	35.4	839	N/A	N/A	6596
75	CELSIUS ENERGY CO CUTTHROAT WELL 3	ICE WAUKESHA VRG 220	0.1	244.200	4117.500	1.8	0.1	35.4	839	N/A	N/A	6344
76	CELSIUS ENERGY CO CUTTHROAT WELL 4	WAUKESHA SN: 400638	0.3	252.000	4110.000	2.1	0.9	85.6	255	N/A	N/A	6776
77	CELSIUS ENERGY CO CUTTHROAT WELL 5 SPA	WAUKEHSA 220 SN:396333	0.1	257.800	4103.100	2.1	0.1	35.4	839	N/A	N/A	7124

N/A Not available

[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
78	CELSIUS ENERGY CO MCCLEAN BASIN WELL 2	AJAX DPC 230 HP SN 402341	0.7	238.300	4108.800	6.1	0.3	13.3	516	N/A	N/A	6675
79	CELSIUS ENERGY CO MCCLEAN BASIN WELL 2	WAUKESHA VRG 220	0.5	241.700	4115.400	5.5	0.3	36.2	633	N/A	N/A	6596
80	EL PASO NATURAL GAS CO BONDAD COMP STA	WAUKESHA L5790 GL ICE.CN	0.2	243.700	4111.500	7.6	0.4	14.7	255	N/A	N/A	6209
81	EL PASO NATURAL GAS CO BONDAD COMP STA	AJAX DPC-540LE	0.5	243.700	4111.500	5.5	0.3	36.2	255	N/A	N/A	6209
82	EL PASO NATURAL GAS CO BONDAD COMP STA	WAUKESHA L5790GL.CN	0.2	243.700	4111.500	4.9	0.2	34.8	255	N/A	N/A	6209
83	EL PASO NATURAL GAS CO BONDAD COMP STA	NAT GAS ENG	0.5	243.700	4111.500	6.1	0.5	79.9	750	N/A	N/A	6209
84	EL PASO NATURAL GAS COMPANY IGNACIO FLD	TURBINE #1 MD:10-T1302	0.5	196.191	4146.440	6.1	0.5	70.9	683	N/A	N/A	7068
85	EL PASO NATURAL GAS COMPANY IGNACIO FLD	TURBINE SN:0528521R	0.4	196.191	4146.440	0.0	0.0[a]	0.0[a]	255	N/A	N/A	7068
86	FOUR CORNERS MATERIALS, INC.	ENERTEK NATGAS DEHYDRATOR	0.4	239.800	4099.000	0.0	0.0[a]	0.0[a]	255	N/A	N/A	6426
87	FOUR CORNERS MATERIALS, INC.	P & A DEHYDRATOR	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
88	FOUR CORNERS MATERIALS, INC.	WAUKESHA 1232HP SN#362478	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
89	FOUR CORNERS MATERIALS, INC.	WAUKESHA 1232HP SN#360634	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
90	FOUR CORNERS MATERIALS, INC.	WAUKESHA 1232HP SN#403117	0.3	239.800	4099.000	3.7	0.3	0.0[(a)]	255	N/A	N/A	6426
91	FUEL RESOURCES DEV CO DEER CANYON UTE 16	CATERPILLAR G3304NA	0.5	281.700	4099.100	7.0	0.5	80.6	765	N/A	N/A	6176
92	FUEL RESOURCES DEV CO SED BURNETT 2 1	SATURN T-1300 TURBINE #1	0.4	252.500	4113.700	2.1	0.1	0.9	964	N/A	N/A	6511
93	FUEL RESOURCES DEV CO SED FEDERAL3 1	CATERPILLAR COMPRESSOR	0.7	250.000	4111.700	26.2	1.8	7.0	601	N/A	N/A	6632
94	GLEN WELLS CONST	RADCO AMINE HEATER #1	0.5	253.200	4115.600	6.1	0.5	79.9	255	N/A	N/A	6642
95	HALLIBURTON ENERGY SVCS	SOLAR 10-T1300	0.7	196.191	4146.440	3.7	0.2	28.8	769	N/A	N/A	7068
96	HUGOTON ENERGY CORPORATION	WAUKESHA ENGINE SN:123418	0.7	238.200	4124.200	2.4	0.1	31.2	755	N/A	N/A	7019
97	LA PLATA COUNTY HUMANE SOCIETY	CUMMINS GTA-743A 240HP	7.0	239.500	4099.400	10.4	1.2	0.6	717	N/A	N/A	6396
98	MARKWEST RESOURCES INC	(3) CENTAUR 40-T5300L	1.1	253.900	4109.100	2.4	0.1	44.4	255	N/A	N/A	6803
99	MARKWEST RESOURCES INC	CATERPILLAR 166HP ENGINE	2.2	239.800	4099.000	11.0	2.4	7.3	706	N/A	N/A	6426
100	MARKWEST RESOURCES INC	SOLAR CENTAUR SN: 16684R	0.4	253.900	4109.100	5.5	0.3	30.6	255	N/A	N/A	6803
101	MARKWEST RESOURCES INC CARLILE COMP.	WAUK 7042 GL, SN: 402863	0.6	265.992	4104.626	5.5	0.3	30.6	650	N/A	N/A	6396
102	MARKWEST RESOURCES INC CARLILE COMP.	WAUKESHA L7042GL	0.3	265.992	4104.626	6.7	0.3	13.2	255	N/A	N/A	6396
103	MERCY MEDICAL CTR	AJAX DPC 360 ENGINE	0.2	249.000	4125.500	4.9	0.2	34.8	255	N/A	N/A	6924

N/A Not available
[(a)] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
104	MERCY MEDICAL CTR	CAT NAT ENG RATED @ 323HP	0.0	234.200	4107.000	1.8	0.6	0.0[(a)]	422	N/A	N/A	6567
105	MID AMERICA PIPELINE CO DOLORES STA	2 CLEAVER BROOKS BOILERS	0.2	183.607	4140.925	1.8	0.6	0.0[(a)]	422	N/A	N/A	6075
106	MID AMERICA PIPELINE CO DOLORES STA	2 CLEAVER BROOKS BOILERS	0.2	183.607	4140.925	6.7	0.3	14.5	516	N/A	N/A	6075
107	NATURAL GAS PROCESSING	AJAX DPC 360LE	0.4	236.800	4113.600	2.4	0.9	17.3	255	N/A	N/A	6832
108	NATURAL GAS PROCESSING CO	WAUKESHA RICH BURN MOD F8	0.2	275.000	4100.300	8.5	0.9	0.0[(a)]	755	N/A	N/A	6317
109	NORTHWEST PIPELINE CORP LA PLATA B STA	STEAM BOILER #3	6.6	252.700	4114.400	13.7	1.8	40.8	728	N/A	N/A	6596
110	NORTHWEST PIPELINE CORP LA PLATA B STA	TURBINE #1-GE,SN: 282514	0.2	252.700	4114.400	8.5	0.9	0.0[(a)]	755	N/A	N/A	6596
111	NORTHWEST PIPELINE CORP LA PLATA B STA	BOILER - NATGAS FIRED	0.9	252.700	4114.400	8.5	0.8	0.0[(a)]	755	N/A	N/A	6596
112	PALO PETROLEUM	SOLAR TURBINE 2470BHP ENG	0.2	252.700	4114.400	1.5	0.1	21.2	1053	N/A	N/A	6596
113	QUESTAR EXPLORATION & PROD - MIR 4-31	FORD CSG-649 SN:17772 ICE	0.2	229.102	4113.878	6.1	2.4	12.0	255	N/A	N/A	6996
114	QUESTAR EXPLORATION & PROD - CUTTHROAT A	AJAX DPC-180 S/N 053981	0.1	249.000	4110.000	0.6	0.1	50.8	255	N/A	N/A	6763
115	RMI ENVIRONMENTAL SVC INC	AJAX M/N E-42 SN: 65254	0.1	237.400	4116.500	6.1	0.3	15.8	255	N/A	N/A	7373

N/A Not available
[(a)] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM Easting (km)	UTM Northing (km)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (ft)
116	RMI ENVIRONMENTAL SVCS	AJAX DPC 360LE SN 403660	0.3	238.800	4111.700	6.7	0.3	29.7	650	N/A	N/A	6603
117	S G INTERESTS I LTD	WAUKESHA 1109HP #C10607/2	0.4	239.800	4099.000	6.7	0.3	29.7	255	N/A	N/A	6426
118	S G INTERESTS I LTD	WAUKESHA 1117HP #C10985/1	0.0	239.800	4099.000	3.7	0.3	13.2	878	N/A	N/A	6426
119	S G INTERESTS I LTD	CAT 3304 GEN. SET - 72HP	2.6	239.800	4099.000	13.4	1.0	59.7	794	N/A	N/A	6426
120	S G INTERESTS I LTD	SOLAR CENTAUR SN: 0228H	1.6	253.200	4115.500	10.7	1.0	51.9	774	N/A	N/A	6642
121	S G INTERESTS I LTD	SOLAR CENTAUR SN: HC93059	0.0	253.200	4115.500	4.9	0.5	6.2	1171	N/A	N/A	6642
122	S G INTERESTS I LTD	ALL MDL L1701 SN CR190294	0.0	244.000	4129.000	4.9	0.5	6.2	1171	N/A	N/A	6606
123	S G INTERESTS I LTD	ALL MDL L1701 SN CR190294	0.4	244.000	4129.000	6.7	0.3	29.7	255	N/A	N/A	6606
124	SAN JUAN BASIN CONSORTIUM	WAUKESHA 1117HP #C10985/3	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
125	SAN JUAN BASIN CONSORTIUM	WAUKESHA 1117HP #C10985/8	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
126	SAN JUAN BASIN CONSORTIUM	WAUKESHA 1117HP #C10985/7	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
127	SAN JUAN BASIN CONSORTIUM	WAUKESHA 1232HP #C11059/1	0.3	239.800	4099.000	6.7	0.3	29.7	255	N/A	N/A	6426
128	SAN JUAN BASIN CONSORTIUM	WAUKESHA 895HP #13	0.3	239.800	4099.000	6.7	0.3	29.7	255	N/A	N/A	6426

N/A Not available
(a) Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
129	SAN JUAN BASIN CONSORTIUM	WAUKESHA 895HP #14	0.5	239.800	4099.000	7.3	0.3	17.8	755	N/A	N/A	6426
130	SG INTEREST I LTD	AJAX ENG. SN: HRM 85-317T	0.3	230.682	4108.768	7.3	0.3	17.8	755	N/A	N/A	6760
131	SG INTEREST I LTD	WAUKESHA F3521 ENGINE #2	0.2	230.682	4108.768	2.1	0.1	23.8	839	N/A	N/A	6760
132	SG INTEREST I LTD	CATERPILLAR 3304 70HP ICE	0.5	269.000	4106.000	4.6	0.2	6.6	561	N/A	N/A	6596
133	SG INTERESTS 1, LTD - SOUTH IGNACIO CDP	WAUKESHA F817,SN: 308602	0.5	229.102	4113.878	4.6	0.2	6.6	561	N/A	N/A	6996
134	SG INTERESTS 1, LTD - SOUTH IGNACIO CDP	WAUKESHA F817, SN: 171303	0.0	229.102	4113.878	5.5	0.5	6.1	1144	N/A	N/A	6996
135	SG INTERESTS I LTD	CREMATOR A11-1801	0.3	182.413	4139.497	6.7	0.3	29.7	650	N/A	N/A	6035
136	SG INTERESTS I, LTD. - SUNNYSIDE C.S.	WAUKESHA 1232HP #C10461/4	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
137	SG INTERESTS I, LTD. - SUNNYSIDE C.S.	WAUKESHA 1160HP #C10461/5	0.3	239.800	4099.000	6.7	0.3	29.7	650	N/A	N/A	6426
138	SG INTERESTS I, LTD. - SUNNYSIDE C.S.	WAUKESHA 1109HP #C10607/1	0.2	239.800	4099.000	2.4	0.2	7.7	922	N/A	N/A	6426
139	SHELL CO2 COMPANY - YELLOW JACKET	WAUKESHA ENGINE 399752	0.2	256.800	4118.900	2.4	0.2	7.7	922	N/A	N/A	6757
140	SHELL CO2 COMPANY - YELLOW JACKET	WAUKESHA ENGINE 396325	0.2	276.300	4116.000	2.4	0.2	7.7	922	N/A	N/A	7321
141	SHELL CO2 COMPANY - YELLOW JACKET	WAUKESHA VRG 330, 399859	0.2	257.100	4115.600	2.4	0.2	7.7	922	N/A	N/A	6596
142	SHELL WESTERN E&P INC COW CANYON CLOSED	WAUKESHA VRG 330, 389779	0.2	248.800	4120.900	2.4	0.2	7.7	922	N/A	N/A	6796

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
143	SHELL WESTERN E&P INC COW CANYON CLOSED	WAUKESHA VRG 330, 399842	0.2	269.400	4130.400	2.4	0.2	7.7	922	N/A	N/A	7193
144	SHELL WESTERN E&P INC COW CANYON CLOSED	WAUKESHA VRG 330, 389456	0.4	249.800	4112.900	1.5	0.1	16.9	866	N/A	N/A	6590
145	TBI EXPLORATION CO SED STATE 1 36	WAUKESHA119 7 115HP ENGINE	1.6	250.000	4113.300	13.4	1.0	59.7	794	N/A	N/A	6573
146	TEXACO EXPLORATION & PROD INC	SOLAR CENTAUR SN: 0228H	2.4	253.200	4115.500	8.2	1.8	12.1	603	N/A	N/A	6642
147	TEXACO EXPLORATION & PROD UTE C WELL NO2	SOLAR T-3000 SN:1668C4R	2.4	253.900	4109.100	8.2	1.8	12.0	603	N/A	N/A	6803
148	TEXACO EXPLORATION & PROD UTE E WEL NO2	SOLAR T3000 SN:8009663R91	0.2	253.900	4109.100	4.0	0.2	40.7	811	N/A	N/A	6803
149	THE HANOVER COMPANY - CAIN 31-1	CATERPILLAR 376HP ENGINE	0.6	258.200	4117.800	3.7	0.1	47.9	836	N/A	N/A	6599
150	THE HANOVER COMPANY - CAIN 31-2	WAUKESHA F1905G, SN:70493	0.6	258.200	4117.800	2.1	0.1	0.6	865	N/A	N/A	6599
151	UTE E CENTRAL DELIVERY POINT	WAUKESHA MODEL 1905 170HP	0.3	267.500	4107.800	2.1	0.1	11.9	866	N/A	N/A	6396
152	UTE E CENTRAL DELIVERY POINT	CATERPILLAR 3304 ENGINE	0.2	269.100	4103.200	1.8	0.1	25.5	811	N/A	N/A	6396

N/A Not available

[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
153	VASTAR RESOURCES INC. - WELL 4-3; 32-10	CAT G3408TA 400HP ENGINE	0.2	258.200	4117.800	2.1	0.1	12.2	255	N/A	N/A	6599
154	WESTERN MOBILE NORTHERN INC	WAUKESHA VRG330 SN 402613	0.2	219.392	4110.886	4.9	0.3	11.4	500	N/A	N/A	6629
155	WESTERN MOBILE NORTHERN INC	ICE AJAX DPC-230 184 HP	0.0	251.000	4105.000	0.0[a]	0.0[a]	0.0[a]	255	N/A	N/A	7396
156	WESTERN MOBILE NORTHERN INC	ELASTEC SMARTASH RECOVERY	0.1	276.700	4103.300	6.4	0.3	8.1	255	N/A	N/A	6576
157	WESTERN MOBILE NORTHERN INC	ICE AJAX DPC 180 144 HP	0.1	251.000	4105.000	0.0[a]	0.0[a]	0.0[a]	294	N/A	N/A	7396
158	WESTERN MOBILE NORTHERN INC	FORD ICE SN00693605RG .XP	0.3	260.000	4107.500	4.9	0.3	6.7	528	N/A	N/A	6796
159	WESTERN MOBILE NORTHERN INC	AJAX DPC 140	0.4	251.000	4105.000	2.1	0.1	18.0	844	N/A	N/A	7396
160	WILLIAMS FIELD SERVICES - LONE PINE	CATERPILLAR 3306 90HP ICE	2.1	248.400	4113.300	15.2	1.1	30.5	450	N/A	N/A	6596
161	WILLIAMS FIELD SERVICES - LONE PINE	SOLAR TAURUS TURBINE #1	2.1	252.500	4114.300	15.2	1.1	30.5	450	N/A	N/A	6596
162	WILLIAMS FIELD SERVICES - LONE PINE	SOLAR TAURUS TURBINE #2	0.3	252.500	4114.300	6.4	0.3	40.5	255	N/A	N/A	6596
163	WILLIAMS FIELD SERVICES IGNACIO B PLT	NAT GAS ENG RATED 1380 HP	0.6	253.200	4115.600	7.3	0.3	36.8	689	N/A	N/A	6642
164	WILLIAMS FIELD SERVICES IGNACIO B PLT	CAT G3516TA 1085HP COMP#4	0.6	234.000	4106.500	5.5	0.3	35.3	255	N/A	N/A	6540
165	WILLIAMS FIELD SERVICES IGNACIO B PLT	WAUKESHA L5790GL	2.8	234.200	4107.000	4.3	0.2	69.2	644	N/A	N/A	6567

