U.S. Department of the Interior
Bureau of Land Management

Proposed Competitive Mineral Materials Sale (COC-078119) at Parkdale, Fremont County, CO.

Final Environmental Impact Statement

DOI-BLM-CO-F020-2019-0013-EIS

Volume III - Appendices E through N



Costs to date to develop analysis: $941,856

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DOI-BLM-CO-F020-2019-0013-EIS

Bureau of Land Management
Royal Gorge Field Office
3028 East Main Street
Canon City, CO 81212

Final Environmental Impact Statement

Parkdale Quarry Expansion Project

Appendix E

BLM RGFO Solid Minerals Final Reclamation Standards and Mine and Reclamation Plan Supplemental Information

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BLM RGFO Solid Minerals FINAL Reclamation Standards

Date ***BLM POC*** ***Site Name/COC#*** ***Operator***

- It is the operator's responsibility to monitor the site and take the necessary steps to ensure reclamation success.
- Reclamation is considered complete by BLM once the following standards have been achieved, as applicable, and in accordance with the authorized Reclamation Plan on file.
- BLM RGFO will inspect the location of the mining and/or exploration operations to ensure all final reclamation requirements have been achieved before the release of a reclamation or performance bond.
- Coordination between BLM and the Colorado Division of Reclamation, Mining and Safety and/or other applicable agencies is required, prior to release of a reclamation or performance bond.

	Item	Item Description	Applicable	Complete	Not Complete	If not complete, what is still needed
Highwall Reclamation	*Benches*	All benches are established with final reclamation dimensions and slopes.				
		No raveling or fracturing is evident.				
		Tailored rock placement complete.				
	Water Drainage	Positive Drainage design established.				
		No standing water present following a representative precipitation event.				
		Stabilized water channels, accounting for all flows, including upgradient and downgradient of the mine site, as applicable.				
	Vegetation	Adequate vegetation coverage is typically considered sufficient when a self-sustaining, vigorous, diverse, native (or otherwise approved), desirable plant community is established throughout the benches, in accordance with reclamation and safety requirements outlined in the reclamation plan.				
		Regrowth percentage is sufficient to control erosion and noxious weed invasion and support re-establishment of wildlife habitat or forage production.				
	Noxious Weed Control	Disturbed area is free of State and County Class A & B noxious weeds.				

	Item	Item Description	Applicable	Complete	Not Complete	If not complete, what is still needed
Structure Reclamation	*Borehole or Well Abandonment*	All boreholes and wells are abandoned in accordance with State of Colorado requirements.				
		Abandonment reports are filed with State of Colorado and copied to BLM.				
		There is no visible casing: either completely removed or cutoff at a minimum of 2-feet below the surface.				
		The abandoned borehole surface area is regraded and has established vegetation[1].				
	Well Establishment	All wells are constructed and developed in accordance with State of Colorado requirements.				
		Coordination with RGFO water/well POC completed. Water rights addressed, as applicable.				
		All permits are filed with the State of Colorado and copied to BLM.				
		Surface casing is locked, as applicable.				
		There is a concrete pad, bollard posts or similar features completed on the surface to protect well integrity, as applicable.				
		The surface area around the well is regraded and has established vegetation[1].				
	Adit and/or Shaft Closures	No trash, debris, metal, timber, wire or other mining related materials are present.				
		Adits and/or shafts are plugged in accordance with the Reclamation Plan.				
		Plugged material is covered and compacted with a natural impervious material (e.g. clay)				
		The finished surface of adits and/or shafts are graded, which provides positive drainage away from the openings.				
		Established vegetation[1] in areas around the shafts and/or adits.				
	Removal	All equipment, blasting materials, and man-made structures are removed from the site. Evidence of final disposition provided.				
		All mining related waste and demolition materials disposed of offsite, in accordance with applicable laws. Evidence of final disposition provided.				

	Item	Item Description	Applicable	Complete	Not Complete	If not complete, what is still needed
Surface Reclamation	*Stockpiles and Berms*	All product and overburden stockpiles, concentrates and road/stormwater berms are recontoured and spread throughout the site.				
	Recontour & Regrade	The mined area, working floor, access road(s) and all other disturbances are recontoured and/or regraded to mimic the surrounding natural topography, prior to the establishment of the mining operation.				
	Topsoil & Amendments	Topsoil is spread throughout disturbed areas and amended as needed.				
		Measurements of topsoil depths are documented and, at a minimum, equal to depths stated in reclamation plan.				
	Vegetation	Established vegation[1].				
	Noxious Weed Control	Density less than or equal to area outside the authorized mine ops perimeter.				
		Disturbed area is free of State and County Class A & B noxious weeds.				
	Water Drainage	Positive Drainage design established; Water detention features in accordance with design requirements in mine & reclamation plan.				
		Water drainage follows the surrounding natural drainage patterns and topography.				
		Stabilized water channels, accounting for all flows, including upgradient and downgradient of the mine site, as applicable.				
	Surface Stability	Comparable to area outside the authorized mine ops perimeter.				
		No evidence of atypical gullying, headcutting, slumping and/or deep and excessive rilling.				

[1] Established vegetation is defined as:

1. Adequate vegetation coverage is typically considered sufficient when a self-sustaining, vigorous, diverse, native (or otherwise approved), desirable plant community is established throughout all disturbed areas. BLM will evaluate the vegetation conditions using the Daubenmire Method.
2. Attainment of approximately 70% or more native plant foliar cover. If pre-disturbance conditions indicate that the 70% native plant species foliar cover criterion may be difficult to achieve post-reclamation, the AO has discretion to adjust this percentage.
3. Regrowth percentage is sufficient to control erosion and noxious weed invasion and support re-establishment of wildlife habitat or forage production.
4. A minimum of three growing seasons, with a self-sustaining upward trend in native plant species foliar cover.
5. Absence of non-native invasive plant species above baseline (i.e. non-native invasive species are no greater than the pre-mining conditions or surrounding area).
6. The AO may consider alternative (non-vegetative) wildlife habitat features as a partial substitute for foliar cover.
7. The operator is generally not responsible for achieving full ecological restoration of the site. Instead, they need to achieve the short-term stability, visual, hydrological, and productivity objectives in the Reclamation Plan AND take steps necessary to ensure that long-term objectives will be reached though natural processes.