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
166	WILLIAMS FIELD SERVICES IGNACIO B PLT	CAT G399TA COMP #1 660HP	0.4	234.200	4107.000	2.1	0.1	12.2	644	N/A	N/A	6567
167	WILLIAMS FIELD SERVICES IGNACIO B PLT	CAT G399TA COMP #2 660HP	0.4	234.200	4107.000	2.1	0.1	12.2	644	N/A	N/A	6567
168	WILLIAMS FIELD SERVICES IGNACIO B PLT	SUPERIOR 6G825 #3 460HP	1.9	234.200	4107.000	4.6	0.2	60.7	811	N/A	N/A	6567
169	WILLIAMS FIELD SERVICES IGNACIO B PLT	FORD CSG649 V6 ENG 60HP	0.1	234.200	4107.000	2.7	0.1	58.9	644	N/A	N/A	6567
170	WILLIAMS FIELD SERVICES IGNACIO B PLT	FORD LSG875 TRIPLEX1 90HP	0.2	234.200	4107.000	3.0	0.1	53.4	644	N/A	N/A	6567
171	WILLIAMS FIELD SERVICES IGNACIO B PLT	FORD LSG875 V8 ENG 90HP	0.2	233.980	4106.500	3.0	0.1	53.4	644	N/A	N/A	6540
172	WILLIAMS FIELD SVCS	WAUKESHA SN: C106791	0.9	257.800	4108.700	7.6	0.4	27.4	633	N/A	N/A	6875
173	WILLIAMS FIELD SVCS BONDAD 33 9 NO7 WELL	CUMMINS GTA-743A ENGINE	0.6	256.300	4114.100	2.4	0.1	25.4	755	N/A	N/A	6593
174	WILLIAMS FIELD SVCS BUENA SUERTA	CATERPILLAR CA 95 3306NA	0.3	246.800	4111.400	2.7	0.1	33.5	255	N/A	N/A	6406
175	WILLIAMS FIELD SVCS BUENA SUERTA	NATURAL GAS ENGINE	0.2	276.000	4100.500	1.2	0.2	32.9	255	N/A	N/A	6196
176	WILLIAMS FIELD SVCS BUENA SUERTA	WAUKESHA L5788G 460 HP	0.4	274.200	4099.900	0.0	0.0	0.0	294	N/A	N/A	6422
177	WILLIAMS FIELD SVCS BUENA SUERTA	DORMAN DA 85 GDAGT 81HP	0.5	246.800	4111.400	2.1	0.1	32.4	255	N/A	N/A	6406
178	WILLIAMS FIELD SVCS BUENA SUERTA	FORD VSG 4131 00698 CANC	0.1	261.000	4107.800	0.0	0.0	0.0	294	N/A	N/A	6694
179	WILLIAMS FIELD SVCS IGNACIO 33 7 SITE	CAT G399 TALE 59C01159	0.6	243.800	4108.200	6.4	0.2	77.4	255	N/A	N/A	6196

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
180	WILLIAMS FIELD SVCS LATERAL 2 B STA	CAT SN: C111614EK03197	0.7	251.600	4126.500	6.1	0.3	17.0	255	N/A	N/A	7108
181	WILLIAMS FIELD SVCS MCCARVILLE 1 STA	NAT GAS ENG & 1068 HP	0.6	241.000	4111.300	6.1	0.1	8.3	749	N/A	N/A	6544
182	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA VRG330 NO. 40262	0.2	227.808	4110.854	2.1	0.9	12.2	255	N/A	N/A	6822
183	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA SN:C-12756/7 ICE	0.4	237.200	4099.200	4.9	0.2	38.3	720	N/A	N/A	6570
184	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA F18GL 400HP ICE	0.2	241.720	4099.183	4.9	0.2	12.6	255	N/A	N/A	6816
185	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA ICE SN:414003	0.6	248.479	4111.562	6.1	0.4	29.7	649	N/A	N/A	6596
186	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA NAT GAS ENGINE	0.4	241.720	4099.183	4.9	0.2	38.4	255	N/A	N/A	6816
187	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA L 7042 GL ICE	0.5	238.900	4112.100	6.7	0.3	38.5	631	N/A	N/A	6642
188	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA L 7042 G ICE	0.4	238.900	4112.100	6.7	0.3	22.3	823	N/A	N/A	6642
189	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA L 7042 G ICE	0.4	238.900	4112.100	6.7	0.3	22.3	823	N/A	N/A	6642
190	WILLIAMS FIELD SVCS PLA 9 STA	CATERPILLAR G34212LE	0.3	237.200	4099.200	5.5	0.3	46.6	255	N/A	N/A	6570
191	WILLIAMS FIELD SVCS PLA 9 STA	CATERPILLAR 3512LE	0.8	248.479	4111.562	6.1	0.2	40.8	255	N/A	N/A	6596
192	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA L7042GL ENG	0.4	241.720	4099.183	6.7	0.3	40.9	637	N/A	N/A	6816
193	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA L 7042 ENGINE	0.4	241.720	4099.183	6.7	0.3	40.9	637	N/A	N/A	6816

N/A Not available
[a] Representative value assumed in the modeling

Table B-4. Colorado Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
194	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA L7042 GL ENGINE	0.4	241.720	4099.183	6.7	0.3	40.9	637	N/A	N/A	6816
195	WILLIAMS FIELD SVCS PLA 9 STA	CUMMING, MODEL G-855	0.9	262.300	4123.300	2.4	1.2	25.4	255	N/A	N/A	7196
196	WILLIAMS FIELD SVCS PLA 9 STA	CATERPILLAR 379 TA 350 HP	1.0	248.479	4111.562	4.6	0.2	28.7	865	N/A	N/A	6596
197	WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA F1197	0.2	262.474	4125.121	3.0	0.1	98.2	255	N/A	N/A	7396
198	WILLIAMS FIELD SVCS PLA 9 STA	CATERPILLAR G3307	0.1	263.187	4119.244	2.4	0.1	38.4	255	N/A	N/A	6783
199	WILLIAMS FIELD SVCS PLA 9 STA	CATERPILLAR G34212LE	0.3	237.200	4099.200	5.5	0.3	46.6	255	N/A	N/A	6570
200	WILLIAMS FIELD SVCS TRUNK J SITE	TO2 SOLAR CENTAUR 60T700S	0.6	252.500	4114.500	13.7	1.0	14.9	744	N/A	N/A	6596
201	WILLIAMS FIELD SVCS TRUNK J SITE	SOLAR CENTAUR 50-HSN 0026	0.6	252.500	4114.500	8.8	1.0	0.0[a]	799	N/A	N/A	6596

N/A Not available
[a] Representative value assumed in the modeling

Appendix C – New Mexico Emission Inventory

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C-1. New Mexico Emission Source Modeling Input Values 169

Table C-1. New Mexico Emission Source Modeling Input Values

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Williams Field Services/El Cedro Gp/340M	nm01	0.57	285600	4062800	22.0	1.0	150.0	702.0	N/A	N/A	1966
2	Williams Field Services/El Cedro Gp/340M	nm02	0.57	285600	4062800	22.0	1.0	150.0	702.0	N/A	N/A	1966
3	Williams Field Services/El Cedro Gp/340M	nm03	0.57	285600	4062800	22.0	1.0	150.0	702.0	N/A	N/A	1966
4	Williams Field Services/El Cedro Gp/340M	nm04	0.57	285600	4062800	22.0	1.0	150.0	702.0	N/A	N/A	1966
5	Williams Field Services/El Cedro Gp/340M	nm05	3.99	285600	4062800	6.7	0.3	47.2	645.4	N/A	N/A	1966
6	Williams Field Services/Manz CDP 31-6/PS	nm06	0.01	284200	4079400	4.6	0.2	20.0	1273.2	N/A	N/A	1955
7	Williams Field Services/Manz CDP 31-6/PS	nm07	0.01	284200	4079400	4.6	0.2	20.0	1273.2	N/A	N/A	1955
8	Williams Field Services/Manz CDP 31-6/PS	nm08	0.57	284200	4079400	22.0	1.0	150.0	702.0	N/A	N/A	1955
9	Williams Field Services/Manz CDP 31-6/PS	nm09	9.11	284200	4079400	6.7	0.3	47.2	645.4	N/A	N/A	1955
10	Williams Field Services/Trunk L Cs/1527M	nm10	0.03	289500	4057600	0.0	0.0	0.0	0.0	N/A	N/A	2000
11	Williams Field Services/Trunk L Cs/1527M	nm11	0.03	289500	4057600	0.0	0.0	0.0	0.0	N/A	N/A	2000
12	Williams Field Services/Trunk L Cs/1527M	nm12	0.08	289500	4057600	7.6	0.3	32.6	697.0	N/A	N/A	2000
13	Williams Field Services/Trunk L Cs/1527M	nm13	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000
14	Williams Field Services/Trunk L Cs/1527M	nm14	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000
15	Williams Field Services/Trunk L Cs/1527M	nm15	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000

N/A – Not available

Table C-1. New Mexico Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
16	Williams Field Services/Trunk L Cs/1527M	nm16	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000
17	Williams Field Services/Trunk L Cs/1527M	nm17	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000
18	Williams Field Services/Trunk L Cs/1527M	nm18	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000
19	Williams Field Services/Trunk L Cs/1527M	nm19	0.47	289500	4057600	22.0	1.0	106.0	714.0	N/A	N/A	2000
20	Williams Field Services/Trunk L Cs/1527M	nm20	6.60	289500	4057600	6.7	0.3	32.3	652.0	N/A	N/A	2000
21	Williams Field Services/Trunk L Cs/1527M	nm21	0.03	289500	4057600	20.0	2.0	10.0	700.0	N/A	N/A	2000
22	Williams Field Services/Trunk L Cs/1527M	nm22	0.03	289500	4057600	20.0	2.0	10.0	700.0	N/A	N/A	2000
23	Williams Field Services/Trunk L Cs/1527M	nm23	0.03	289500	4057600	20.0	2.0	10.0	700.0	N/A	N/A	2000
24	Williams Field Services/Trunk L Cs/1527M	nm24	0.10	289500	4057600	6.1	0.6	3.0	644.3	N/A	N/A	2000
25	Williams Field Services/Thompson C. S./0	nm25	0.78	223709.9	4080850	6.7	0.3	64.0	679.8	N/A	N/A	1769
26	Mid-America Pipeline/Huerfano/888M3	nm26	0.72	239500	4040000	6.1	0.6	41.2	786.5	N/A	N/A	1989
27	Mid-America Pipeline/Huerfano/888M3	nm27	0.72	238400	4041000	6.1	0.6	41.2	786.5	N/A	N/A	1989
28	Williams Field Services/32-7cdp Cs/1032M	nm28	0.57	272100	4090200	22.0	1.0	162.0	801.0	N/A	N/A	2060
29	Williams Field Services/32-7cdp Cs/1032M	nm29	0.57	272100	4090200	22.0	1.0	162.0	801.0	N/A	N/A	2060
30	Williams Field Services/32-7cdp Cs/1032M	nm30	0.57	272100	4090200	22.0	1.0	162.0	801.0	N/A	N/A	2060

N/A – Not available

Table C-1. New Mexico Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
31	Williams Field Services/32-7cdp Cs/1032M	nm31	6.80	272100	4090200	6.7	0.3	49.4	700.4	N/A	N/A	2060
32	Williams Field Services/32-7cdp Cs/1032M	nm32	0.01	272100	4090200	4.6	0.3	20.1	1273.2	N/A	N/A	2060
33	Williams Field Services/32-9 CDP/924M2R2	nm33	0.01	245100	4086900	3.0	0.2	1.6	588.7	N/A	N/A	1900
34	Williams Field Services/Trunk C Boost.18	nm34	0.58	242500	4088500	22.0	1.0	150.0	704.0	N/A	N/A	1875
35	Williams Field Services/Trunk C Boost.18	nm35	0.58	242500	4088500	22.0	1.0	150.0	704.0	N/A	N/A	1875
36	Williams Field Services/Trunk C Boost.18	nm36	0.58	242500	4088500	6.7	0.3	47.0	646.5	N/A	N/A	1875
37	Williams Field Services/Trunk C Boost.18	nm37	2.30	242500	4088500	6.7	0.3	47.0	646.5	N/A	N/A	1875
38	Williams Field Services/Horton Comp/2280	nm38	4.29	225361	4093959	7.3	0.3	36.6	769.3	N/A	N/A	1884

N/A – Not available

Appendix D – Tribal Emission Inventory

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Table D-1. EPA Part 71 Permit Emission Inventory

Source Description	Unit ID	UTM Easting (km)	UTM Northing (km)	NOx (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Amoco Production Co Florida River	turbine	243.74	4115.89	91.5	10.67 (1)	1.01 (1)	51.94 (2)	---
Amoco Production Co Florida River	turbine	243.74	4115.89	100.7	13.41 (1)	1.01 (1)	59.74 (2)	---
Amoco Production Co Florida River	heater	243.74	4115.89	32.1	3.5 (1)	0.46 (1)	3.5 (2)	---
Amoco Production Co Florida River	heater	243.74	4115.89	50.3	3.5	0.46	3.5	---
Amoco Production Co Florida River	dehydrator	243.74	4115.89	7.12	3.5	0.46	3.5	---
Amoco Production Co Florida River	heater	243.74	4115.89	4.4	3.5	0.46	3.5	---
Amoco Production Co Florida River	flare	243.74	4115.89	3.1	3.5	0.46	3.5	---
Amoco Production Co Florida River	compressor	243.74	4115.89	21.5	4.6 (1)	0.5 (1)	15.8 (2)	---
Conoco Argenta CDP	compressor	239.18	4113.22	25.7	---	---	---	---
Conoco Argenta CDP	compressor	239.18	4113.22	25.7	---	---	---	---
Conoco Argenta CDP	compressor	239.18	4113.22	25.7	---	---	---	---
Conoco Argenta CDP	compressor	239.18	4113.22	168.1	---	---	---	---
Conoco Argenta CDP	compressor	239.18	4113.22	25.7	---	---	---	---
Conoco Argenta CDP	compressor	239.18	4113.22	25.7	---	---	---	---
Conoco Argenta CDP	compressor	239.18	4113.22	25.7	---	---	---	---
Coyote Gulch Treating Plant	compressor	227.8	4100.95	43	---	---	---	---
Coyote Gulch Treating Plant	compressor	227.8	4100.95	43	---	---	---	---
Coyote Gulch Treating Plant	compressor	227.8	4100.95	32	---	---	---	---
Coyote Gulch Treating Plant	reboiler	227.8	4100.95	20	---	---	---	---
Coyote Gulch Treating Plant	reboiler	227.8	4100.95	20	---	---	---	---
Coyote Gulch Treating Plant	reboiler	227.8	4100.95	2	---	---	---	---
Coyote Gulch Treating Plant	heater	227.8	4100.95	24	---	---	---	---
Coyote Gulch Treating Plant	heater	227.8	4100.95	36	---	---	---	---
Coyote Gulch Treating Plant	reboiler	227.8	4100.95	1	---	---	---	---
El Paso Natural Gas Bondad Compres Sta	turbine	253.466	4109.5	83	---	---	---	---
El Paso Natural Gas Bondad Compres Sta	turbine	253.466	4109.5	83	---	---	---	---
El Paso Natural Gas Bondad Compres Sta	turbine	253.466	4109.5	83	---	---	---	---
Red Cedar Arkansas Loop Plant	compressor	252.9	4103.61	18.58	5.81	4.88	37.4	646.5
Red Cedar Arkansas Loop Plant	compressor	252.9	4103.61	19.04	---	---	---	---

(1) Stack height and diameter in ft
(2) Stack velocity in ft/sec

Table D-1. EPA Part 71 Permit Emission Inventory (continued)

Source Description	Unit ID	UTM Easting (km)	UTM Northing (km)	NOx (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Red Cedar Arkansas Loop Plant	compressor	252.9	4103.61	36.47	5.46	5.49	46.63	684
Red Cedar Arkansas Loop Plant	compressor	252.9	4103.61	37.24	5.46	5.49	46.63	684
Red Cedar Arkansas Loop Plant	compressor	252.9	4103.61	36.47	2.9	6.1	46.3	664.8
Red Cedar Arkansas Loop Plant	compressor	252.9	4103.61	36.47	5.46	5.49	46.63	684
Red Cedar Arkansas Loop Plant	generator	252.9	4103.61	16.28	---	---	---	---
Red Cedar Arkansas Loop Plant	generator	252.9	4103.61	16.28	---	---	---	---
Red Cedar Arkansas Loop Plant	generator	252.9	4103.61	16.28	---	---	---	---
Red Cedar Arkansas Loop Plant	heater	252.9	4103.61	16.92	---	---	---	---
Red Cedar Arkansas Loop Plant	heater	252.9	4103.61	20.75	---	---	---	---
Red Cedar Arkansas Loop Plant	heater	252.9	4103.61	1.27	---	---	---	---
Red Cedar Diamond Back Compressor Station	compressor	246.9	4101.96	19.27	---	---	---	---
Red Cedar Diamond Back Compressor Station	compressor	246.9	4101.96	19.27	---	---	---	---
Red Cedar Diamond Back Compressor Station	compressor	246.9	4101.96	19.27	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	5.2	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	compressor	243.63	4098.8	19.44	---	---	---	---
Red Cedar Bondad Compres Sta	reboiler	243.63	4098.8	0.88	---	---	---	---
Red Cedar Antler Gas Plant	pump driver	231.12	4100.9	50.67	---	---	---	---
Red Cedar Antler Gas Plant	pump driver	231.12	4100.9	2.89	---	---	---	---
Red Cedar Antler Gas Plant	generator driver	231.12	4100.9	50.67	---	---	---	---
Red Cedar Antler Gas Plant	generator driver	231.12	4100.9	2.89	---	---	---	---
Red Cedar Antler Gas Plant	reboiler burner	231.12	4100.9	31.04	---	---	---	---

Table D-1. EPA Part 71 Permit Emission Inventory (continued)

Source Description	Unit ID	UTM Easting (km)	UTM Northing (km)	NOx (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
Red Cedar Antler Gas Plant	reboiler burner	231.12	4100.9	0.61	---	---	---	---
Red Cedar Antler Gas Plant	compressor	231.12	4100.9	23.18	---	---	---	---
Red Cedar Antler Gas Plant	compressor	231.12	4100.9	23.18	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	19.44	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	19.44	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	19.44	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	25.92	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	19.44	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	19.44	---	---	---	---
Red Willow Coyote Gulch Compressor Station	compressor	229.25	4100.73	19.44	---	---	---	---
Red Willow Coyote Gulch Compressor Station	generator	229.25	4100.73	3.38	---	---	---	---
Transwestern La Plata A Comp Sta	compressor	247.63	4114.52	32	13.72	1	14.94	798.6
Transwestern La Plata A Comp Sta	compressor	247.63	4114.52	19	13.72	1.01	6.1	769.11

Table D-2. CDPHE Permit Emission Inventory

Source Description	Unit ID	UTM Easting (km)	UTM Northing (km)	NOx (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
AMOCO PROD CO PICNIC FLATS	CAT G399TA COMP #1 660HP	234.2	4107	31.8	14.0	0.5	226.9	700
AMOCO PROD CO PICNIC FLATS	CAT G399TA COMP #2 660HP	234.2	4107	12.7	14.0	0.5	226.9	700
AMOCO PROD CO PICNIC FLATS	SUPERIOR 6G825 #3 460HP	234.2	4107	66.7	15.0	0.5	199.2	1000
AMOCO PROD CO PICNIC FLATS	CAT G3516TA 1085HP COMP#4	234	4106.5	21	24.0	1	120.8	781
AMOCO PROD CO PICNIC FLATS	FORD CSG649 V6 ENG 60HP	234.2	4107	4.3	9.0	0.17	193.2	700
AMOCO PROD CO PICNIC FLATS	FORD LSG875 TRIPLEX1 90HP	234.2	4107	7.3	10.0	0.2	175.3	700
AMOCO PROD CO PICNIC FLATS	FORD LSG875 V8 ENG 90HP	233.98	4106.5	7.3	10.0	0.2	175.3	700
AMOCO PROD CO PICNIC FLATS	FORD CSG649 V6 ENG 60HP	234.2	4107	---	9.0	0.17	193.2	700
AMOCO PROD CO PICNIC FLATS	FORD CSG649 V6 ENG 60HP	234.2	4107	---	9.0	0.2	193.2	700
AMOCO PROD CO PICNIC FLATS	AJAX E-42 ENGINE 36HP	234.2	4107	---	11.0	0.5	32.1	565
AMOCO PROD CO PICNIC FLATS	WAUKESHA L5790GL	234.2	4107	21.5	18.0	1	115.8	0
AMOCO PROD CO PICNIC FLATS	CAT NAT ENG RATED @ 323HP	234.2	4107	---	16.0	0.8	114.2	0
AMOCO PROD CO SE TIFFANY	WAUKESHA L5788G 460 HP	274.2	4099.9	13.1	0.0	0	0	70
AMOCO PROD CO TIFFANY COMP STA	AJAX DPC-360 SERIAL#80754	273.6	4104.1	29.9	22.0	1	54.1	0
AMOCO PROD CO TIFFANY COMP STA	AJAX DPC-800 SERIAL#82576	273.6	4104.1	---	8.0	1.2	71.9	700
AMOCO PROD CO TIFFANY COMP STA	WAUK, L70042GL SN:C11100	273.6	4104.1	22.2	20.0	1	124.8	727
EL PASO NG CO BONDAD COMP STA	SOLAR T3000 SN:8009663R91	253.9	4109.1	82.4	27.0	6	39.4	625
EL PASO NG CO BONDAD COMP STA	SOLAR T-3000 SN:1668C4R	253.9	4109.1	82.4	27.0	6	39.6	625
EL PASO NG CO BONDAD COMP STA	SOLAR CENTAR SN: 16684R	253.9	4109.1	76.4	36.0	8	24.1	811
EL PASO NG CO BONDAD COMP STA	(3) CENTAUR 40-T5300L	253.9	4109.1	244.2	34.0	4	1.9	831
EMERALD GAS OPERATING CO	AJAX DPC-360 ENGINE	761.1	4105	31.3	20.0	0.83	134	700
EMERALD GAS OPERATING CO	AJAX DPC360LE	244.4	4118.3	---	20.0	0.8	88.4	480
PUBLIC SERVICE CO TIFFANY STATION	(3) SUPERIOR 8G825'S	276.7	4103.3	---	18.0	0.8	36.5	1340
PUBLIC SERVICE CO TIFFANY STATION	ELASTEC SMARTASH RECOVERY	276.7	4103.3	0.0051	0.0[(a)]	0[(a)]	0[(a)]	0[(a)]
WEST GAS GATHERING INC	AJAX DPC-280 ENG,SN:77939	243.8	4108.5	---	16.0	1	207.2	0[(a)]
WEST GAS GATHERING INC	WAUKESHA L7042GL,BONDA D 2	243.8	4108.5	---	18.0	7	231.2	0[(a)]
WEST GAS GATHERING INC	WAUKESHA L7042GL, BONDAD2	243.8	4108.5	---	18.0	0.7	231.2	0[(a)]
WEST GAS GATHERING INC	GENERAC 74GN, MODEL:CG070	243.8	4108.5	---	15.0	2	318.1	0[(a)]

[(a)] Representative value assumed in the modeling

Table D-2. CDPHE Permit Emission Inventory (continued)

Source Description	Unit ID	UTM Easting (km)	UTM Northing (km)	NOx (t/yr)	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/s)	Stack Temp (°K)
WEST GAS GATHERING INC	GENERAC 74GN,MODEL:CG 070	243.8	4108.5	---	15.0	2	318.3	0[(a)]
WEST GAS GATHERING INC	DEHYRATOR #1, BONDAD 1	243.8	4108.5	---	18.0	1.5	150	0
WEST GAS GATHERING INC	DEHYDRATOR 2, BONDAD 2	243.8	4108.5	---	0.0[(a)]	0[(a)]	0[(a)]	0[(a)]
WILLIAMS FIELD SVCS PLA 9 STA	P & A DEHYDRATOR	---	---	13	---	---	---	---
WILLIAMS FIELD SVCS PLA 9 STA	ENERTEK NG DEHYDRATOR	---	---	13	---	---	---	---
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1232HP SN#362478	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1232HP SN#360634	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1232HP SN#403117	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1232HP #C10461/4	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1160HP #C10461/5	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1109HP #C10607/1	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1109HP #C10607/2	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	CAT 3304 GEN. SET - 72HP	239.8	4099	---	12.0	1	43.2	1120
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1117HP #C10985/1	239.8	4099	13	22.0	1.03	97.4	0[(a)]
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1117HP #C10985/3	239.8	4099	13	22.0	1.03	97.4	0[(a)]
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1117HP #C10985/8	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1117HP #C10985/7	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 1232HP #C11059/1	239.8	4099	---	22.0	1.03	97.4	711
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 895HP #13	239.8	4099	---	22.0	1	97.4	0[(a)]
WILLIAMS FIELD SVCS PLA 9 STA	WAUKESHA 895HP #14	239.8	4099	---	22.0	1	97.4	0[(a)]
WILLIAMS FIELD SVCS PLA 9 STA	CATERPILLAR 166HP ENGINE	239.8	4099	---	8.0	0.4	145.7	0[(a)]

[(a)] Representative value assumed in the modeling

Table D-3. Tribal Near Field Emission Source Modeling Input Values

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Florida River Compression Facility	tr1	2.6	243.740	4115.890	3.25	0.307848	15.83	685.13	N/A	N/A	1950
2	Florida River Compression Facility	tr2	2.9	243.740	4115.890	4.09	0.307848	18.21	696.54	N/A	N/A	1950
3	Florida River Compression Facility	tr3	0.9	243.740	4115.890	3.05	0.1524	5.00	422.04	N/A	N/A	1950
4	Florida River Compression Facility	tr4	1.4	243.740	4115.890	3.05	0.1524	5.00	422.04	N/A	N/A	1950
5	Florida River Compression Facility	tr5	0.2	243.740	4115.890	3.05	0.1524	5.00	422.04	N/A	N/A	1950
6	Florida River Compression Facility	tr6	0.1	243.740	4115.890	3.05	0.1524	5.00	422.04	N/A	N/A	1950
7	Florida River Compression Facility	tr7	0.1	243.740	4115.890	3.05	0.1524	5.00	422.04	N/A	N/A	1950
8	Florida River Compression Facility	tr8	0.6	243.740	4115.890	3.05	0.1524	5.00	422.04	N/A	N/A	1950
9	Four Queens Central Facility	tr9	1.1	224.850	4107.440	0.91	0.4572	42.76	614.82	N/A	N/A	2011
10	Four Queens Central Facility	tr10	1.1	224.850	4107.440	0.91	0.4572	42.76	614.82	N/A	N/A	2011
11	Four Queens Central Facility	tr11	1.1	224.850	4107.440	0.91	0.4572	42.76	614.82	N/A	N/A	2011
12	Four Queens Central Facility	tr12	0.4	224.850	4107.440	3.05	0.1524	9.75	847.04	N/A	N/A	2011
13	Salvador I/II Central Facility	tr13	0.8	267.570	4106.450	6.86	0.353568	36.42	630.37	N/A	N/A	1950
14	Salvador I/II Central Facility	tr14	1.0	267.570	4106.450	6.71	0.3048	47.85	645.93	N/A	N/A	1950
15	Salvador I/II Central Facility	tr15	1.0	267.570	4106.450	6.71	0.3048	47.85	645.93	N/A	N/A	1950
16	Salvador I/II Central Facility	tr16	0.5	267.570	4106.450	5.49	0.21336	56.85	644.26	N/A	N/A	1950
17	Argenta CDP Compressor Facility	tr17	0.7	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
18	Argenta CDP Compressor Facility	tr18	0.7	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
19	Argenta CDP Compressor Facility	tr19	2.2	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
20	Argenta CDP Compressor Facility	tr20	4.8	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
21	Argenta CDP Compressor Facility	tr21	0.7	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
22	Argenta CDP Compressor Facility	tr22	0.7	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
23	Argenta CDP Compressor Facility	tr23	0.7	239.180	4113.220	3.05	0.1524	5.00	422.04	N/A	N/A	2011
24	Coyote Gulch Treating Plant	tr24	1.2	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
25	Coyote Gulch Treating Plant	tr25	1.2	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
26	Coyote Gulch Treating Plant	tr26	0.9	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
27	Coyote Gulch Treating Plant	tr27	0.6	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
28	Coyote Gulch Treating Plant	tr28	0.6	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
29	Coyote Gulch Treating Plant	tr29	0.1	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
30	Coyote Gulch Treating Plant	tr30	0.7	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
31	Coyote Gulch Treating Plant	tr31	1.0	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
32	Coyote Gulch Treating Plant	tr32	0.0	227.800	4100.950	3.05	0.1524	5.00	422.04	N/A	N/A	1889
33	Bondad Compressor Station	tr33	2.4	253.466	4109.500	3.05	0.1524	5.00	422.04	N/A	N/A	2060
34	Bondad Compressor Station	tr34	2.4	253.466	4109.500	3.05	0.1524	5.00	422.04	N/A	N/A	2060
35	Bondad Compressor Station	tr35	2.4	253.466	4109.500	3.05	0.1524	5.00	422.04	N/A	N/A	2060

N/A – Not available

Table D-3. Tribal Near Field Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	La Plata B Compressor Station	tr36	2.0	250.740	4114.500	15.24	1.0668	30.48	783.15	N/A	N/A	2011
37	La Plata B Compressor Station	tr37	2.0	250.740	4114.500	15.24	1.0668	30.48	783.15	N/A	N/A	2011
38	La Plata B Compressor Station	tr38	0.1	250.740	4114.500	15.24	1.28016	243.84	460.93	N/A	N/A	2011
39	La Plata B Compressor Station	tr39	0.1	250.740	4114.500	15.24	1.28016	243.84	460.93	N/A	N/A	2011
40	Tiffany Compressor Station	tr40	1.6	277.186	4102.670	5.49	0.24384	11.13	999.82	N/A	N/A	2011
41	Tiffany Compressor Station	tr41	1.6	277.186	4102.670	5.49	0.24384	11.13	999.82	N/A	N/A	2011
42	Tiffany Compressor Station	tr42	1.6	277.186	4102.670	5.49	0.24384	11.13	999.82	N/A	N/A	2011
43	Arkansas Loop Plant	tr43	0.5	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
44	Arkansas Loop Plant	tr44	0.5	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
45	Arkansas Loop Plant	tr45	1.0	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
46	Arkansas Loop Plant	tr46	1.1	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
47	Arkansas Loop Plant	tr47	1.0	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
48	Arkansas Loop Plant	tr48	1.0	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
49	Arkansas Loop Plant	tr49	0.5	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
50	Arkansas Loop Plant	tr50	0.5	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
51	Arkansas Loop Plant	tr51	0.5	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
52	Arkansas Loop Plant	tr52	0.5	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
53	Arkansas Loop Plant	tr53	0.6	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
54	Arkansas Loop Plant	tr54	0.0	252.900	4103.610	3.05	0.1524	5.00	422.04	N/A	N/A	2205
55	Capote Compressor Station	tr55	0.6	249.500	4105.400	2.34	1.487424	11.50	619.47	N/A	N/A	2071
56	Capote Compressor Station	tr56	0.6	249.500	4105.400	2.34	1.487424	11.50	619.47	N/A	N/A	2071
57	Capote Compressor Station	tr57	0.6	249.500	4105.400	2.34	1.487424	11.50	619.47	N/A	N/A	2071
58	Capote Compressor Station	tr58	0.6	249.500	4105.400	2.34	1.487424	11.50	619.47	N/A	N/A	2071
59	Capote Compressor Station	tr59	0.6	249.500	4105.400	2.34	1.487424	11.50	619.47	N/A	N/A	2071
60	Capote Compressor Station	tr60	0.6	249.500	4105.400	2.34	1.487424	11.50	619.47	N/A	N/A	2071
61	Sidewinder Compressor Station	tr61	5.7	246.900	4101.960	1.76	0.92964	11.50	619.47	N/A	N/A	2017
62	Sidewinder Compressor Station	tr62	0.6	246.900	4101.960	1.76	0.92964	11.50	619.47	N/A	N/A	2017
63	Sidewinder Compressor Station	tr63	0.1	246.900	4101.960	1.76	0.92964	11.50	619.47	N/A	N/A	2017
64	Diamond Back Compressor Station	tr64	0.6	246.900	4101.960	3.05	0.1524	5.00	422.04	N/A	N/A	2017
65	Diamond Back Compressor Station	tr65	0.6	246.900	4101.960	3.05	0.1524	5.00	422.04	N/A	N/A	2017
66	Diamond Back Compressor Station	tr66	0.6	246.900	4101.960	3.05	0.1524	5.00	422.04	N/A	N/A	2017
67	Bondad Compressor Station	tr67	0.1	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
68	Bondad Compressor Station	tr68	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
69	Bondad Compressor Station	tr69	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
70	Bondad Compressor Station	tr70	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060

N/A – Not available

Table D-3. Tribal Near Field Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Bondad Compressor Station	tr71	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
72	Bondad Compressor Station	tr72	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
73	Bondad Compressor Station	tr73	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
74	Bondad Compressor Station	tr74	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
75	Bondad Compressor Station	tr75	0.6	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
76	Bondad Compressor Station	tr76	0.0	243.630	4098.800	3.05	0.1524	5.00	422.04	N/A	N/A	2060
77	Antler Gas Plant	tr77	1.5	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
78	Antler Gas Plant	tr78	0.1	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
79	Antler Gas Plant	tr79	1.5	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
80	Antler Gas Plant	tr80	0.1	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
81	Antler Gas Plant	tr81	0.9	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
82	Antler Gas Plant	tr82	0.0	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
83	Antler Gas Plant	tr83	0.7	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
84	Antler Gas Plant	tr84	0.7	231.120	4100.900	3.05	0.1524	5.00	422.04	N/A	N/A	1950
85	Coyote Gulch Compressor Station	tr85	0.6	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
86	Coyote Gulch Compressor Station	tr86	0.6	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
87	Coyote Gulch Compressor Station	tr87	0.6	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
88	Coyote Gulch Compressor Station	tr88	0.7	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
89	Coyote Gulch Compressor Station	tr89	0.6	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
90	Coyote Gulch Compressor Station	tr90	0.6	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
91	Coyote Gulch Compressor Station	tr91	0.6	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
92	Coyote Gulch Compressor Station	tr92	0.1	229.250	4100.730	3.05	0.1524	5.00	422.04	N/A	N/A	1940
93	South Ignacio Central Delivery	tr93	3.6	266.240	4104.300	2.05	1.115568	11.50	619.47	N/A	N/A	1950
94	South Ignacio Central Delivery	tr94	0.5	266.240	4104.300	2.05	1.115568	11.50	619.47	N/A	N/A	1950
95	South Ignacio Central Delivery	tr95	0.5	266.240	4104.300	2.05	1.115568	11.50	619.47	N/A	N/A	1950
96	South Ignacio Central Delivery	tr96	0.6	266.240	4104.300	2.05	1.115568	11.50	619.47	N/A	N/A	1950
97	La Plata A Compressor Station	tr97	0.9	247.630	4114.520	3.05	0.1524	5.00	422.04	N/A	N/A	2021
98	La Plata A Compressor Station	tr98	0.5	247.630	4114.520	3.05	0.1524	5.00	422.04	N/A	N/A	2021
99	Treating Site #1	tr99	0.3	263.132	4099.757	8.97	0.3048	34.63	823.71	N/A	N/A	2114
100	Treating Site #1	tr100	0.3	263.135	4099.749	8.94	0.3048	34.63	823.71	N/A	N/A	2132
101	Treating Site #1	tr101	0.1	263.125	4099.702	2.21	0.0762	41.39	977.59	N/A	N/A	2132
102	Treating Site #1	tr102	0.6	263.073	4099.743	2.51	0.0762	62.76	810.37	N/A	N/A	2132
103	Treating Site #1	tr103	0.3	263.139	4099.692	4.08	0.100584	112.29	701.48	N/A	N/A	2132
104	Treating Site #2	tr104	0.3	255.827	4099.163	8.89	0.3048	34.63	823.71	N/A	N/A	2093
105	Treating Site #2	tr105	0.3	255.831	4099.156	8.92	0.3048	34.63	823.71	N/A	N/A	2093