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Appendix E Part 2

Mine and Reclamation Plan Supplemental Information

MARTIN MARIETTA MINE AND RECLAMATION PLAN SUMMARY				
COC-078119				
1/15/2020				
BLM Required Information	**Martin Marietta Materials, Inc. Information**	**MAP/Figure Provided**	**Enough Info for Analysis**	**Additional Info Needed Prior to Contract authorization**
8. Interim & Final Reclamation				
a. Sequence and timing	The generalized post-mining topography and a three dimensional rendering of general landscape at the end of mining each phase is shown on the mine plans for each phase. The three dimensional renderings also help to demonstrate how visual impacts are minimized by using topographic features. Each mine phase will be substantially completed before the next is started. Reclamation activities will begin in a particular part of a pit area when mining is complete in that part of the pit area, and there is no longer a need to access it (Exhibit A in the EIS). Thus, reclamation will be occurring concurrently with mining, in order to minimize the total disturbed acreage.	X	X	-
b. Final land use & composition; Overall Approach	The Mine Plan provides an overview of reclamation processes. The private land is currently identified as an end land use of water storage. The BLM land would have an end use of natural open land and range land.	-	X	-
c. Removal of structures	All major structures would remain on private land. Other things such as fencing and signs would be removed and disposed of appropriately.	-	X	-
d. Access roads/trails	All new access roads on BLM would be reclaimed.	-	X	-
e. Benches & slopes	Reclamation benches will be approximately 35 feet high, have a bench width of approximately 30 feet, and a face angle of approximately 80 degrees, resulting in an overall approximate 1:1 (horizontal to vertical) reclamation slope. Reclamation of individual benches will be accomplished by regrading and/or backfilling benches to an approximate 1:1 (horizontal to vertical) reclamation slope to generally blend with the surrounding topography. The actual bench geometry selected will be that which provides a minimum static factor of safety of 1.3, based on rock slope stability analysis. Some areas of bare rock will remain as bare rock and reclamation of areas of bare rock will be limited to that practical for minimizing obvious disturbance. Based on conversations with the Colorado Department of Parks and Wildlife staff, we anticipate leaving some parts of some mining benches with near vertical slopes, as they mimic topography that serves as escape habitat for bighorn sheep to avoid predators. Benches will be backfilled as final mining is completed, and fill will be placed using a bulldozer to grade and compact slope fill material. A generalized cross-section showing the reclaimed bench geometry is presented in Appendix D, Figure 4.	X	X	-
f. Grading	Valley Floor: The Mineral Materials Sale Area currently drains to the south and southwest, with the majority of the runoff from the area flowing to Current Creek and Tallahassee Creek through three main drainage areas, as shown in Appendix D, Figure 7, the Parkdale Expansion Topographic Map. Once mining is completed, the topography of the valley floor created in the mining process will generally slope to the southwest and south, as shown in Appendix D, Figure 8, the Parkdale Expansion Proposed Mine Plan. Drainage channels will be excavated into the valley floor that connect to the three existing main drainages outside the Mineral Materials Sales Area. The drainage channels will be laid out so as to continue to generally direct water from the areas currently draining to the main drainage areas. A conceptual layout for the drainage channels is presented in Appendix D, Figure 9. The drainage channels will be constructed for the new hydrology and topography of the site, and will need to be sized for a design storm (typically the 24 hour, 100 year storm). Some side drainages will be constructed to better capture and direct runoff within the Mineral Materials Sale Area.	X	X	Finalized grading and reclamation maps, incorporating drainages, after coordination with CDRMS.

BLM Required Information	Martin Marietta Materials, Inc. Information	MAP/Figure Provided	Enough Info for Analysis	Additional Info Needed Prior to Contract authorization
g. Soil stabilization and revegetation	* Heavily compacted soil surfaces will be ripped to depths varying from 6 to 12 inches, depending upon the degree of compaction prior to the replacement of topsoil. Based on the adjacent Parkdale Quarry, the existing topsoil depth in the Mineral Materials Sale Area generally ranges from 0 inches to 18 inches. Replacement topsoil depths comparable to those prior to mining, or an average of 9 inches evenly placed, will be used. Prior to reseeding of disturbed areas, topsoil will be placed to achieve a generally uniform thickness; minimize compaction and erosion; and preserve biological, physical, and chemical properties. Where practical, soil will be applied so as to minimize grading requirements and compaction from multiple equipment passes over the area being reclaimed. Final grading will generally be completed parallel to the topographic contour of the area, where safety conditions permit, to minimize erosion and maximize site stability. Ideally, soil will be applied on areas to be seeded less than 30 days prior to seeding. * Within five days after the application of fertilizer, but prior to seeding, the topsoil will be prepared for seeding by utilizing a disk, harrow or chisel plow to roughen the surface, depending upon site conditions and availability. The topsoil surface will then be left in a roughened condition to inhibit erosion and provide a receptive surface for subsequent reclamation procedures. * Prior to reseeding of disturbed areas, samples will be collected to ascertain fertilizer application concentration. * Seed mixtures provided (with details on application rates and seed supply sources) specific to stockpiles, roads and quarry floors, and benches. Broadcast method. * Mulching will be conducted immediately following seeding operations, where deemed necessary at the time of application to meet reclamation objectives.	-	X	X
h. Cost estimate (for locatable operations only)	N/A - The reclamation cost estimate will be jointly calculated by CDRMS and BLM.	-	X	-