N/A – Not available

Table D-3. Tribal Near Field Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
106	Treating Site #2	tr106	0.1	255.843	4099.114	2.29	0.0762	41.39	977.59	N/A	N/A	2093
107	Treating Site #2	tr107	0.6	255.835	4099.149	5.77	0.3048	54.53	677.59	N/A	N/A	2093
108	Treating Site #4	tr108	0.2	252.856	4098.978	7.70	0.204216	49.59	858.15	N/A	N/A	2134
109	Treating Site #4	tr109	0.2	252.593	4098.899	7.67	0.204216	49.59	858.15	N/A	N/A	2135
110	Treating Site #4	tr110	0.3	252.693	4098.944	8.93	0.3048	34.63	823.71	N/A	N/A	2135
111	Treating Site #4	tr111	1.5	252.645	4098.973	4.00	0.100584	57.76	818.71	N/A	N/A	2135
112	Treating Site #4	tr112	0.9	252.594	4098.915	2.86	0.100584	83.24	977.59	N/A	N/A	2135
113	Treating Site #4	tr113	0.3	252.663	4098.981	4.08	0.100584	112.29	701.48	N/A	N/A	2135
114	Treating Site #5	tr114	0.1	249.846	4100.260	6.83	0.1524	49.53	831.48	N/A	N/A	2021
115	Treating Site #5	tr115	2.1	249.844	4100.254	4.09	0.1524	49.53	831.48	N/A	N/A	2021
116	Treating Site #5	tr116	0.3	249.840	4100.245	8.81	0.3048	34.63	823.71	N/A	N/A	2021
117	Treating Site #5	tr117	0.2	249.850	4100.272	7.29	0.204216	49.62	858.15	N/A	N/A	2021
118	Treating Site #5	tr118	0.5	249.889	4100.222	2.87	0.0762	48.13	828.71	N/A	N/A	2021
119	Treating Site #6	tr119	0.3	246.728	4102.322	8.79	0.3048	34.63	823.71	N/A	N/A	2071
120	Treating Site #6	tr120	0.3	246.729	4102.311	8.92	0.3048	34.63	823.71	N/A	N/A	2071
121	Treating Site #6	tr121	0.3	246.730	4102.278	4.08	0.100584	112.29	701.48	N/A	N/A	2071
122	Treating Site #6	tr122	1.5	246.731	4102.284	3.63	0.100584	57.79	818.71	N/A	N/A	2071
123	Treating Site #6	tr123	0.1	246.754	4102.310	3.79	0.064008	59.62	977.59	N/A	N/A	2021
124	Treating Site #6	tr124	0.3	246.754	4102.310	8.92	0.3048	34.63	823.71	N/A	N/A	2021
125	Treating Site #7	tr125	1.5	240.427	4102.260	4.11	0.100584	57.79	818.71	N/A	N/A	1964
126	Treating Site #7	tr126	0.5	240.406	4102.260	3.83	0.100584	27.07	828.71	N/A	N/A	1964
127	Treating Site #7	tr127	2.1	240.484	4102.237	4.09	0.1524	49.53	831.48	N/A	N/A	1954
128	Treating Site #7	tr128	0.1	240.491	4102.241	6.61	0.1524	49.53	831.48	N/A	N/A	1954
129	Treating Site #7	tr129	0.3	240.506	4102.245	8.73	0.3048	34.63	823.71	N/A	N/A	1954
130	Treating Site #9	tr130	0.2	236.635	4106.568	7.62	0.204216	49.62	858.15	N/A	N/A	2193
131	Treating Site #9	tr131	0.2	236.636	4106.559	7.70	0.204216	49.62	858.15	N/A	N/A	2193
132	Treating Site #9	tr132	0.2	236.637	4106.549	7.71	0.204216	49.62	858.15	N/A	N/A	2193
133	Treating Site #9	tr133	0.1	236.622	4106.536	7.62	0.0762	41.39	977.59	N/A	N/A	2193
134	Treating Site #6B	tr134	5.5	246.630	4103.560	2.69	1.115568	10.56	740.77	N/A	N/A	2021
135	Treating Site #6B	tr135	0.5	246.630	4103.560	2.69	1.115568	9.29	656.51	N/A	N/A	2021
136	Treating Site #6B	tr136	0.8	246.630	4103.560	0.77	0.277368	19.13	705.58	N/A	N/A	2021
137	Treating Site #6B	tr137	0.3	246.630	4103.560	1.64	1.115568	10.56	712.99	N/A	N/A	2021
138	Treating Site #7B	tr138	5.5	240.350	4103.780	0.77	1.115568	19.13	705.58	N/A	N/A	2011
139	Treating Site #7B	tr139	4.1	240.350	4103.780	1.76	1.115568	16.62	744.47	N/A	N/A	2011
140	Treating Site #7B	tr140	0.6	240.350	4103.780	1.76	1.115568	16.62	744.47	N/A	N/A	2011

N/A – Not available

Table D-3. Tribal Near Field Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
141	Treating Site #7B	tr141	0.1	240.350	4103.780	0.70	0.277368	12.62	798.48	N/A	N/A	2093
142	Treating Site #8	tr142	0.5	239.015	4107.000	2.69	0.557784	10.56	607.74	N/A	N/A	2093
143	Treating Site #8	tr143	0.5	239.015	4107.000	2.69	0.557784	10.56	607.74	N/A	N/A	2134
144	Treating Site #8	tr144	5.5	239.015	4107.000	2.69	1.115568	10.56	740.77	N/A	N/A	2135
145	Treating Site #8	tr145	0.5	239.015	4107.000	2.69	1.115568	9.29	656.51	N/A	N/A	2135
146	Treating Site #8	tr146	0.3	239.015	4107.000	0.77	0.277368	19.13	705.58	N/A	N/A	2135
147	Treating Site #8	tr147	0.1	239.015	4107.000	1.16	0.277368	12.60	798.48	N/A	N/A	2135
148	PLA-9 Central Delivery Point	tr148	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2135
149	PLA-9 Central Delivery Point	tr149	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
150	PLA-9 Central Delivery Point	tr150	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
151	PLA-9 Central Delivery Point	tr151	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
152	PLA-9 Central Delivery Point	tr152	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
153	PLA-9 Central Delivery Point	tr153	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
154	PLA-9 Central Delivery Point	tr154	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2071
155	PLA-9 Central Delivery Point	tr155	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2071
156	PLA-9 Central Delivery Point	tr156	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2071
157	PLA-9 Central Delivery Point	tr157	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2071
158	PLA-9 Central Delivery Point	tr158	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
159	PLA-9 Central Delivery Point	tr159	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	2021
160	PLA-9 Central Delivery Point	tr160	0.3	239.800	4099.200	6.71	0.313944	48.87	699.82	N/A	N/A	1964
161	PLA-9 Central Delivery Point	tr161	1.1	239.800	4099.200	3.05	0.1524	5.00	422.04	N/A	N/A	1964
162	Ignacio Plant	tr162	0.2	252.700	4114.400	3.05	0.1524	5.00	422.04	N/A	N/A	1954
163	Ignacio Plant	tr163	0.3	252.700	4114.400	2.60	0.277368	1.86	674.94	N/A	N/A	1954
164	Ignacio Plant	tr164	0.3	252.700	4114.400	2.60	0.277368	1.86	674.94	N/A	N/A	1954
165	Ignacio Plant	tr165	0.3	252.700	4114.400	2.60	0.326136	1.86	674.94	N/A	N/A	2193
166	Ignacio Plant	tr166	0.6	252.700	4114.400	3.05	0.1524	5.00	422.04	N/A	N/A	2193
167	Ignacio Plant	tr167	0.9	252.915	4114.521	2.79	0.298704	16.00	646.24	N/A	N/A	2193
168	Ignacio Plant	tr168	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2193
169	Ignacio Plant	tr169	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2021
170	Ignacio Plant	tr170	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2021
171	Ignacio Plant	tr171	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2021
172	Ignacio Plant	tr172	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2021
173	Ignacio Plant	tr173	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2011
174	Ignacio Plant	tr174	6.3	252.908	4114.445	2.32	0.185928	1.86	628.64	N/A	N/A	2011
175	Ignacio Plant	tr175	6.6	252.908	4114.445	4.18	0.185928	1.86	659.51	N/A	N/A	2011

N/A – Not available

Table D-3. Tribal Near Field Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (km)	Northing (km)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
176	Ignacio Plant	tr176	6.6	252.767	4114.379	4.18	0.557784	12.43	674.94	N/A	N/A	2011
177	Ignacio Plant	tr177	7.1	252.805	4114.378	4.18	0.557784	12.43	674.94	N/A	N/A	2011
178	BP Amoco, Inc.	tr178	0.2	252.886	4114.517	4.36	0.326136	1.32	644.26	N/A	N/A	2011
179	BP Amoco, Inc.	tr179	0.6	275200	4106100	3.05	0.1524	69.16	422.04	N/A	N/A	2007
180	Texaco (Enervest Operating, LLC)	tr180	0.6	230000	4105000	3.05	0.1524	5.00	422.04	N/A	N/A	2011
181	Texaco (Enervest Operating, LLC)	tr181	0.6	234200	4119200	3.05	0.1524	5.00	422.04	N/A	N/A	2365
182	Texaco (Enervest Operating, LLC)	tr182	0.1	240200	4105000	3.05	0.1524	5.00	422.04	N/A	N/A	2011
183	Texaco (Enervest Operating, LLC)	tr183	0.1	230000	4104800	3.05	0.1524	5.00	422.04	N/A	N/A	2011
184	Red Willow Production Company	tr184	1.0	240000	4107000	3.05	0.1524	5.00	422.04	N/A	N/A	2132
185	Williams Field Services	tr185	2.6	252000	4104000	6.71	0.1524	5.00	822.59	N/A	N/A	2239
186	Williams Field Services	tr186	0.5	252000	4104000	6.71	0.310896	22.35	642.59	N/A	N/A	2239

N/A – Not available

Table D-4. Tribal Far Field Emission Source Modeling Input Values

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Amoco Production Company	TR001	0.62	243,740	4,115,890	4.57	0.457	15.80	588.6	N/A	N/A	2,164
2	BP Amoco, Inc.	TR002	0.81	267,570	4,107,440	22.50	1.160	119.50	675.0	N/A	N/A	2,098
3	BP Amoco, Inc.	TR003	1.00	267,570	4,107,440	22.00	1.000	157.00	703.0	N/A	N/A	2,098
4	BP Amoco, Inc.	TR004	1.00	267,570	4,107,440	22.00	1.000	157.00	703.0	N/A	N/A	2,098
5	BP Amoco, Inc.	TRE005	0.46	267,570	4,107,440	18.00	0.700	186.50	700.0	N/A	N/A	2,164
6	El Paso Natural Gas Company	TR006	2.39	239,180	4,106,450	6.00	0.457	34.50	588.6	N/A	N/A	2,217
7	El Paso Natural Gas Company	TR007	2.39	239,180	4,106,450	6.00	0.457	34.50	588.6	N/A	N/A	2,217
8	El Paso Natural Gas Company	TR008	2.39	239,180	4,106,450	6.00	0.457	34.50	588.6	N/A	N/A	2,164
9	Red Cedar Gathering Company	TR009	0.55	239,180	4,106,450	7.67	4.880	37.74	655.4	N/A	N/A	2,229
10	Red Cedar Gathering Company	TR010	0.55	239,180	4,113,220	7.67	4.880	37.74	655.4	N/A	N/A	2,229
11	Red Cedar Gathering Company	TR011	0.55	239,180	4,113,220	7.67	4.880	37.74	655.4	N/A	N/A	2,229
12	Red Cedar Gathering Company	TR012	0.55	239,180	4,113,220	7.67	4.880	37.74	655.4	N/A	N/A	2,229
13	Red Cedar Gathering Company	TR013	0.55	227,800	4,113,220	7.67	4.880	37.74	655.4	N/A	N/A	2,229
14	Red Cedar Gathering Company	TR014	0.55	227,800	4,113,220	7.67	4.880	37.74	655.4	N/A	N/A	2,171
15	Red Cedar Gathering Company	TR015	5.73	227,800	4,113,220	5.79	3.050	37.74	655.4	N/A	N/A	2,171
16	Red Cedar Gathering Company	TR016	0.55	227,800	4,113,220	5.79	3.050	37.74	655.4	N/A	N/A	2,171
17	Red Cedar Gathering Company	TR017	0.06	227,800	4,100,950	5.79	3.050	37.74	655.4	N/A	N/A	2,171
18	Red Cedar Gathering Company	TR018	0.55	227,800	4,100,950	4.57	0.457	15.80	588.6	N/A	N/A	2,171
19	Red Cedar Gathering Company	TR019	0.55	227,800	4,100,950	4.57	0.457	15.80	588.6	N/A	N/A	2,171
20	Red Cedar Gathering Company	TR020	0.55	227,800	4,100,950	4.57	0.457	15.80	588.6	N/A	N/A	2,217
21	SG Interests Inc.	TR021	0.93	227,800	4,100,950	6.71	3.660	37.74	655.4	N/A	N/A	2,098
22	SG Interests Inc.	TR022	0.53	253,466	4,100,950	6.71	3.660	37.74	655.4	N/A	N/A	2,098
23	SG Interests Inc.	TR023	0.53	253,466	4,100,950	6.71	3.660	37.74	655.4	N/A	N/A	2,098
24	SG Interests Inc.	TR024	0.56	253,466	4,100,950	6.71	3.660	37.74	655.4	N/A	N/A	2,176
25	Transwestern Pipeline Company	TR025	0.92	250,740	4,100,950	6.10	0.800	23.90	589.0	N/A	N/A	2,176
26	Transwestern Pipeline Company	TR026	0.55	250,740	4,109,500	6.10	0.800	23.90	589.0	N/A	N/A	2,275
27	BP Wolf Point	TR027	0.75	250,740	4,109,500	4.60	0.500	16.90	589.0	N/A	N/A	1,930
28	BP Wolf Point	TR028	0.75	250,740	4,109,500	4.60	0.500	16.90	589.0	N/A	N/A	1,930
29	BP Wolf Point	TR029	0.75	277,186	4,114,500	4.60	0.500	16.90	589.0	N/A	N/A	1,930
30	BP Dry Creek	TR030	0.72	277,186	4,114,500	4.60	0.500	16.90	589.0	N/A	N/A	2,273
31	BP Dry Creek	TR031	0.72	277,186	4,114,500	4.60	0.500	16.90	589.0	N/A	N/A	2,273
32	BP Dry Creek	TR032	0.72	252,900	4,114,500	4.60	0.500	16.90	589.0	N/A	N/A	2,273
33	BP Dry Creek	TR033	1.01	252,900	4,102,670	4.60	0.500	16.90	589.0	N/A	N/A	2,273
34	BP Miria	TR034	0.31	252,900	4,102,670	6.10	0.800	23.90	589.0	N/A	N/A	2,228
35	BP Miria	TR035	0.31	252,900	4,102,670	6.10	0.800	23.90	589.0	N/A	N/A	2,228

N/A – Not available

Table D-4. Tribal Far Field Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	BP Miria	TR036	0.31	252,900	4,103,610	6.10	0.800	23.90	589.0	N/A	N/A	2,228
37	BP Empanada	TR037	0.72	242,157	4,104,930	4.60	0.500	16.90	589.0	N/A	N/A	2,098
38	BP Empanada	TR038	0.72	242,157	4,104,930	4.60	0.500	16.90	589.0	N/A	N/A	2,098
39	BP Empanada	TR039	0.72	242,157	4,104,930	4.60	0.500	16.90	589.0	N/A	N/A	2,098

N/A – Not available

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Table E-1. SUIT RFS Emission Source Modeling Input Values

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM Easting (m)	UTM Northing (m)	Stack Parameters Height (m)	Stack Parameters Diameter (m)	Stack Parameters Velocity (m/s)	Stack Parameters Temp (°K)	Building Height (m)	Building Width (m)	Elevation (m)
1	Allison (500 hp total)	al001	0.21	273,982	4,099,639	7.62	0.30	37.70	636.00	N/A	N/A	1,963
2	Well emissions	al002	0.10	273,982	4,099,639	5.00	0.20	5.00	500.00	N/A	N/A	1,963
3	Amoco 1 (5000 total)	al003	1.04	268,244	4,118,871	10.00	0.49	64.00	796.90	N/A	N/A	2,074
4	Amoco 1 (5000 total)	al004	1.04	256,705	4,114,771	10.00	0.49	64.00	796.90	N/A	N/A	2,011
5	Amoco ECBM 3 (5000 total)	al005	1.04	268,254	4,118,871	10.00	0.49	64.00	796.90	N/A	N/A	2,074
6	Amoco ECBM 3 (5000 total)	al006	1.04	256,715	4,114,771	10.00	0.49	64.00	796.90	N/A	N/A	2,011
7	Well emissions	al007	0.10	256,715	4,114,771	5.00	0.20	5.00	500.00	N/A	N/A	2,011
8	Red Cedar Bondad 1 (5000 total)	al008	1.04	243,994	4,108,081	10.00	0.49	64.00	796.90	N/A	N/A	1,889
9	Red Cedar Bondad 2 (5000 total)	al009	1.04	243,984	4,108,081	10.00	0.49	64.00	796.90	N/A	N/A	1,889
10	Well emissions	al010	0.10	238,626	4,101,428	5.00	0.20	5.00	500.00	N/A	N/A	2,013
11	Well emissions	al012	0.10	240,659	4,105,185	5.00	0.20	5.00	500.00	N/A	N/A	1,950
12	Amoco ECBM 1 (5000hp total)	al013	1.04	252,132	4,119,478	10.00	0.49	64.00	796.90	N/A	N/A	2,072
13	Amoco ECBM 2 (5000hp total)	al014	1.04	252,142	4,119,478	10.00	0.49	64.00	796.90	N/A	N/A	2,072
14	Well emissions	al015	0.10	252,142	4,119,478	5.00	0.20	5.00	500.00	N/A	N/A	2,072
15	Well emissions	al023	0.10	233,700	4,107,400	5.00	0.20	5.00	500.00	N/A	N/A	2,160
16	Well emissions	al027	0.10	233,700	4,106,869	5.00	0.20	5.00	500.00	N/A	N/A	1,987
17	Burlington Northern 1 (6400 hp tot)	al028	0.89	230,651	4,100,957	10.00	0.46	30.97	635.78	N/A	N/A	1,987
18	Burlington Northern 1 (6400 hp tot)	al029	0.89	230,661	4,100,957	10.00	0.46	30.97	635.78	N/A	N/A	1,950
19	Burlington Northern 1 (6400 hp tot)	al030	0.89	230,671	4,100,957	10.00	0.46	30.97	635.78	N/A	N/A	1,950
20	Well emissions	al031	0.10	230,641	4,100,957	5.00	0.20	5.00	500.00	N/A	N/A	1,950
21	El Paso gas 5000hp turbine	al032	2.08	237,293	4,116,737	13.40	1.00	59.70	794.00	N/A	N/A	1,950
22	Well emissions	al033	0.10	237,293	4,116,737	5.00	0.20	5.00	500.00	N/A	N/A	2,199
23	Fuelco (500 hp total)	al034	0.21	238,761	4,117,114	9.14	0.21	31.00	880.00	N/A	N/A	2,199
24	Hallwood 1 (2500 hp total)	al035	0.42	228,834	4,109,244	8.00	0.39	45.70	644.00	N/A	N/A	2,072
25	Well emissions	al036	0.10	228,844	4,109,244	5.00	0.20	5.00	500.00	N/A	N/A	2,072
26	Indep. ECBM 1 (5000 hp total)	al037	1.04	252,132	4,119,478	10.00	0.49	64.00	796.90	N/A	N/A	2,072
27	Indep. ECBM 2 (5000 hp total)	al038	1.04	252,132	4,119,478	10.00	0.49	64.00	796.90	N/A	N/A	2,072
28	Well emissions	al039	0.10	252,132	4,119,478	5.00	0.20	5.00	500.00	N/A	N/A	2,072
29	Mark west (1500 hp total)	al040	0.63	251,010	4,105,000	10.00	0.43	61.00	713.00	N/A	N/A	2,072
30	Indept Misc 1 (700 hp total)	al041	0.42	261,287	4,104,861	5.00	0.30	18.80	541.00	N/A	N/A	2,238
31	Red Cedar / Bondad 1 (3000 hp tot)	al042	0.63	243,984	4,108,081	10.00	0.43	61.00	713.00	N/A	N/A	2,102
32	Red Cedar / Bondad 2 (3000 hp tot)	al043	0.63	243,994	4,108,081	10.00	0.43	61.00	713.00	N/A	N/A	1,889
33	Well emissions	al044	0.10	243,974	4,108,081	5.00	0.20	5.00	500.00	N/A	N/A	1,889
34	Amoco Henderson A #1 1 (913 hp tot)	al045	0.15	236,746	4,099,203	5.00	0.30	18.80	541.00	N/A	N/A	1,889
35	Amoco Henderson A #1 1 (913 hp tot)	al046	0.15	236,746	4,099,203	5.00	0.30	18.80	541.00	N/A	N/A	1,989

N/A – Not available

Table E-1. SUIT RFS Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	Amoco Henderson A #1 1 (1200 hp tot)	al047	0.23	235,184	4,100,847	9.14	0.21	31.00	880.00	N/A	N/A	1,989
37	Amoco Henderson A #1 1 (1200 hp tot)	al048	0.23	235,184	4,100,847	9.14	0.21	31.00	880.00	N/A	N/A	2,033
38	Well emissions	al049	0.10	235,184	4,100,847	5.00	0.20	5.00	500.00	N/A	N/A	2,033
39	Amoco 00 #1 1 (913 hp total)	al050	0.22	235,184	4,100,847	5.00	0.30	18.80	541.00	N/A	N/A	2,033
40	Amoco 00 #1 1 (913 hp total)	al051	0.15	235,184	4,100,847	5.00	0.30	18.80	541.00	N/A	N/A	2,033
41	Amoco H #2 1 (913 hp total)	al052	0.22	235,484	4,110,411	9.14	0.21	31.00	880.00	N/A	N/A	2,033
42	Amoco H #2 1 (913 hp total)	al053	0.15	235,484	4,110,411	9.14	0.21	31.00	880.00	N/A	N/A	2,271
43	Well emissions	al054	0.10	235,484	4,110,411	5.00	0.20	5.00	500.00	N/A	N/A	2,271
44	Well emissions	al057	0.10	267,210	4,106,610	5.00	0.20	5.00	500.00	N/A	N/A	1,950
45	SG (1500 hp total)	al058	0.63	266,432	4,104,330	10.00	0.43	61.00	713.00	N/A	N/A	1,950
46	T Black Ridge (1342 hp total)	al059	0.56	236,743	4,108,241	8.00	0.39	45.70	685.00	N/A	N/A	1,950
47	Well emissions	al060	0.10	236,733	4,108,241	5.00	0.20	5.00	500.00	N/A	N/A	2,127
48	T Bondad (1342 hp total)	al061	0.56	243,262	4,108,407	8.00	0.39	45.70	685.00	N/A	N/A	2,127
49	T Cabin 1 (5296 hp total)	al062	1.10	240,042	4,103,443	10.00	0.48	64.00	796.90	N/A	N/A	1,919
50	T Cabin 2 (5296 hp total)	al063	1.10	240,052	4,103,443	10.00	0.48	64.00	796.90	N/A	N/A	1,950
51	Well emissions	al064	0.10	240,042	4,103,443	5.00	0.20	5.00	500.00	N/A	N/A	1,950
52	T Coyote Gulch 1 (4000 hp total)	al065	0.83	226,949	4,100,723	10.00	0.30	64.00	908.00	N/A	N/A	1,950
53	T Coyote Gulch 2 (4000 hp total)	al066	0.83	226,959	4,100,723	10.00	0.30	64.00	908.00	N/A	N/A	1,858
54	Well emissions	al067	0.10	226,939	4,100,723	5.00	0.20	5.00	500.00	N/A	N/A	1,858
55	Tiffany (1000 hp total)	al068	0.42	273,500	4,103,900	7.62	0.30	37.70	636.00	N/A	N/A	1,858
56	Well emissions	al069	0.10	273,500	4,103,900	5.00	0.20	5.00	500.00	N/A	N/A	1,960
57	Trail Canyon (ark Loop)	al070	1.12	252,785	4,103,619	8.00	0.39	45.70	685.00	N/A	N/A	1,960
58	Well emissions	al071	0.10	252,775	4,103,619	5.00	0.20	5.00	500.00	N/A	N/A	2,198
59	Tribal ECBM 1 (5000 hp total)	al072	1.04	252,785	4,103,619	10.00	0.49	64.00	796.90	N/A	N/A	2,198
60	Tribal ECBM 2 (5000 hp total)	al073	1.04	252,795	4,103,619	10.00	0.49	64.00	796.90	N/A	N/A	2,198
61	Well emissions	al074	0.10	252,775	4,103,619	5.00	0.20	5.00	500.00	N/A	N/A	2,198
62	Tribe Animas (1342 hp total)	al075	0.56	242,558	4,116,655	8.00	0.39	45.70	775.00	N/A	N/A	2,198
63	Well emissions	al076	0.10	242,558	4,116,655	5.00	0.20	5.00	500.00	N/A	N/A	1,951
64	Vastar #1	al076	0.51	263,232	4,099,857	8.00	0.39	45.70	644.00	N/A	N/A	1,951
65	Well emissions	al078	0.10	263,232	4,099,857	5.00	0.20	5.00	500.00	N/A	N/A	2,103
66	Vastar #2	al079	0.51	255,837	4,099,173	8.00	0.39	45.70	644.00	N/A	N/A	2,103
67	Well emissions	al080	0.10	255,837	4,099,173	5.00	0.20	5.00	500.00	N/A	N/A	2,090
68	Vastar 4	al081	1.23	252,676	4,098,991	10.00	0.48	64.00	796.90	N/A	N/A	2,090
69	Well emissions	al082	0.10	252,676	4,098,991	5.00	0.20	5.00	500.00	N/A	N/A	2,133
70	Vastar 6B	al083	0.82	245,314	4,101,508	10.00	0.30	64.00	908.00	N/A	N/A	2,133

N/A – Not available

Table E-1. SUIT RFS Emission Source Modeling Input Values (continued)

Source Count	Source Description	Unit ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (m)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Well emissions	al084	0.10	245,314	4,101,508	5.00	0.20	5.00	500.00	N/A	N/A	2,011
72	Vastar 7b	al085	0.82	237,002	4,117,273	10.00	0.30	64.00	908.00	N/A	N/A	2,011
73	Well emissions	al086	0.10	237,002	4,117,273	5.00	0.20	5.00	500.00	N/A	N/A	2,144
74	Vastar 8	al087	0.82	238,984	4,106,892	10.00	0.30	64.00	908.00	N/A	N/A	2,144
75	Well emissions	al088	0.10	238,984	4,106,892	5.00	0.20	5.00	500.00	N/A	N/A	2,048
76	Vastar ECBM 5000	al089	2.08	249,759	4,098,862	13.10	0.65	55.00	908.00	N/A	N/A	2,048
77	Well emissions	al090	0.10	249,759	4,098,862	5.00	0.20	5.00	500.00	N/A	N/A	2,133
78	Vastar ECBM 5000	al091	2.08	249,769	4,098,862	13.10	0.65	55.00	908.00	N/A	N/A	2,133
79	Well emissions	al092	0.10	249,769	4,098,862	5.00	0.20	5.00	500.00	N/A	N/A	2,133
80	Vastar ECBM 5000	al093	2.08	249,779	4,098,862	13.10	0.65	55.00	908.00	N/A	N/A	2,133
81	Well emissions	al094	0.10	249,779	4,098,862	5.00	0.20	5.00	500.00	N/A	N/A	2,132
82	Vastar ECBM 5000	al095	2.08	249,789	4,098,862	13.10	0.65	55.00	908.00	N/A	N/A	2,132
83	Well emissions	al096	0.10	249,789	4,098,862	5.00	0.20	5.00	500.00	N/A	N/A	2,132
84	Amoco/Vastar 1 (2000 hp)	al097	0.83	240,800	4,105,800	10.00	0.30	64.00	908.00	N/A	N/A	2,132
85	dc3000	??????	1.25	252,900	4,102,670	7.00	0.50	16.90	589.00	N/A	N/A	2,273

N/A – Not available

Appendix F – Farmington RMP Emission Inventory

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Table F-1. Summary of Emissions

	Separators	Wellhead Engines	Compressors
Number of Emission Sources	13,275	4,971	144
NOx Emissions (t/yr)	1,425	31,639	5,210

Table F-2. Determination of Potential Emission Source Locations

Number of existing wells per Township

Township	Range												
	14W	13W	12W	11W	10W	09W	08W	07W	06W	05W	04W	03W	02W
32N	2	6	5	4	4	6	7	6	4	3	4	0	0
31N	2	7	5	5	3	3	2	6	3	3	2	2	0
30N	3	6	7	6	5	4	3	2	3	5	2	2	2
29N	2	7	5	4	6	6	5	5	5	7	2	2	0
28N	0	6	6	5	5	7	5	7	7	5	3	2	2
27N	0	2	7	6	6	6	6	6	6	5	4	3	2
26N	0	2	3	5	7	7	4	3	3	5	4	4	2
25N	0	0	3	4	3	3	2	2	3	2	2	3	2
24N	0	0	0	0	0	0	2	2	4	2	2	0	2

Distribution of existing wells per Township (percent)

Township	Range												
	14W	13W	12W	11W	10W	09W	08W	07W	06W	05W	04W	03W	02W
32N	0.49	1.46	1.22	0.97	0.97	1.46	1.70	1.46	0.97	0.73	0.97	0.00	0.00
31N	0.49	1.70	1.22	1.22	0.73	0.73	0.49	1.46	0.73	0.73	0.49	0.49	0.00
30N	0.73	1.46	1.70	1.46	1.22	0.97	0.73	0.49	0.73	1.22	0.49	0.49	0.49
29N	0.49	1.70	1.22	0.97	1.46	1.46	0.73	1.22	1.22	1.70	0.49	0.49	0.00
28N	0.00	1.46	1.46	1.22	1.22	1.70	1.22	1.70	1.70	1.22	0.73	0.49	0.49
27N	0.00	0.49	1.70	1.46	1.46	1.46	1.46	1.46	1.46	1.22	0.97	0.73	0.49
26N	0.00	0.49	0.73	1.22	1.70	1.70	0.97	0.73	0.73	1.22	0.97	0.97	0.49
25N	0.00	0.00	0.73	0.97	0.73	0.73	0.49	0.49	0.73	0.49	0.49	0.73	0.49
24N	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.49	0.97	0.49	0.49	0.00	0.49

Table F-2. Determination of Potential Emission Source Locations (continued)

Assumed number of wells per Township

Township	Range												
	14W	13W	12W	11W	10W	09W	08W	07W	06W	05W	04W	03W	02W
32N	0.9	2.8	2.3	1.8	1.8	2.8	3.2	2.8	1.8	1.4	1.8	0.0	0.0
31N	0.9	3.2	2.3	2.3	1.4	1.4	0.9	2.8	1.4	1.4	0.9	0.9	0.0
30N	1.4	2.8	3.2	2.8	2.3	1.8	1.4	0.9	1.4	2.3	0.9	0.9	0.9
29N	0.9	3.2	2.3	1.8	2.8	2.8	2.3	2.3	2.3	3.2	0.9	0.9	0.0
28N	0.0	2.8	2.8	2.3	2.3	3.2	2.3	3.2	3.2	2.3	1.4	0.9	0.9
27N	0.0	0.9	3.2	2.8	2.8	2.8	2.8	2.8	2.8	2.3	1.8	1.4	0.9
26N	0.0	0.9	1.4	2.3	3.2	3.2	1.8	1.4	1.4	2.3	1.8	1.8	0.9
25N	0.0	0.0	1.4	1.8	1.4	1.4	0.9	0.9	1.4	0.9	0.9	1.4	0.9
24N	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.8	0.9	0.9	0.0	0.9

Note: This represents combining 35 wells into a single modeling source; each value indicates the proposed number of wells per Township

Assumed distribution of central compressor stations per Township

Township	Range												
	14W	13W	12W	11W	10W	09W	08W	07W	06W	05W	04W	03W	02W
32N	0	1	1	1	0	1	1	1	0	0	0	0	0
31N	0	1	1	1	0	0	0	1	0	0	0	0	0
30N	0	1	1	0	1	0	0	0	0	1	0	0	0
29N	0	1	0	0	1	1	1	1	1	1	0	0	0
28N	0	1	1	1	1	1	0	1	1	0	0	0	0
27N	0	0	1	0	1	1	1	1	1	0	0	0	0
26N	0	0	0	0	1	1	0	0	0	0	0	0	0
25N	0	0	0	0	0	0	0	0	0	0	0	0	0
24N	0	0	0	0	0	0	0	0	0	0	0	0	0

Table F-3. Existing Wellhead Engine Type, Number, Power and Emission Factors

Engine Type	Number	Average Horsepower (hp)	Average Emission Factor (g/hp-hr)	Distribution of Engines (percent)	Weighted Horsepower (hp)	Weighted Emission Factor (g/hp-hr)
Rich Burn-Small	1,409	59.4	12.61	51	30.32	6.44
Rich Burn-Med.	253	181.8	10.58	9	16.67	0.97
Lean Burn-Small	7	51	4.20	0	0.13	0.01
Lean Burn-Med.	181	318.9	3.06	7	20.91	0.20
Pump Jacks	910	16.4	6.76	33	5.41	2.23
Totals	2,760			100	73.44	9.85

Table F-4 Separator Emission Calculations [(1)]

	Individual NOx (lb/MMscf) [(2)]	Individual NOx (lb/hr) [(3)]	Individual NOx (t/yr) [(3)]	Number of Wells	Number of Separators [(4)]	Total NOx (t/yr) [(2)]
Separators	100	0.025	0.107	13,275	13,275	1,425

(1) Assumes separators operate year-around (8760 hr/yr) at 100 percent capacity load
(2) EPA (AP-42 Section 1.4 emission factor)
(3) Based on average natural gas heat capacity of 1,000 Btu/scf, and separator flame rate of 0.25 MMBtu/hr
(4) Assumes every well has a separator

Table F-5 Small Wellhead Engine Emission Calculations [(1)]

Small Wellhead Engines	Individual NOx (g/hp-hr) [(2)]	Individual NOx (t/yr) [(2)]	Number of Wells	Number of Wellhead Engines [(3)]	Total NOx (t/yr) [(2)]
Existing at 100 percent load	9.62	6.36	9,942	4,971	31,639
Existing at 54 percent load	9.62	3.44	9,942	4,971	17,085
Lean-burn at 100 percent load	2.0	1.3	9,942	4,971	6,578
Lean-burn at 54 percent load	2.0	0.71	9,942	4,971	3,552

(1) Assumes 68.6 hp wellhead engines operate year-around (8760 hr/yr)
(2) Based on average natural gas heat capacity of 1,000 Btu/scf, and wellhead engine rate of 10,000 Btu/hp-hr
(3) Assumes one wellhead engine for every two wells

Table F-6 Central Compressor Station Emission Calculations

Central Compressor Station	Individual NOx (g/sec)	Individual NOx (t/yr)	Number of Units [(3)]	Total NOx (g/sec)	Total NOx (t/yr)
Compressor [(1)]	4.171	145	36	149	5,210
Dehydrator [(2)]	0.001	0.029	36	0.03	1.04
Combined	4.172	145	36	150	5,211

(1) Assumes 10,000 hp Central Compressor Station (four 2,500 hp engines) operate year-around (8760 hr/yr) at 100 percent load and 1.5 g/hp-hr NOx emission rate
(2) Based on average natural gas heat capacity of 1,000 Btu/scf, and dehydrator flame rate of 2.43 MMBtu/hr
(3) Assumes every compressor station has a dehydrator

Table F-7 Combined Emissions and Modeling Assumptions

Source Type	Total NOx (t/yr)	Number of Modeled Sources	Each Modeled Source NOx (t/yr)
Separators	1,425	190	7.5
Existing Wellhead Engine at 54 percent load	17,085	190	90.0
Compressor	5,210	36	145
Dehydrator	1.04	36	0.029
Combined	23,721	226	105
Separators	1,425	190	7.5
Lean-burn Wellhead Engine at 54 percent load	3,552	190	18.7
Compressor	5,210	36	145
Dehydrator	1.04	36	0.029
Combined	10,188	226	45