Table E2 Supporting Figures

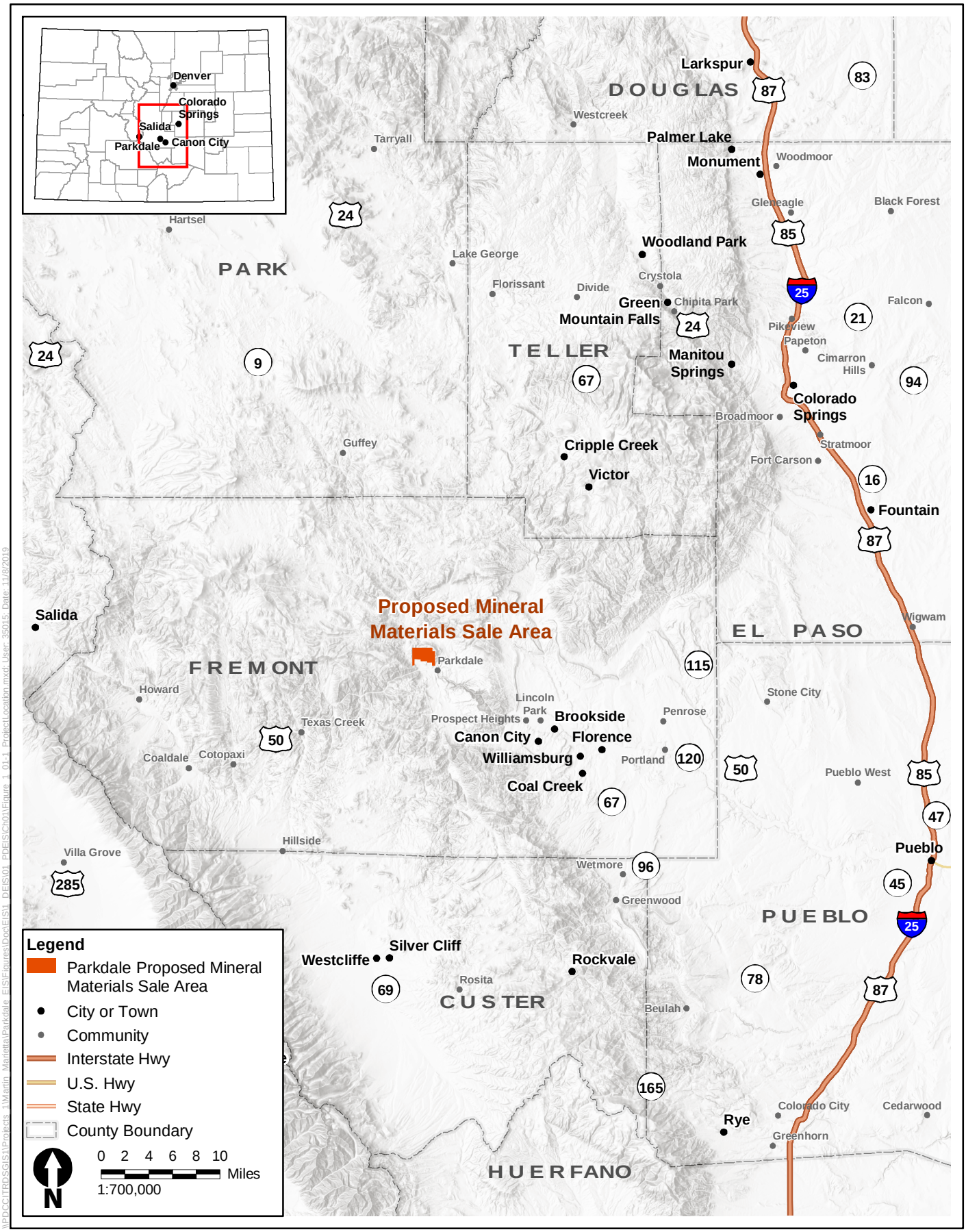


Figure 1.1-1