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Well emissions	14W32NA	2.8066	203235	4096434	1.5	0.2	5.5	477	1.0	1.1	6209
2	Well emissions	14W31NA	2.8066	203173	4088127	1.5	0.2	5.5	477	1.0	1.1	5796
3	Well emissions	14W29NA	2.8066	203147	4068123	1.5	0.2	5.5	477	1.0	1.1	5415
4	Well emissions	13W32NA	2.8066	215344	4095670	1.5	0.2	5.5	477	1.0	1.1	5973
5	Well emissions	13W32NB	2.8066	214344	4095670	1.5	0.2	5.5	477	1.0	1.1	6009
6	Well emissions	13W32NC	2.8066	216344	4095670	1.5	0.2	5.5	477	1.0	1.1	5989
7	Well emissions	13W31NA	2.8066	214525	4087566	1.5	0.2	5.5	477	1.0	1.1	5796
8	Well emissions	13W31NB	2.8066	213525	4087566	1.5	0.2	5.5	477	1.0	1.1	5796
9	Well emissions	13W31NC	2.8066	215525	4087566	1.5	0.2	5.5	477	1.0	1.1	5763
10	Well emissions	13W31ND	2.8066	214525	4088566	1.5	0.2	5.5	477	1.0	1.1	5796
11	Well emissions	13W30NA	2.8066	214071	4077901	1.5	0.2	5.5	477	1.0	1.1	5596
12	Well emissions	13W30NB	2.8066	213071	4077901	1.5	0.2	5.5	477	1.0	1.1	5494
13	Well emissions	13W30NC	2.8066	215071	4077901	1.5	0.2	5.5	477	1.0	1.1	5697
14	Well emissions	13W29NA	2.8066	213627	4068389	1.5	0.2	5.5	477	1.0	1.1	5241
15	Well emissions	13W29NB	2.8066	212627	4068389	1.5	0.2	5.5	477	1.0	1.1	5238
16	Well emissions	13W29NC	2.8066	214627	4068389	1.5	0.2	5.5	477	1.0	1.1	5278
17	Well emissions	13W29ND	2.8066	213627	4069389	1.5	0.2	5.5	477	1.0	1.1	5337
18	Well emissions	13W28NA	2.8066	213090	4059806	1.5	0.2	5.5	477	1.0	1.1	6016
19	Well emissions	13W28NB	2.8066	212090	4059806	1.5	0.2	5.5	477	1.0	1.1	6012
20	Well emissions	13W28NC	2.8066	214090	4059806	1.5	0.2	5.5	477	1.0	1.1	6012
21	Well emissions	13W27NA	2.8066	212581	4051683	1.5	0.2	5.5	477	1.0	1.1	6042
22	Well emissions	13W26NA	2.8066	212073	4043560	1.5	0.2	5.5	477	1.0	1.1	6291
23	Well emissions	12W32NA	2.8066	224108	4095578	1.5	0.2	5.5	477	1.0	1.1	6061
24	Well emissions	12W32NB	2.8066	223108	4095578	1.5	0.2	5.5	477	1.0	1.1	5996
25	Well emissions	12W31NA	2.8066	223567	4086997	1.5	0.2	5.5	477	1.0	1.1	6143
26	Well emissions	12W31NB	2.8066	222567	4086997	1.5	0.2	5.5	477	1.0	1.1	6173
27	Well emissions	12W31NC	2.8066	224567	4086997	1.5	0.2	5.5	477	1.0	1.1	6291
28	Well emissions	12W30NA	2.8066	223122	4077486	1.5	0.2	5.5	477	1.0	1.1	5753
29	Well emissions	12W30NB	2.8066	222122	4077486	1.5	0.2	5.5	477	1.0	1.1	5799
30	Well emissions	12W30NC	2.8066	224122	4077486	1.5	0.2	5.5	477	1.0	1.1	5717
31	Well emissions	12W29NA	2.8066	222957	4067496	1.5	0.2	5.5	477	1.0	1.1	5596
32	Well emissions	12W29NB	2.8066	221957	4067496	1.5	0.2	5.5	477	1.0	1.1	5596
33	Well emissions	12W29NC	2.8066	223957	4067496	1.5	0.2	5.5	477	1.0	1.1	5596
34	Well emissions	12W28NA	2.8066	222448	4059374	1.5	0.2	5.5	477	1.0	1.1	5720
35	Well emissions	12W28NB	2.8066	221448	4059374	1.5	0.2	5.5	477	1.0	1.1	5648

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)(continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	Well emissions	12W28NC	2.8066	223448	4059374	1.5	0.2	5.5	477	1.0	1.1	5802
37	Well emissions	12W27NA	2.8066	221949	4051405	1.5	0.2	5.5	477	1.0	1.1	5796
38	Well emissions	12W27NB	2.8066	220949	4051405	1.5	0.2	5.5	477	1.0	1.1	5796
39	Well emissions	12W27NC	2.8066	222949	4051405	1.5	0.2	5.5	477	1.0	1.1	5930
40	Well emissions	12W27ND	2.8066	221949	4052405	1.5	0.2	5.5	477	1.0	1.1	5812
41	Well emissions	12W26NA	2.8066	221451	4043437	1.5	0.2	5.5	477	1.0	1.1	6101
42	Well emissions	12W25NA	2.8066	220952	4035468	1.5	0.2	5.5	477	1.0	1.1	6196
43	Well emissions	11W32NA	2.8066	234283	4097339	1.5	0.2	5.5	477	1.0	1.1	6580
44	Well emissions	11W32NB	2.8066	233283	4097339	1.5	0.2	5.5	477	1.0	1.1	6813
45	Well emissions	11W32NC	2.8066	234283	4098339	1.5	0.2	5.5	477	1.0	1.1	6580
46	Well emissions	11W31NA	2.8066	234105	4086728	1.5	0.2	5.5	477	1.0	1.1	5960
47	Well emissions	11W31NB	2.8066	233105	4086728	1.5	0.2	5.5	477	1.0	1.1	5996
48	Well emissions	11W30NA	2.8066	233971	4077162	1.5	0.2	5.5	477	1.0	1.1	5897
49	Well emissions	11W30NB	2.8066	232971	4077162	1.5	0.2	5.5	477	1.0	1.1	5796
50	Well emissions	11W30NC	2.8066	234971	4077162	1.5	0.2	5.5	477	1.0	1.1	5996
51	Well emissions	11W29NA	2.8066	233815	4067574	1.5	0.2	5.5	477	1.0	1.1	5524
52	Well emissions	11W29NB	2.8066	232815	4067574	1.5	0.2	5.5	477	1.0	1.1	5546
53	Well emissions	11W28NA	2.8066	233660	4059187	1.5	0.2	5.5	477	1.0	1.1	5648
54	Well emissions	11W28NB	2.8066	232660	4059187	1.5	0.2	5.5	477	1.0	1.1	5796
55	Well emissions	11W27NA	2.8066	233526	4050867	1.5	0.2	5.5	477	1.0	1.1	6229
56	Well emissions	11W27NB	2.8066	232526	4050867	1.5	0.2	5.5	477	1.0	1.1	6298
57	Well emissions	11W27NC	2.8066	234526	4050867	1.5	0.2	5.5	477	1.0	1.1	6048
58	Well emissions	11W26NA	2.8066	233393	4042547	1.5	0.2	5.5	477	1.0	1.1	6396
59	Well emissions	11W26NB	2.8066	232393	4042547	1.5	0.2	5.5	477	1.0	1.1	6376
60	Well emissions	11W25NA	2.8066	233259	4034227	1.5	0.2	5.5	477	1.0	1.1	6360
61	Well emissions	11W25NB	2.8066	232259	4034227	1.5	0.2	5.5	477	1.0	1.1	6317
62	Well emissions	10W32NA	2.8066	243226	4097050	1.5	0.2	5.5	477	1.0	1.1	6826
63	Well emissions	10W32NB	2.8066	242226	4097050	1.5	0.2	5.5	477	1.0	1.1	6826
64	Well emissions	10W31NA	2.8066	242692	4086528	1.5	0.2	5.5	477	1.0	1.1	6170
65	Well emissions	10W30NA	2.8066	242380	4076917	1.5	0.2	5.5	477	1.0	1.1	6403
66	Well emissions	10W30NB	2.8066	241380	4076917	1.5	0.2	5.5	477	1.0	1.1	6596
67	Well emissions	10W30NC	2.8066	243380	4076917	1.5	0.2	5.5	477	1.0	1.1	6396
68	Well emissions	10W29NA	2.8066	241980	4067374	1.5	0.2	5.5	477	1.0	1.1	5796
69	Well emissions	10W29NB	2.8066	240980	4067374	1.5	0.2	5.5	477	1.0	1.1	5602
70	Well emissions	10W29NC	2.8066	242980	4067374	1.5	0.2	5.5	477	1.0	1.1	5796

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)(continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Well emissions	10W28NA	2.8066	241646	4058942	1.5	0.2	5.5	477	1.0	1.1	6032
72	Well emissions	10W28NB	2.8066	240646	4058942	1.5	0.2	5.5	477	1.0	1.1	6170
73	Well emissions	10W27NA	2.8066	241335	4050400	1.5	0.2	5.5	477	1.0	1.1	6196
74	Well emissions	10W27NB	2.8066	240335	4050400	1.5	0.2	5.5	477	1.0	1.1	6193
75	Well emissions	10W27NC	2.8066	242335	4050400	1.5	0.2	5.5	477	1.0	1.1	6396
76	Well emissions	10W27ND	2.8066	241335	4051400	1.5	0.2	5.5	477	1.0	1.1	6396
77	Well emissions	10W26NA	2.8066	241023	4041857	1.5	0.2	5.5	477	1.0	1.1	6668
78	Well emissions	10W26NB	2.8066	240023	4041857	1.5	0.2	5.5	477	1.0	1.1	6632
79	Well emissions	10W26NC	2.8066	242023	4041857	1.5	0.2	5.5	477	1.0	1.1	6639
80	Well emissions	10W25NA	2.8066	240712	4033315	1.5	0.2	5.5	477	1.0	1.1	6596
81	Well emissions	10W25NB	2.8066	239712	4033315	1.5	0.2	5.5	477	1.0	1.1	6596
82	Well emissions	9W32NA	2.8066	253036	4096716	1.5	0.2	5.5	477	1.0	1.1	7000
83	Well emissions	9W32NB	2.8066	252036	4096716	1.5	0.2	5.5	477	1.0	1.1	6983
84	Well emissions	9W32NC	2.8066	254036	4096716	1.5	0.2	5.5	477	1.0	1.1	7019
85	Well emissions	9W31NA	2.8066	252814	4086283	1.5	0.2	5.5	477	1.0	1.1	6396
86	Well emissions	9W30NA	2.8066	252613	4076584	1.5	0.2	5.5	477	1.0	1.1	6091
87	Well emissions	9W30NB	2.8066	251613	4076584	1.5	0.2	5.5	477	1.0	1.1	6019
88	Well emissions	9W29NA	2.8066	252369	4067062	1.5	0.2	5.5	477	1.0	1.1	5897
89	Well emissions	9W29NB	2.8066	251369	4067062	1.5	0.2	5.5	477	1.0	1.1	5770
90	Well emissions	9W29NC	2.8066	253369	4067062	1.5	0.2	5.5	477	1.0	1.1	6019
91	Well emissions	9W28NA	2.8066	252169	4058564	1.5	0.2	5.5	477	1.0	1.1	6799
92	Well emissions	9W28NB	2.8066	251169	4058564	1.5	0.2	5.5	477	1.0	1.1	6996
93	Well emissions	9W28NC	2.8066	253169	4058564	1.5	0.2	5.5	477	1.0	1.1	6796
94	Well emissions	9W27NA	2.8066	252013	4049799	1.5	0.2	5.5	477	1.0	1.1	6202
95	Well emissions	9W27NB	2.8066	251013	4049799	1.5	0.2	5.5	477	1.0	1.1	6229
96	Well emissions	9W27NC	2.8066	253013	4049799	1.5	0.2	5.5	477	1.0	1.1	6196
97	Well emissions	9W26NA	2.8066	251857	4041034	1.5	0.2	5.5	477	1.0	1.1	6389
98	Well emissions	9W26NB	2.8066	250857	4041034	1.5	0.2	5.5	477	1.0	1.1	6396
99	Well emissions	9W26NC	2.8066	252857	4041034	1.5	0.2	5.5	477	1.0	1.1	6383
100	Well emissions	9W26ND	2.8066	251857	4042034	1.5	0.2	5.5	477	1.0	1.1	6330
101	Well emissions	9W25NA	2.8066	251701	4032269	1.5	0.2	5.5	477	1.0	1.1	6596
102	Well emissions	8W32nA	2.8066	262246	4096383	1.5	0.2	5.5	477	1.0	1.1	6796
103	Well emissions	8W32nB	2.8066	261246	4096383	1.5	0.2	5.5	477	1.0	1.1	6796
104	Well emissions	8W32nC	2.8066	263246	4096383	1.5	0.2	5.5	477	1.0	1.1	6813
105	Well emissions	8W31nA	2.8066	261957	4086060	1.5	0.2	5.5	477	1.0	1.1	6426

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)(continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
106	Well emissions	8W30nA	2.8066	261734	4076339	1.5	0.2	5.5	477	1.0	1.1	6396
107	Well emissions	8W29nA	2.8066	261490	4066795	1.5	0.2	5.5	477	1.0	1.1	6596
108	Well emissions	8W29nB	2.8066	260490	4066795	1.5	0.2	5.5	477	1.0	1.1	6596
109	Well emissions	8W28nA	2.8066	261267	4058275	1.5	0.2	5.5	477	1.0	1.1	5996
110	Well emissions	8W28nB	2.8066	260267	4058275	1.5	0.2	5.5	477	1.0	1.1	5973
111	Well emissions	8W27nA	2.8066	261023	4049288	1.5	0.2	5.5	477	1.0	1.1	6052
112	Well emissions	8W27nB	2.8066	260023	4049288	1.5	0.2	5.5	477	1.0	1.1	6596
113	Well emissions	8W27nC	2.8066	262023	4049288	1.5	0.2	5.5	477	1.0	1.1	6124
114	Well emissions	8W26nA	2.8066	260778	4040300	1.5	0.2	5.5	477	1.0	1.1	7036
115	Well emissions	8W26nB	2.8066	259778	4040300	1.5	0.2	5.5	477	1.0	1.1	6888
116	Well emissions	8W26nC	2.8066	261778	4040300	1.5	0.2	5.5	477	1.0	1.1	6806
117	Well emissions	8W25nA	2.8066	260533	4031313	1.5	0.2	5.5	477	1.0	1.1	6612
118	Well emissions	7W32nA	2.8066	271968	4096027	1.5	0.2	5.5	477	1.0	1.1	6796
119	Well emissions	7W32nB	2.8066	270968	4096027	1.5	0.2	5.5	477	1.0	1.1	6396
120	Well emissions	7W32nC	2.8066	272968	4096027	1.5	0.2	5.5	477	1.0	1.1	6796
121	Well emissions	7W31nA	2.8066	271678	4085794	1.5	0.2	5.5	477	1.0	1.1	6419
122	Well emissions	7W31nB	2.8066	270678	4085794	1.5	0.2	5.5	477	1.0	1.1	6517
123	Well emissions	7W31nC	2.8066	272678	4085794	1.5	0.2	5.5	477	1.0	1.1	6399
124	Well emissions	7W30nA	2.8066	271478	4076161	1.5	0.2	5.5	477	1.0	1.1	6576
125	Well emissions	7W29nA	2.8066	271211	4066506	1.5	0.2	5.5	477	1.0	1.1	6596
126	Well emissions	7W29nB	2.8066	270211	4066506	1.5	0.2	5.5	477	1.0	1.1	6596
127	Well emissions	7W28nA	2.8066	271033	4057986	1.5	0.2	5.5	477	1.0	1.1	6796
128	Well emissions	7W28nB	2.8066	270033	4057986	1.5	0.2	5.5	477	1.0	1.1	6396
129	Well emissions	7W28nC	2.8066	272033	4057986	1.5	0.2	5.5	477	1.0	1.1	6678
130	Well emissions	7W27nA	2.8066	270789	4048776	1.5	0.2	5.5	477	1.0	1.1	6603
131	Well emissions	7W27nB	2.8066	269789	4048776	1.5	0.2	5.5	477	1.0	1.1	6596
132	Well emissions	7W27nC	2.8066	271789	4048776	1.5	0.2	5.5	477	1.0	1.1	6662
133	Well emissions	7W26nA	2.8066	270544	4039566	1.5	0.2	5.5	477	1.0	1.1	6796
134	Well emissions	7W25nA	2.8066	270299	4030356	1.5	0.2	5.5	477	1.0	1.1	6776
135	Well emissions	7W24nA	2.8066	270055	4021146	1.5	0.2	5.5	477	1.0	1.1	7000
136	Well emissions	6W32nA	2.8066	281436	4095756	1.5	0.2	5.5	477	1.0	1.1	6016
137	Well emissions	6W32nB	2.8066	280436	4095756	1.5	0.2	5.5	477	1.0	1.1	6170
138	Well emissions	6W31nA	2.8066	280978	4085519	1.5	0.2	5.5	477	1.0	1.1	6196
139	Well emissions	6W30nA	2.8066	280629	4075905	1.5	0.2	5.5	477	1.0	1.1	6596
140	Well emissions	6W29nA	2.8066	280244	4066328	1.5	0.2	5.5	477	1.0	1.1	6458

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)(continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
141	Well emissions	6W29nB	2.8066	279244	4066328	1.5	0.2	5.5	477	1.0	1.1	6485
142	Well emissions	6W28nA	2.8066	279914	4057650	1.5	0.2	5.5	477	1.0	1.1	6530
143	Well emissions	6W28nB	2.8066	278914	4057650	1.5	0.2	5.5	477	1.0	1.1	6396
144	Well emissions	6W28nC	2.8066	280914	4057650	1.5	0.2	5.5	477	1.0	1.1	6596
145	Well emissions	6W27nA	2.8066	279602	4048184	1.5	0.2	5.5	477	1.0	1.1	6596
146	Well emissions	6W27nB	2.8066	278602	4048184	1.5	0.2	5.5	477	1.0	1.1	6596
147	Well emissions	6W27nC	2.8066	280602	4048184	1.5	0.2	5.5	477	1.0	1.1	6560
148	Well emissions	6W26nA	2.8066	279290	4038717	1.5	0.2	5.5	477	1.0	1.1	6642
149	Well emissions	6W25nA	2.8066	278978	4029250	1.5	0.2	5.5	477	1.0	1.1	6596
150	Well emissions	6W24nA	2.8066	279978	4029250	1.5	0.2	5.5	477	1.0	1.1	6596
151	Well emissions	6W24nB	2.8066	280978	4029250	1.5	0.2	5.5	477	1.0	1.1	6596
152	Well emissions	5W32nA	2.8066	290521	4095426	1.5	0.2	5.5	477	1.0	1.1	6796
153	Well emissions	5W31nA	2.8066	290187	4085260	1.5	0.2	5.5	477	1.0	1.1	6416
154	Well emissions	5W30nA	2.8066	290187	4086260	1.5	0.2	5.5	477	1.0	1.1	6652
155	Well emissions	5W30nB	2.8066	289187	4086260	1.5	0.2	5.5	477	1.0	1.1	6639
156	Well emissions	5W29nA	2.8066	289498	4066039	1.5	0.2	5.5	477	1.0	1.1	6698
157	Well emissions	5W29nB	2.8066	288498	4066039	1.5	0.2	5.5	477	1.0	1.1	6681
158	Well emissions	5W29nC	2.8066	290498	4066039	1.5	0.2	5.5	477	1.0	1.1	6796
159	Well emissions	5W28nA	2.8066	289253	4057341	1.5	0.2	5.5	477	1.0	1.1	6796
160	Well emissions	5W28nB	2.8066	288253	4057341	1.5	0.2	5.5	477	1.0	1.1	6665
161	Well emissions	5W27nA	2.8066	288897	4047819	1.5	0.2	5.5	477	1.0	1.1	6580
162	Well emissions	5W27nB	2.8066	287897	4047819	1.5	0.2	5.5	477	1.0	1.1	6560
163	Well emissions	5W26nA	2.8066	288541	4038298	1.5	0.2	5.5	477	1.0	1.1	6596
164	Well emissions	5W26nB	2.8066	287541	4038298	1.5	0.2	5.5	477	1.0	1.1	6596
165	Well emissions	5W25nA	2.8066	288185	4028777	1.5	0.2	5.5	477	1.0	1.1	6691
166	Well emissions	4W32nA	2.8066	298997	4095137	1.5	0.2	5.5	477	1.0	1.1	6921
167	Well emissions	4W32nB	2.8066	297997	4095137	1.5	0.2	5.5	477	1.0	1.1	7200
168	Well emissions	4W31nA	2.8066	298752	4085082	1.5	0.2	5.5	477	1.0	1.1	6996
169	Well emissions	4W29nA	2.8066	298329	4065794	1.5	0.2	5.5	477	1.0	1.1	7298
170	Well emissions	4W28nA	2.8066	298107	4057074	1.5	0.2	5.5	477	1.0	1.1	7396
171	Well emissions	4W27nA	2.8066	297929	4047330	1.5	0.2	5.5	477	1.0	1.1	6996
172	Well emissions	4W27nB	2.8066	296929	4047330	1.5	0.2	5.5	477	1.0	1.1	7029
173	Well emissions	4W26nA	2.8066	297751	4037586	1.5	0.2	5.5	477	1.0	1.1	7072
174	Well emissions	4W26nB	2.8066	296751	4037586	1.5	0.2	5.5	477	1.0	1.1	7196
175	Well emissions	4W25nA	2.8066	297573	4027842	1.5	0.2	5.5	477	1.0	1.1	7196