Proposed Quarry Location

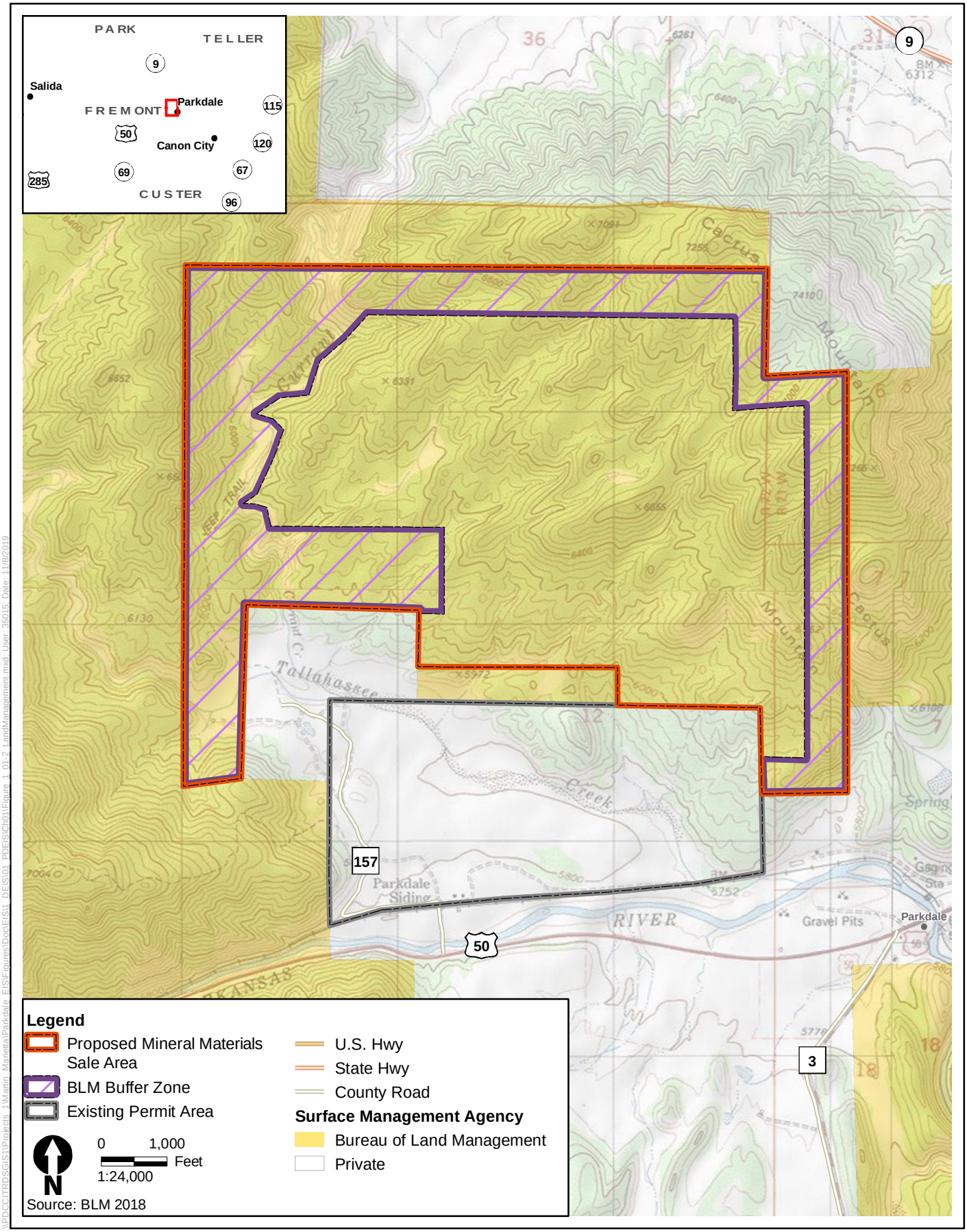