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)(continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
176	Well emissions	4W24nA	2.8066	298573	4027842	1.5	0.2	5.5	477	1.0	1.1	7196
177	Well emissions	3W31nA	2.8066	308273	4084859	1.5	0.2	5.5	477	1.0	1.1	7396
178	Well emissions	3W30nA	2.8066	308229	4075182	1.5	0.2	5.5	477	1.0	1.1	7596
179	Well emissions	3W29nA	2.8066	308407	4065616	1.5	0.2	5.5	477	1.0	1.1	6996
180	Well emissions	3W28nA	2.8066	308451	4056651	1.5	0.2	5.5	477	1.0	1.1	7098
181	Well emissions	3W27nA	2.8066	308518	4046774	1.5	0.2	5.5	477	1.0	1.1	7196
182	Well emissions	3W26nA	2.8066	308585	4036896	1.5	0.2	5.5	477	1.0	1.1	7390
183	Well emissions	3W26nB	2.8066	307585	4036896	1.5	0.2	5.5	477	1.0	1.1	7347
184	Well emissions	3W25nA	2.8066	308652	4027019	1.5	0.2	5.5	477	1.0	1.1	7344
185	Well emissions	3W25nA	2.8066	307652	4027019	1.5	0.2	5.5	477	1.0	1.1	7203
186	Well emissions	2W30nA	2.8066	317194	4075026	1.5	0.2	5.5	477	1.0	1.1	7797
187	Well emissions	2W28nA	2.8066	317817	4056317	1.5	0.2	5.5	477	1.0	1.1	7295
188	Well emissions	2W27nA	2.8066	317995	4046195	1.5	0.2	5.5	477	1.0	1.1	7396
189	Well emissions	2W26nA	2.8066	318173	4036073	1.5	0.2	5.5	477	1.0	1.1	7797
190	Well emissions	2W24nA	2.8066	319173	4036073	1.5	0.2	5.5	477	1.0	1.1	7308
191	Central Compressor	13W32NA	4.1721	215344	4095670	6.7	0.6	19	644	4.8	4.5	5973
192	Central Compressor	13W31NA	4.1721	214525	4087566	6.7	0.6	19	644	4.8	4.5	5796
193	Central Compressor	13W30NA	4.1721	214071	4077901	6.7	0.6	19	644	4.8	4.5	5596
194	Central Compressor	13W29NA	4.1721	213627	4068389	6.7	0.6	19	644	4.8	4.5	5241
195	Central Compressor	13W28NA	4.1721	213090	4059806	6.7	0.6	19	644	4.8	4.5	6016
196	Central Compressor	12W32NA	4.1721	224108	4095578	6.7	0.6	19	644	4.8	4.5	6061
197	Central Compressor	12W31NA	4.1721	223567	4086997	6.7	0.6	19	644	4.8	4.5	6143
198	Central Compressor	12W30NA	4.1721	223122	4077486	6.7	0.6	19	644	4.8	4.5	5753
199	Central Compressor	12W28NA	4.1721	222448	4059374	6.7	0.6	19	644	4.8	4.5	5720
200	Central Compressor	12W27NA	4.1721	221949	4051405	6.7	0.6	19	644	4.8	4.5	5796
201	Central Compressor	11W31NA	4.1721	234105	4086728	6.7	0.6	19	644	4.8	4.5	5960
202	Central Compressor	11W30NA	4.1721	233971	4077162	6.7	0.6	19	644	4.8	4.5	5897
203	Central Compressor	11W27NA	4.1721	233526	4050867	6.7	0.6	19	644	4.8	4.5	6229
204	Central Compressor	10W30NA	4.1721	242380	4076917	6.7	0.6	19	644	4.8	4.5	6403
205	Central Compressor	10W29NA	4.1721	241980	4067374	6.7	0.6	19	644	4.8	4.5	5796
206	Central Compressor	10W28NA	4.1721	241646	4058942	6.7	0.6	19	644	4.8	4.5	6032
207	Central Compressor	10W27NA	4.1721	241335	4050400	6.7	0.6	19	644	4.8	4.5	6196
208	Central Compressor	10W26NA	4.1721	241023	4041857	6.7	0.6	19	644	4.8	4.5	6668
209	Central Compressor	9W32NA	4.1721	253036	4096716	6.7	0.6	19	644	4.8	4.5	7000
210	Central Compressor	9W29NA	4.1721	252369	4067062	6.7	0.6	19	644	4.8	4.5	5897

Table F-8 Far Field Modeling Input Values (Assuming 9.6 g/hp-hr NOx Wellhead Engines)(continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
211	Central Compressor	9W28NA	4.1721	252169	4058564	6.7	0.6	19	644	4.8	4.5	6799
212	Central Compressor	9W27NA	4.1721	252013	4049799	6.7	0.6	19	644	4.8	4.5	6202
213	Central Compressor	9W26NA	4.1721	251857	4041034	6.7	0.6	19	644	4.8	4.5	6389
214	Central Compressor	8W32nA	4.1721	262246	4096383	6.7	0.6	19	644	4.8	4.5	6796
215	Central Compressor	8W29nA	4.1721	261490	4066795	6.7	0.6	19	644	4.8	4.5	6596
216	Central Compressor	8W27nA	4.1721	261023	4049288	6.7	0.6	19	644	4.8	4.5	6052
217	Central Compressor	7W32nA	4.1721	271968	4096027	6.7	0.6	19	644	4.8	4.5	6796
218	Central Compressor	7W31nA	4.1721	271678	4085794	6.7	0.6	19	644	4.8	4.5	6419
219	Central Compressor	7W29nA	4.1721	271211	4066506	6.7	0.6	19	644	4.8	4.5	6596
220	Central Compressor	7W28nA	4.1721	271033	4057986	6.7	0.6	19	644	4.8	4.5	6796
221	Central Compressor	7W27nA	4.1721	270789	4048776	6.7	0.6	19	644	4.8	4.5	6603
222	Central Compressor	6W29nA	4.1721	280244	4066328	6.7	0.6	19	644	4.8	4.5	6458
223	Central Compressor	6W28nA	4.1721	279914	4057650	6.7	0.6	19	644	4.8	4.5	6530
224	Central Compressor	6W27nA	4.1721	279602	4048184	6.7	0.6	19	644	4.8	4.5	6596
225	Central Compressor	5W30nA	4.1721	290187	4086260	6.7	0.6	19	644	4.8	4.5	6652
226	Central Compressor	5W29nA	4.1721	289498	4066039	6.7	0.6	19	644	4.8	4.5	6698

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
1	Well emissions	14W32NA	0.7547	203235	4096434	1.5	0.2	5.5	477	1.0	1.1	6209
2	Well emissions	14W31NA	0.7547	203173	4088127	1.5	0.2	5.5	477	1.0	1.1	5796
3	Well emissions	14W29NA	0.7547	203147	4068123	1.5	0.2	5.5	477	1.0	1.1	5415
4	Well emissions	13W32NA	0.7547	215344	4095670	1.5	0.2	5.5	477	1.0	1.1	5973
5	Well emissions	13W32NB	0.7547	214344	4095670	1.5	0.2	5.5	477	1.0	1.1	6009
6	Well emissions	13W32NC	0.7547	216344	4095670	1.5	0.2	5.5	477	1.0	1.1	5989
7	Well emissions	13W31NA	0.7547	214525	4087566	1.5	0.2	5.5	477	1.0	1.1	5796
8	Well emissions	13W31NB	0.7547	213525	4087566	1.5	0.2	5.5	477	1.0	1.1	5796
9	Well emissions	13W31NC	0.7547	215525	4087566	1.5	0.2	5.5	477	1.0	1.1	5763
10	Well emissions	13W31ND	0.7547	214525	4088566	1.5	0.2	5.5	477	1.0	1.1	5796
11	Well emissions	13W30NA	0.7547	214071	4077901	1.5	0.2	5.5	477	1.0	1.1	5596
12	Well emissions	13W30NB	0.7547	213071	4077901	1.5	0.2	5.5	477	1.0	1.1	5494
13	Well emissions	13W30NC	0.7547	215071	4077901	1.5	0.2	5.5	477	1.0	1.1	5697
14	Well emissions	13W29NA	0.7547	213627	4068389	1.5	0.2	5.5	477	1.0	1.1	5241
15	Well emissions	13W29NB	0.7547	212627	4068389	1.5	0.2	5.5	477	1.0	1.1	5238
16	Well emissions	13W29NC	0.7547	214627	4068389	1.5	0.2	5.5	477	1.0	1.1	5278
17	Well emissions	13W29ND	0.7547	213627	4069389	1.5	0.2	5.5	477	1.0	1.1	5337
18	Well emissions	13W28NA	0.7547	213090	4059806	1.5	0.2	5.5	477	1.0	1.1	6016
19	Well emissions	13W28NB	0.7547	212090	4059806	1.5	0.2	5.5	477	1.0	1.1	6012
20	Well emissions	13W28NC	0.7547	214090	4059806	1.5	0.2	5.5	477	1.0	1.1	6012
21	Well emissions	13W27NA	0.7547	212581	4051683	1.5	0.2	5.5	477	1.0	1.1	6042
22	Well emissions	13W26NA	0.7547	212073	4043560	1.5	0.2	5.5	477	1.0	1.1	6291
23	Well emissions	12W32NA	0.7547	224108	4095578	1.5	0.2	5.5	477	1.0	1.1	6061
24	Well emissions	12W32NB	0.7547	223108	4095578	1.5	0.2	5.5	477	1.0	1.1	5996
25	Well emissions	12W31NA	0.7547	223567	4086997	1.5	0.2	5.5	477	1.0	1.1	6143
26	Well emissions	12W31NB	0.7547	222567	4086997	1.5	0.2	5.5	477	1.0	1.1	6173
27	Well emissions	12W31NC	0.7547	224567	4086997	1.5	0.2	5.5	477	1.0	1.1	6291
28	Well emissions	12W30NA	0.7547	223122	4077486	1.5	0.2	5.5	477	1.0	1.1	5753
29	Well emissions	12W30NB	0.7547	222122	4077486	1.5	0.2	5.5	477	1.0	1.1	5799
30	Well emissions	12W30NC	0.7547	224122	4077486	1.5	0.2	5.5	477	1.0	1.1	5717
31	Well emissions	12W29NA	0.7547	222957	4067496	1.5	0.2	5.5	477	1.0	1.1	5596
32	Well emissions	12W29NB	0.7547	221957	4067496	1.5	0.2	5.5	477	1.0	1.1	5596
33	Well emissions	12W29NC	0.7547	223957	4067496	1.5	0.2	5.5	477	1.0	1.1	5596
34	Well emissions	12W28NA	0.7547	222448	4059374	1.5	0.2	5.5	477	1.0	1.1	5720
35	Well emissions	12W28NB	0.7547	221448	4059374	1.5	0.2	5.5	477	1.0	1.1	5648

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines) (continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
36	Well emissions	12W28NC	0.7547	223448	4059374	1.5	0.2	5.5	477	1.0	1.1	5802
37	Well emissions	12W27NA	0.7547	221949	4051405	1.5	0.2	5.5	477	1.0	1.1	5796
38	Well emissions	12W27NB	0.7547	220949	4051405	1.5	0.2	5.5	477	1.0	1.1	5796
39	Well emissions	12W27NC	0.7547	222949	4051405	1.5	0.2	5.5	477	1.0	1.1	5930
40	Well emissions	12W27ND	0.7547	221949	4052405	1.5	0.2	5.5	477	1.0	1.1	5812
41	Well emissions	12W26NA	0.7547	221451	4043437	1.5	0.2	5.5	477	1.0	1.1	6101
42	Well emissions	12W25NA	0.7547	220952	4035468	1.5	0.2	5.5	477	1.0	1.1	6196
43	Well emissions	11W32NA	0.7547	234283	4097339	1.5	0.2	5.5	477	1.0	1.1	6580
44	Well emissions	11W32NB	0.7547	233283	4097339	1.5	0.2	5.5	477	1.0	1.1	6813
45	Well emissions	11W32NC	0.7547	234283	4098339	1.5	0.2	5.5	477	1.0	1.1	6580
46	Well emissions	11W31NA	0.7547	234105	4086728	1.5	0.2	5.5	477	1.0	1.1	5960
47	Well emissions	11W31NB	0.7547	233105	4086728	1.5	0.2	5.5	477	1.0	1.1	5996
48	Well emissions	11W30NA	0.7547	233971	4077162	1.5	0.2	5.5	477	1.0	1.1	5897
49	Well emissions	11W30NB	0.7547	232971	4077162	1.5	0.2	5.5	477	1.0	1.1	5796
50	Well emissions	11W30NC	0.7547	234971	4077162	1.5	0.2	5.5	477	1.0	1.1	5996
51	Well emissions	11W29NA	0.7547	233815	4067574	1.5	0.2	5.5	477	1.0	1.1	5524
52	Well emissions	11W29NB	0.7547	232815	4067574	1.5	0.2	5.5	477	1.0	1.1	5546
53	Well emissions	11W28NA	0.7547	233660	4059187	1.5	0.2	5.5	477	1.0	1.1	5648
54	Well emissions	11W28NB	0.7547	232660	4059187	1.5	0.2	5.5	477	1.0	1.1	5796
55	Well emissions	11W27NA	0.7547	233526	4050867	1.5	0.2	5.5	477	1.0	1.1	6229
56	Well emissions	11W27NB	0.7547	232526	4050867	1.5	0.2	5.5	477	1.0	1.1	6298
57	Well emissions	11W27NC	0.7547	234526	4050867	1.5	0.2	5.5	477	1.0	1.1	6048
58	Well emissions	11W26NA	0.7547	233393	4042547	1.5	0.2	5.5	477	1.0	1.1	6396
59	Well emissions	11W26NB	0.7547	232393	4042547	1.5	0.2	5.5	477	1.0	1.1	6376
60	Well emissions	11W25NA	0.7547	233259	4034227	1.5	0.2	5.5	477	1.0	1.1	6360
61	Well emissions	11W25NB	0.7547	232259	4034227	1.5	0.2	5.5	477	1.0	1.1	6317
62	Well emissions	10W32NA	0.7547	243226	4097050	1.5	0.2	5.5	477	1.0	1.1	6826
63	Well emissions	10W32NB	0.7547	242226	4097050	1.5	0.2	5.5	477	1.0	1.1	6826
64	Well emissions	10W31NA	0.7547	242692	4086528	1.5	0.2	5.5	477	1.0	1.1	6170
65	Well emissions	10W30NA	0.7547	242380	4076917	1.5	0.2	5.5	477	1.0	1.1	6403
66	Well emissions	10W30NB	0.7547	241380	4076917	1.5	0.2	5.5	477	1.0	1.1	6596
67	Well emissions	10W30NC	0.7547	243380	4076917	1.5	0.2	5.5	477	1.0	1.1	6396
68	Well emissions	10W29NA	0.7547	241980	4067374	1.5	0.2	5.5	477	1.0	1.1	5796
69	Well emissions	10W29NB	0.7547	240980	4067374	1.5	0.2	5.5	477	1.0	1.1	5602
70	Well emissions	10W29NC	0.7547	242980	4067374	1.5	0.2	5.5	477	1.0	1.1	5796

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines) (continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
71	Well emissions	10W28NA	0.7547	241646	4058942	1.5	0.2	5.5	477	1.0	1.1	6032
72	Well emissions	10W28NB	0.7547	240646	4058942	1.5	0.2	5.5	477	1.0	1.1	6170
73	Well emissions	10W27NA	0.7547	241335	4050400	1.5	0.2	5.5	477	1.0	1.1	6196
74	Well emissions	10W27NB	0.7547	240335	4050400	1.5	0.2	5.5	477	1.0	1.1	6193
75	Well emissions	10W27NC	0.7547	242335	4050400	1.5	0.2	5.5	477	1.0	1.1	6396
76	Well emissions	10W27ND	0.7547	241335	4051400	1.5	0.2	5.5	477	1.0	1.1	6396
77	Well emissions	10W26NA	0.7547	241023	4041857	1.5	0.2	5.5	477	1.0	1.1	6668
78	Well emissions	10W26NB	0.7547	240023	4041857	1.5	0.2	5.5	477	1.0	1.1	6632
79	Well emissions	10W26NC	0.7547	242023	4041857	1.5	0.2	5.5	477	1.0	1.1	6639
80	Well emissions	10W25NA	0.7547	240712	4033315	1.5	0.2	5.5	477	1.0	1.1	6596
81	Well emissions	10W25NB	0.7547	239712	4033315	1.5	0.2	5.5	477	1.0	1.1	6596
82	Well emissions	9W32NA	0.7547	253036	4096716	1.5	0.2	5.5	477	1.0	1.1	7000
83	Well emissions	9W32NB	0.7547	252036	4096716	1.5	0.2	5.5	477	1.0	1.1	6983
84	Well emissions	9W32NC	0.7547	254036	4096716	1.5	0.2	5.5	477	1.0	1.1	7019
85	Well emissions	9W31NA	0.7547	252814	4086283	1.5	0.2	5.5	477	1.0	1.1	6396
86	Well emissions	9W30NA	0.7547	252613	4076584	1.5	0.2	5.5	477	1.0	1.1	6091
87	Well emissions	9W30NB	0.7547	251613	4076584	1.5	0.2	5.5	477	1.0	1.1	6019
88	Well emissions	9W29NA	0.7547	252369	4067062	1.5	0.2	5.5	477	1.0	1.1	5897
89	Well emissions	9W29NB	0.7547	251369	4067062	1.5	0.2	5.5	477	1.0	1.1	5770
90	Well emissions	9W29NC	0.7547	253369	4067062	1.5	0.2	5.5	477	1.0	1.1	6019
91	Well emissions	9W28NA	0.7547	252169	4058564	1.5	0.2	5.5	477	1.0	1.1	6799
92	Well emissions	9W28NB	0.7547	251169	4058564	1.5	0.2	5.5	477	1.0	1.1	6996
93	Well emissions	9W28NC	0.7547	253169	4058564	1.5	0.2	5.5	477	1.0	1.1	6796
94	Well emissions	9W27NA	0.7547	252013	4049799	1.5	0.2	5.5	477	1.0	1.1	6202
95	Well emissions	9W27NB	0.7547	251013	4049799	1.5	0.2	5.5	477	1.0	1.1	6229
96	Well emissions	9W27NC	0.7547	253013	4049799	1.5	0.2	5.5	477	1.0	1.1	6196
97	Well emissions	9W26NA	0.7547	251857	4041034	1.5	0.2	5.5	477	1.0	1.1	6389
98	Well emissions	9W26NB	0.7547	250857	4041034	1.5	0.2	5.5	477	1.0	1.1	6396
99	Well emissions	9W26NC	0.7547	252857	4041034	1.5	0.2	5.5	477	1.0	1.1	6383
100	Well emissions	9W26ND	0.7547	251857	4042034	1.5	0.2	5.5	477	1.0	1.1	6330
101	Well emissions	9W25NA	0.7547	251701	4032269	1.5	0.2	5.5	477	1.0	1.1	6596
102	Well emissions	8W32nA	0.7547	262246	4096383	1.5	0.2	5.5	477	1.0	1.1	6796
103	Well emissions	8W32nB	0.7547	261246	4096383	1.5	0.2	5.5	477	1.0	1.1	6796
104	Well emissions	8W32nC	0.7547	263246	4096383	1.5	0.2	5.5	477	1.0	1.1	6813
105	Well emissions	8W31nA	0.7547	261957	4086060	1.5	0.2	5.5	477	1.0	1.1	6426

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines) (continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
106	Well emissions	8W30nA	0.7547	261734	4076339	1.5	0.2	5.5	477	1.0	1.1	6396
107	Well emissions	8W29nA	0.7547	261490	4066795	1.5	0.2	5.5	477	1.0	1.1	6596
108	Well emissions	8W29nB	0.7547	260490	4066795	1.5	0.2	5.5	477	1.0	1.1	6596
109	Well emissions	8W28nA	0.7547	261267	4058275	1.5	0.2	5.5	477	1.0	1.1	5996
110	Well emissions	8W28nB	0.7547	260267	4058275	1.5	0.2	5.5	477	1.0	1.1	5973
111	Well emissions	8W27nA	0.7547	261023	4049288	1.5	0.2	5.5	477	1.0	1.1	6052
112	Well emissions	8W27nB	0.7547	260023	4049288	1.5	0.2	5.5	477	1.0	1.1	6596
113	Well emissions	8W27nC	0.7547	262023	4049288	1.5	0.2	5.5	477	1.0	1.1	6124
114	Well emissions	8W26nA	0.7547	260778	4040300	1.5	0.2	5.5	477	1.0	1.1	7036
115	Well emissions	8W26nB	0.7547	259778	4040300	1.5	0.2	5.5	477	1.0	1.1	6888
116	Well emissions	8W26nC	0.7547	261778	4040300	1.5	0.2	5.5	477	1.0	1.1	6806
117	Well emissions	8W25nA	0.7547	260533	4031313	1.5	0.2	5.5	477	1.0	1.1	6612
118	Well emissions	7W32nA	0.7547	271968	4096027	1.5	0.2	5.5	477	1.0	1.1	6796
119	Well emissions	7W32nB	0.7547	270968	4096027	1.5	0.2	5.5	477	1.0	1.1	6396
120	Well emissions	7W32nC	0.7547	272968	4096027	1.5	0.2	5.5	477	1.0	1.1	6796
121	Well emissions	7W31nA	0.7547	271678	4085794	1.5	0.2	5.5	477	1.0	1.1	6419
122	Well emissions	7W31nB	0.7547	270678	4085794	1.5	0.2	5.5	477	1.0	1.1	6517
123	Well emissions	7W31nC	0.7547	272678	4085794	1.5	0.2	5.5	477	1.0	1.1	6399
124	Well emissions	7W30nA	0.7547	271478	4076161	1.5	0.2	5.5	477	1.0	1.1	6576
125	Well emissions	7W29nA	0.7547	271211	4066506	1.5	0.2	5.5	477	1.0	1.1	6596
126	Well emissions	7W29nB	0.7547	270211	4066506	1.5	0.2	5.5	477	1.0	1.1	6596
127	Well emissions	7W28nA	0.7547	271033	4057986	1.5	0.2	5.5	477	1.0	1.1	6796
128	Well emissions	7W28nB	0.7547	270033	4057986	1.5	0.2	5.5	477	1.0	1.1	6396
129	Well emissions	7W28nC	0.7547	272033	4057986	1.5	0.2	5.5	477	1.0	1.1	6678
130	Well emissions	7W27nA	0.7547	270789	4048776	1.5	0.2	5.5	477	1.0	1.1	6603
131	Well emissions	7W27nB	0.7547	269789	4048776	1.5	0.2	5.5	477	1.0	1.1	6596
132	Well emissions	7W27nC	0.7547	271789	4048776	1.5	0.2	5.5	477	1.0	1.1	6662
133	Well emissions	7W26nA	0.7547	270544	4039566	1.5	0.2	5.5	477	1.0	1.1	6796
134	Well emissions	7W25nA	0.7547	270299	4030356	1.5	0.2	5.5	477	1.0	1.1	6776
135	Well emissions	7W24nA	0.7547	270055	4021146	1.5	0.2	5.5	477	1.0	1.1	7000
136	Well emissions	6W32nA	0.7547	281436	4095756	1.5	0.2	5.5	477	1.0	1.1	6016
137	Well emissions	6W32nB	0.7547	280436	4095756	1.5	0.2	5.5	477	1.0	1.1	6170
138	Well emissions	6W31nA	0.7547	280978	4085519	1.5	0.2	5.5	477	1.0	1.1	6196
139	Well emissions	6W30nA	0.7547	280629	4075905	1.5	0.2	5.5	477	1.0	1.1	6596
140	Well emissions	6W29nA	0.7547	280244	4066328	1.5	0.2	5.5	477	1.0	1.1	6458

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines) (continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
141	Well emissions	6W29nB	0.7547	279244	4066328	1.5	0.2	5.5	477	1.0	1.1	6485
142	Well emissions	6W28nA	0.7547	279914	4057650	1.5	0.2	5.5	477	1.0	1.1	6530
143	Well emissions	6W28nB	0.7547	278914	4057650	1.5	0.2	5.5	477	1.0	1.1	6396
144	Well emissions	6W28nC	0.7547	280914	4057650	1.5	0.2	5.5	477	1.0	1.1	6596
145	Well emissions	6W27nA	0.7547	279602	4048184	1.5	0.2	5.5	477	1.0	1.1	6596
146	Well emissions	6W27nB	0.7547	278602	4048184	1.5	0.2	5.5	477	1.0	1.1	6596
147	Well emissions	6W27nC	0.7547	280602	4048184	1.5	0.2	5.5	477	1.0	1.1	6560
148	Well emissions	6W26nA	0.7547	279290	4038717	1.5	0.2	5.5	477	1.0	1.1	6642
149	Well emissions	6W25nA	0.7547	278978	4029250	1.5	0.2	5.5	477	1.0	1.1	6596
150	Well emissions	6W24nA	0.7547	279978	4029250	1.5	0.2	5.5	477	1.0	1.1	6596
151	Well emissions	6W24nB	0.7547	280978	4029250	1.5	0.2	5.5	477	1.0	1.1	6596
152	Well emissions	5W32nA	0.7547	290521	4095426	1.5	0.2	5.5	477	1.0	1.1	6796
153	Well emissions	5W31nA	0.7547	290187	4085260	1.5	0.2	5.5	477	1.0	1.1	6416
154	Well emissions	5W30nA	0.7547	290187	4086260	1.5	0.2	5.5	477	1.0	1.1	6652
155	Well emissions	5W30nB	0.7547	289187	4086260	1.5	0.2	5.5	477	1.0	1.1	6639
156	Well emissions	5W29nA	0.7547	289498	4066039	1.5	0.2	5.5	477	1.0	1.1	6698
157	Well emissions	5W29nB	0.7547	288498	4066039	1.5	0.2	5.5	477	1.0	1.1	6681
158	Well emissions	5W29nC	0.7547	290498	4066039	1.5	0.2	5.5	477	1.0	1.1	6796
159	Well emissions	5W28nA	0.7547	289253	4057341	1.5	0.2	5.5	477	1.0	1.1	6796
160	Well emissions	5W28nB	0.7547	288253	4057341	1.5	0.2	5.5	477	1.0	1.1	6665
161	Well emissions	5W27nA	0.7547	288897	4047819	1.5	0.2	5.5	477	1.0	1.1	6580
162	Well emissions	5W27nB	0.7547	287897	4047819	1.5	0.2	5.5	477	1.0	1.1	6560
163	Well emissions	5W26nA	0.7547	288541	4038298	1.5	0.2	5.5	477	1.0	1.1	6596
164	Well emissions	5W26nB	0.7547	287541	4038298	1.5	0.2	5.5	477	1.0	1.1	6596
165	Well emissions	5W25nA	0.7547	288185	4028777	1.5	0.2	5.5	477	1.0	1.1	6691
166	Well emissions	4W32nA	0.7547	298997	4095137	1.5	0.2	5.5	477	1.0	1.1	6921
167	Well emissions	4W32nB	0.7547	297997	4095137	1.5	0.2	5.5	477	1.0	1.1	7200
168	Well emissions	4W31nA	0.7547	298752	4085082	1.5	0.2	5.5	477	1.0	1.1	6996
169	Well emissions	4W29nA	0.7547	298329	4065794	1.5	0.2	5.5	477	1.0	1.1	7298
170	Well emissions	4W28nA	0.7547	298107	4057074	1.5	0.2	5.5	477	1.0	1.1	7396
171	Well emissions	4W27nA	0.7547	297929	4047330	1.5	0.2	5.5	477	1.0	1.1	6996
172	Well emissions	4W27nB	0.7547	296929	4047330	1.5	0.2	5.5	477	1.0	1.1	7029
173	Well emissions	4W26nA	0.7547	297751	4037586	1.5	0.2	5.5	477	1.0	1.1	7072
174	Well emissions	4W26nB	0.7547	296751	4037586	1.5	0.2	5.5	477	1.0	1.1	7196
175	Well emissions	4W25nA	0.7547	297573	4027842	1.5	0.2	5.5	477	1.0	1.1	7196

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines) (continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
176	Well emissions	4W24nA	0.7547	298573	4027842	1.5	0.2	5.5	477	1.0	1.1	7196
177	Well emissions	3W31nA	0.7547	308273	4084859	1.5	0.2	5.5	477	1.0	1.1	7396
178	Well emissions	3W30nA	0.7547	308229	4075182	1.5	0.2	5.5	477	1.0	1.1	7596
179	Well emissions	3W29nA	0.7547	308407	4065616	1.5	0.2	5.5	477	1.0	1.1	6996
180	Well emissions	3W28nA	0.7547	308451	4056651	1.5	0.2	5.5	477	1.0	1.1	7098
181	Well emissions	3W27nA	0.7547	308518	4046774	1.5	0.2	5.5	477	1.0	1.1	7196
182	Well emissions	3W26nA	0.7547	308585	4036896	1.5	0.2	5.5	477	1.0	1.1	7390
183	Well emissions	3W26nB	0.7547	307585	4036896	1.5	0.2	5.5	477	1.0	1.1	7347
184	Well emissions	3W25nA	0.7547	308652	4027019	1.5	0.2	5.5	477	1.0	1.1	7344
185	Well emissions	3W25nA	0.7547	307652	4027019	1.5	0.2	5.5	477	1.0	1.1	7203
186	Well emissions	2W30nA	0.7547	317194	4075026	1.5	0.2	5.5	477	1.0	1.1	7797
187	Well emissions	2W28nA	0.7547	317817	4056317	1.5	0.2	5.5	477	1.0	1.1	7295
188	Well emissions	2W27nA	0.7547	317995	4046195	1.5	0.2	5.5	477	1.0	1.1	7396
189	Well emissions	2W26nA	0.7547	318173	4036073	1.5	0.2	5.5	477	1.0	1.1	7797
190	Well emissions	2W24nA	0.7547	319173	4036073	1.5	0.2	5.5	477	1.0	1.1	7308
191	Central Compressor	13W32NA	4.1721	215344	4095670	6.7	0.6	19	644	4.8	4.5	5973
192	Central Compressor	13W31NA	4.1721	214525	4087566	6.7	0.6	19	644	4.8	4.5	5796
193	Central Compressor	13W30NA	4.1721	214071	4077901	6.7	0.6	19	644	4.8	4.5	5596
194	Central Compressor	13W29NA	4.1721	213627	4068389	6.7	0.6	19	644	4.8	4.5	5241
195	Central Compressor	13W28NA	4.1721	213090	4059806	6.7	0.6	19	644	4.8	4.5	6016
196	Central Compressor	12W32NA	4.1721	224108	4095578	6.7	0.6	19	644	4.8	4.5	6061
197	Central Compressor	12W31NA	4.1721	223567	4086997	6.7	0.6	19	644	4.8	4.5	6143
198	Central Compressor	12W30NA	4.1721	223122	4077486	6.7	0.6	19	644	4.8	4.5	5753
199	Central Compressor	12W28NA	4.1721	222448	4059374	6.7	0.6	19	644	4.8	4.5	5720
200	Central Compressor	12W27NA	4.1721	221949	4051405	6.7	0.6	19	644	4.8	4.5	5796
201	Central Compressor	11W31NA	4.1721	234105	4086728	6.7	0.6	19	644	4.8	4.5	5960
202	Central Compressor	11W30NA	4.1721	233971	4077162	6.7	0.6	19	644	4.8	4.5	5897
203	Central Compressor	11W27NA	4.1721	233526	4050867	6.7	0.6	19	644	4.8	4.5	6229
204	Central Compressor	10W30NA	4.1721	242380	4076917	6.7	0.6	19	644	4.8	4.5	6403
205	Central Compressor	10W29NA	4.1721	241980	4067374	6.7	0.6	19	644	4.8	4.5	5796
206	Central Compressor	10W28NA	4.1721	241646	4058942	6.7	0.6	19	644	4.8	4.5	6032
207	Central Compressor	10W27NA	4.1721	241335	4050400	6.7	0.6	19	644	4.8	4.5	6196
208	Central Compressor	10W26NA	4.1721	241023	4041857	6.7	0.6	19	644	4.8	4.5	6668
209	Central Compressor	9W32NA	4.1721	253036	4096716	6.7	0.6	19	644	4.8	4.5	7000
210	Central Compressor	9W29NA	4.1721	252369	4067062	6.7	0.6	19	644	4.8	4.5	5897

Table F-9 Far Field Modeling Input Values (Assuming 2.0 g/hp-hr NOx Wellhead Engines) (continued)

Source Count	Source Type	Location/ID	NOx Emission Rate (g/s)	UTM		Stack Parameters				Building		Elevation (ft)
				Easting (m)	Northing (m)	Height (m)	Diameter (m)	Velocity (m/s)	Temp (°K)	Height (m)	Width (m)	
211	Central Compressor	9W28NA	4.1721	252169	4058564	6.7	0.6	19	644	4.8	4.5	6799
212	Central Compressor	9W27NA	4.1721	252013	4049799	6.7	0.6	19	644	4.8	4.5	6202
213	Central Compressor	9W26NA	4.1721	251857	4041034	6.7	0.6	19	644	4.8	4.5	6389
214	Central Compressor	8W32nA	4.1721	262246	4096383	6.7	0.6	19	644	4.8	4.5	6796
215	Central Compressor	8W29nA	4.1721	261490	4066795	6.7	0.6	19	644	4.8	4.5	6596
216	Central Compressor	8W27nA	4.1721	261023	4049288	6.7	0.6	19	644	4.8	4.5	6052
217	Central Compressor	7W32nA	4.1721	271968	4096027	6.7	0.6	19	644	4.8	4.5	6796
218	Central Compressor	7W31nA	4.1721	271678	4085794	6.7	0.6	19	644	4.8	4.5	6419
219	Central Compressor	7W29nA	4.1721	271211	4066506	6.7	0.6	19	644	4.8	4.5	6596
220	Central Compressor	7W28nA	4.1721	271033	4057986	6.7	0.6	19	644	4.8	4.5	6796
221	Central Compressor	7W27nA	4.1721	270789	4048776	6.7	0.6	19	644	4.8	4.5	6603
222	Central Compressor	6W29nA	4.1721	280244	4066328	6.7	0.6	19	644	4.8	4.5	6458
223	Central Compressor	6W28nA	4.1721	279914	4057650	6.7	0.6	19	644	4.8	4.5	6530
224	Central Compressor	6W27nA	4.1721	279602	4048184	6.7	0.6	19	644	4.8	4.5	6596
225	Central Compressor	5W30nA	4.1721	290187	4086260	6.7	0.6	19	644	4.8	4.5	6652
226	Central Compressor	5W29nA	4.1721	289498	4066039	6.7	0.6	19	644	4.8	4.5	6698