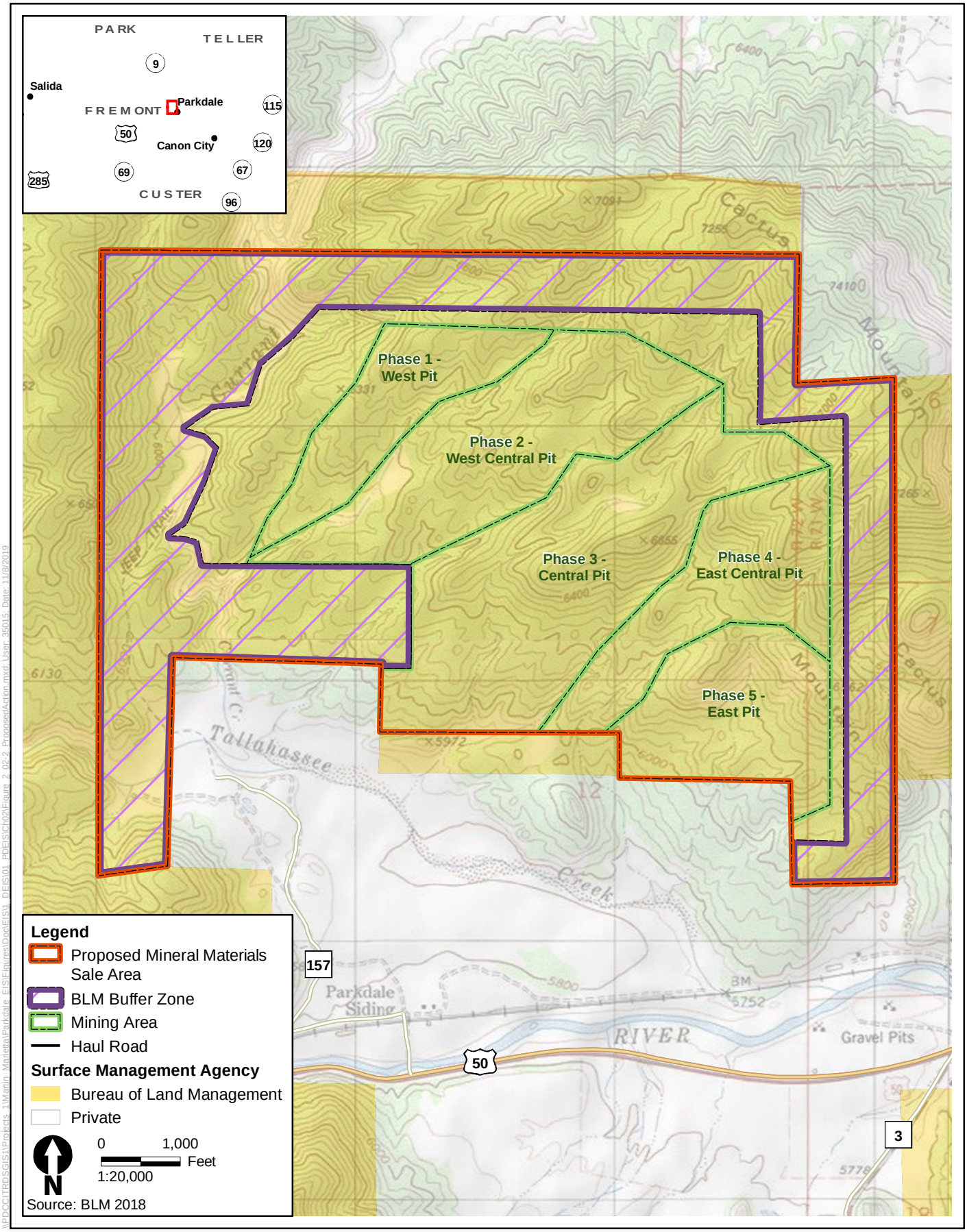
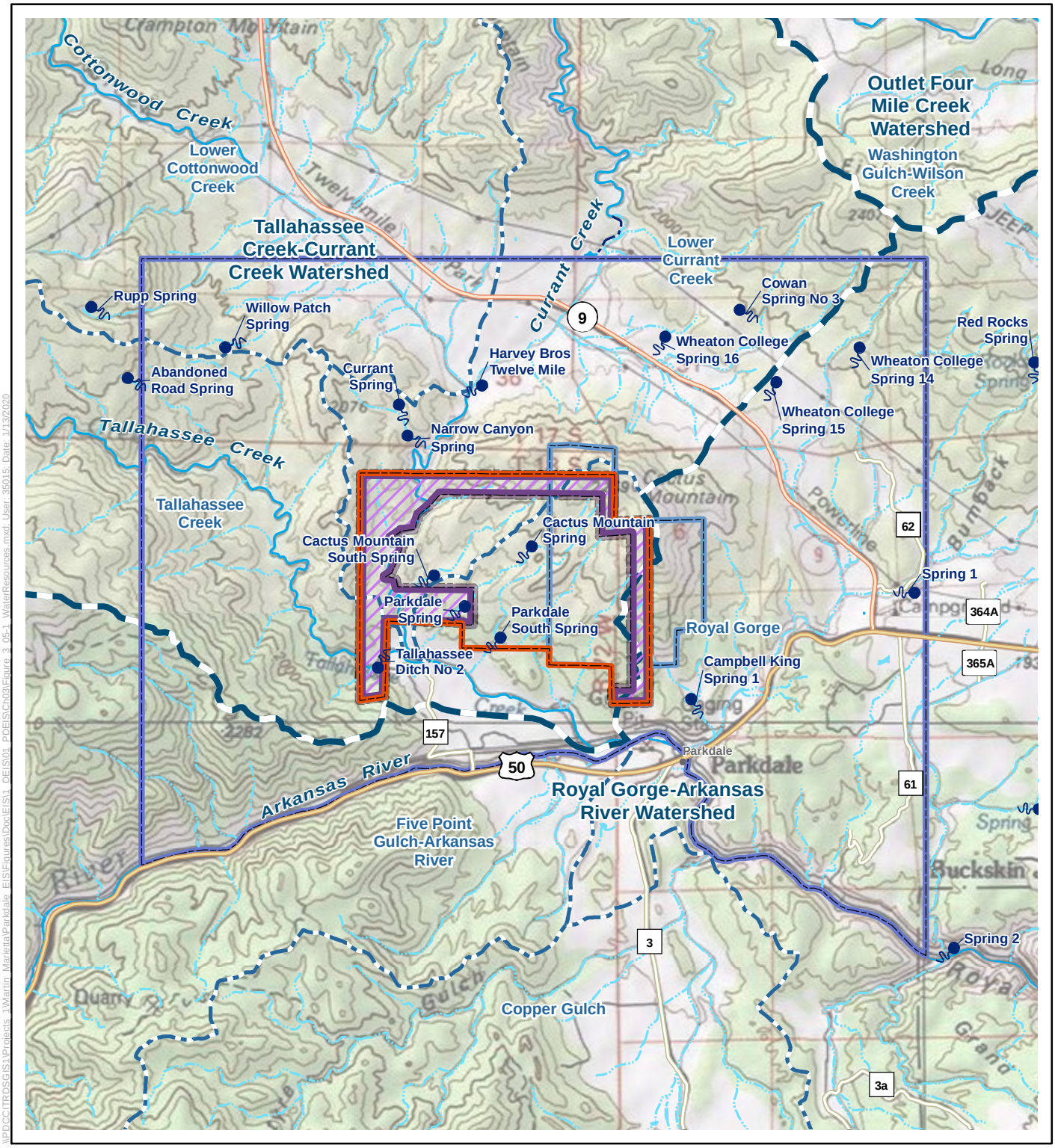


Figure 1.1-2
Land Management Status within the Existing Quarry and Proposed Mineral Materials Sale Area



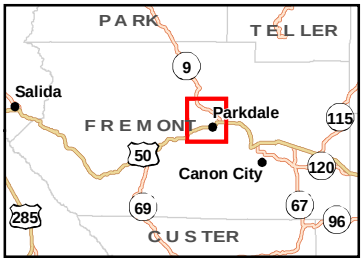
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Figure 2.2-2
Proposed Mineral Materials Sale Area



Proposed Mineral Materials Sale Area
BLM Buffer Zone
Alternate Mineral Materials Sale Area
Water Resources Study Area
Watershed Boundary (HUC 10)
Subwatershed Boundary (HUC12)

Spring
Perennial Stream
Intermittent Stream
Canal/Ditch
Intermittent Lake/Pond
Perennial Lake/Pond



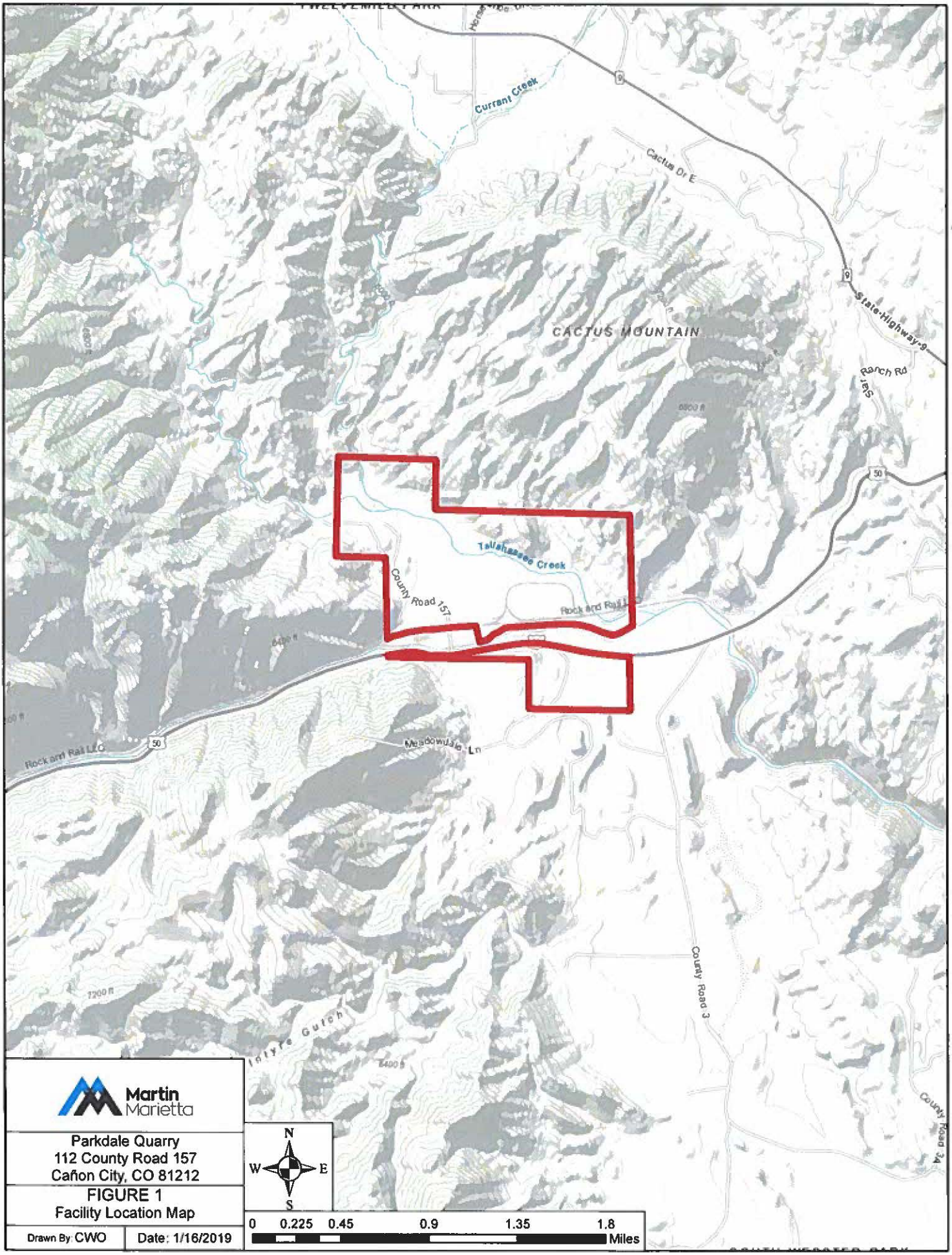
Source: NHD 2011, BLM 2019.

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Figure 3.5-1
Water Resources Analysis Area for Direct and Indirect Effects

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Currant Creek
Cactus Dr E
CACTUS MOUNTAIN
State Highway 9
Ranch Rd
Tallahassee Creek
County Road 157
Rock and Rail LLC
Meadowlark Ln
County Road 3
Indyre Gulch
County Road 34
Martin Marietta
Parkdale Quarry
112 County Road 157
Cañon City, CO 81212
FIGURE 1
Facility Location Map
Drawn By: CWO
Date: 1/16/2019
N
W
E
S
0 0.225 0.45 0.9 1.35 1.8
Miles

OUTFALL 002
OUTFALL 001
SILT POND
BONEYARD
DEWATERING PUMP
OLD HOMESTEAD
PIT
TURBINE PUMP
DEWATERING PUMP
PORTABLE TOILET
HAUL ROAD
STORAGE TRAILERS
PORTABLE TOILET
BONEYARD
UNUSED SHED
SHOP
STORAGE SHED
2 OFFICES
PORTABLE TOILET
GATE
SCALE
PARKING
DUMPSTER
EMPTY DRUM STORAGE
QC TRAILER
HAUL ROAD
DUMPSTER
STOCKPILES
HAUL ROAD
CRUSH PLANT
750 KVA
WET PLANT
900 KVA
SURGE PILE
WATER TANK
WATER TANK & STORAGE TRAILER
PORTABLE TOILET
HAUL ROAD
PIT
QUARRY
HAUL ROAD
READY LINE / PARKING
HAUL ROAD
BRIDGE
OUTFALL 004
OUTFALL 005
200 GAL GASOLINE TANK
DUMPSTER
200 GAL GASOLINE TANK
STORAGE CONTAINER
PORTABLE TOILET
WATER TREE
OUTFALL 003
150 GAL DIESEL TANK
DEWATERING PUMP
RAIL LOOP
ROAD
500 GAL GASOLINE TANK
10,000 DIESEL TANK
2,000 GAL USED OIL & 4 - 55 GAL DRUM STORAGE
500 GAL MOTOR OIL & 500 GAL HYDRAULIC OIL
FLAMMABLE CABINET
FLAMMABLE CABINET
SPILL KIT
~20 - 55 GAL DRUM STORAGE
SPILL KIT
OXYGEN & PROPANE STORAGE

LEGEND

- TANK
- TRANSFORMER
- OUTLET
- SURFACE WATER FLOW DIRECTION

200' 0 200' 400'

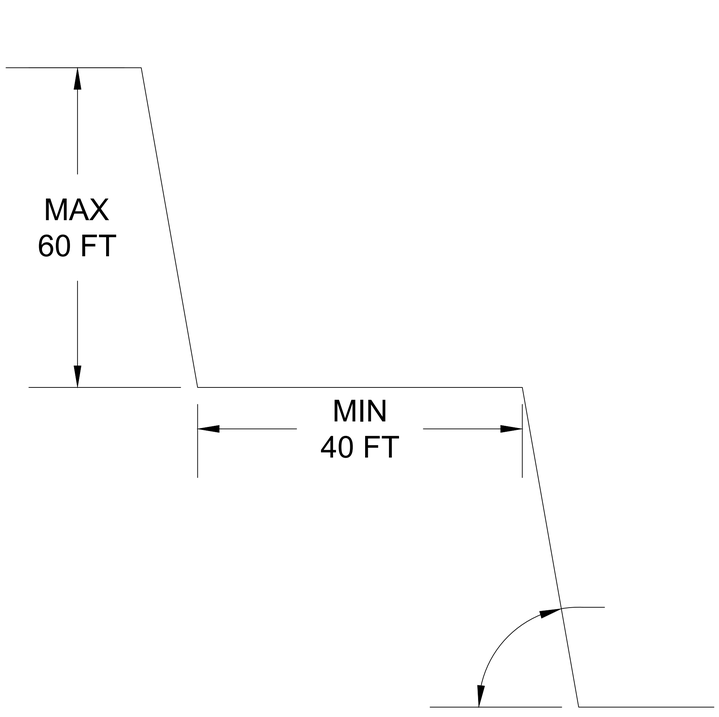
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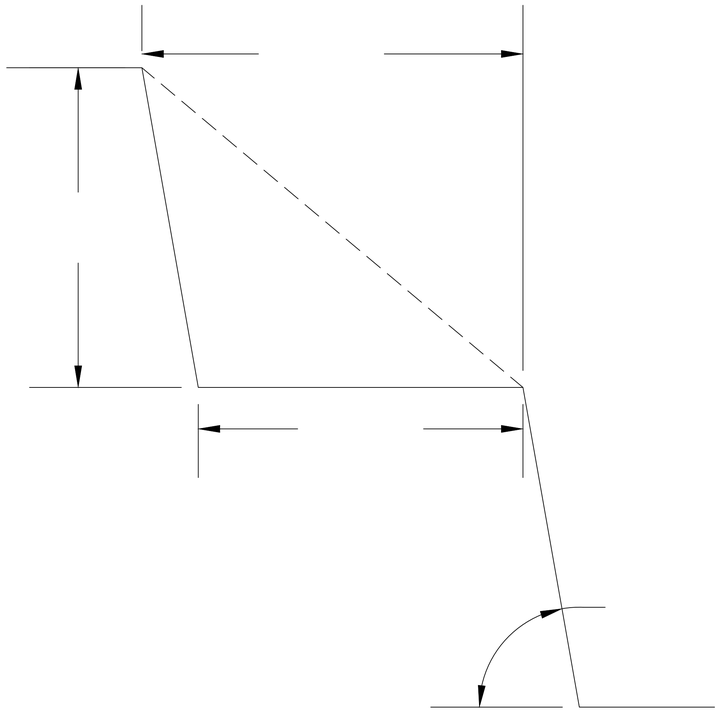
Martin Marietta

PARKDALE QUARRY
112 Country Road 157
Cañon City, Colorado 81212

DESIGNED BY: ---
DRAWN BY: C.W.O
DATE: 01/22/2019

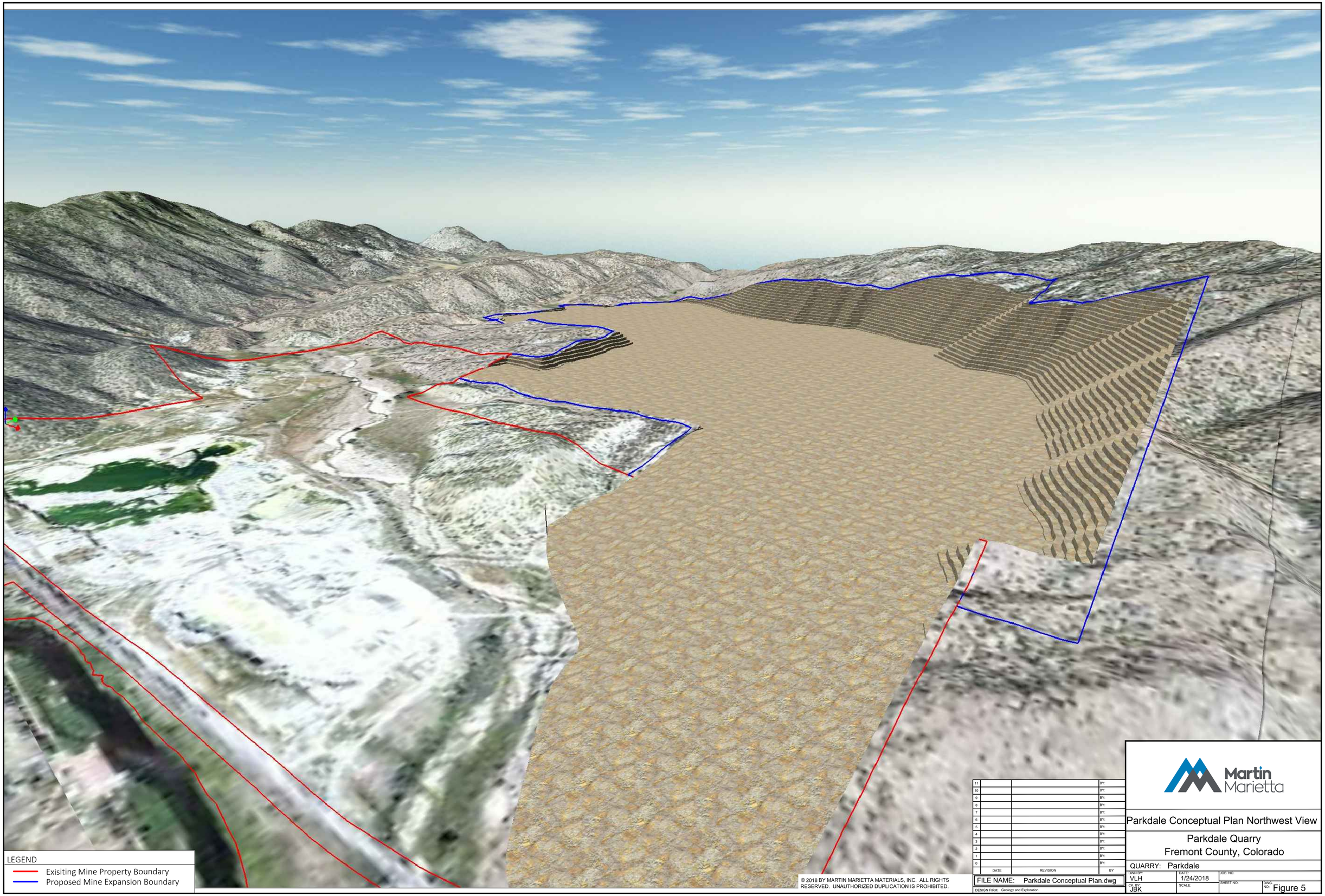
FIGURE 2
FACILITY MAP





*NOT TO SCALE

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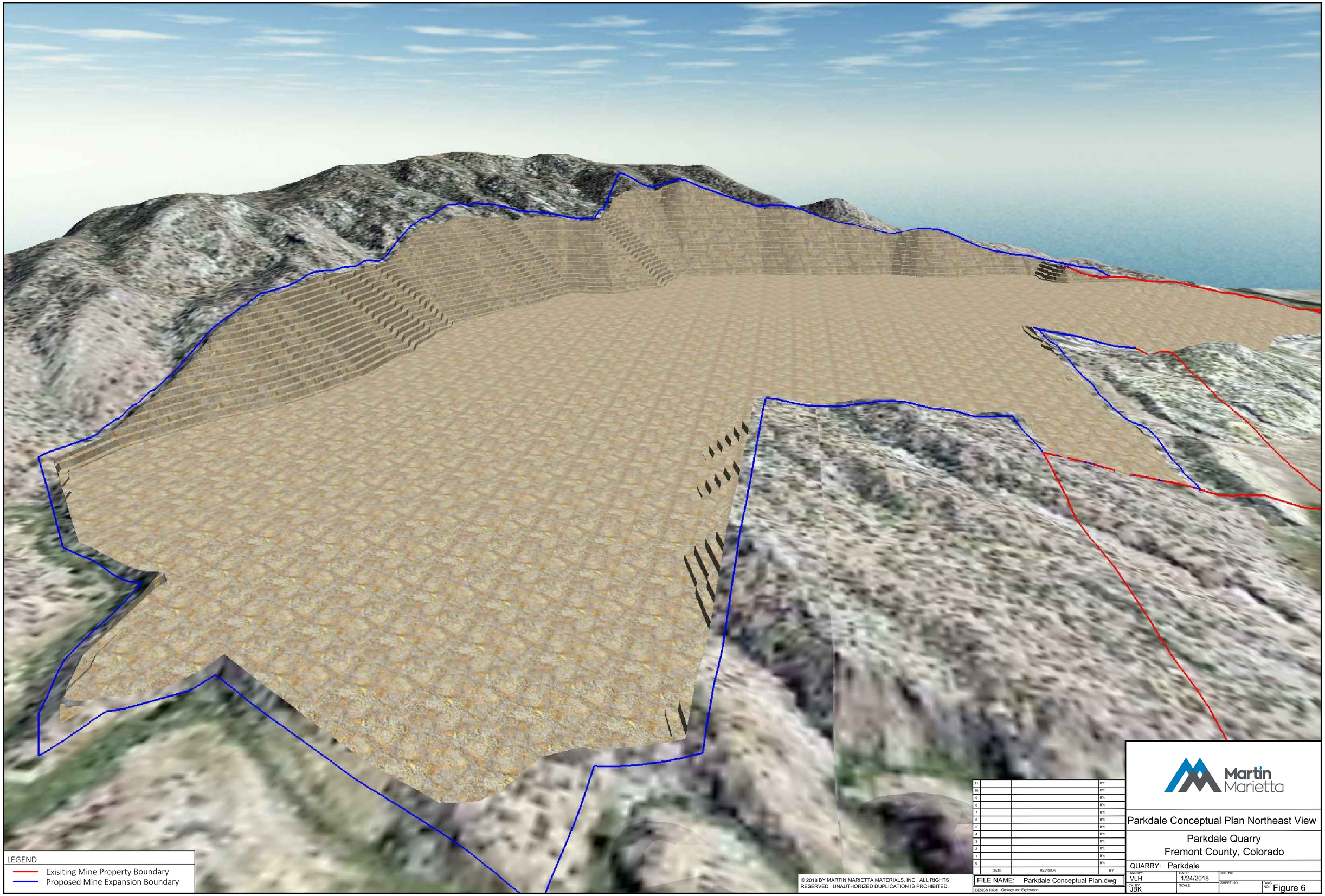
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Parkdale Conceptual Plan Northwest View

Parkdale Quarry
Fremont County, Colorado

QUARRY: Parkdale

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VLH	1/24/2018		
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JBK			



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Parkdale Conceptual Plan Northeast View

Parkdale Quarry
Fremont County, Colorado

QUARRY: Parkdale

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JBK		DWG. NO.: Figure 6

NORTH

Currant Creek

Tallahassee Creek

Tallahassee Creek

Arkansas River

Arkansas River

Legend

- Existing Mine Property Boundary
- Proposed Mine Expansion Boundary
- Surface Water or Drainage Feature
- Topographic Contour (USGS, 20 foot interval)

SCALE

0 500' 1000' 1500'

Martin Marietta

Parkdale Topograpic Map

Parkdale Quarry
Fremont County, Colorado

QUARRY: Parkdale

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JBK	1"=500'		Figure 7

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FILE NAME: Parkdale Expansion Map.dwg

DESIGN FIRM: Geology and Exploration

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Limit of disturbance offset 50' from expansion boundary

Tallahassee Creek

Currant Creek

Tallahassee Creek

Arkansas River

NORTH

Legend

- Resource Area
- Limit of Disturbance
- Bench Contour (35'-tall benches, 1:1 slope)
- Pit Floor Contour (20' interval)
- Surface Water or Drainage Feature
- Proposed Mine Expansion Boundary
- Existing Mine Permit Boundary
- Topographic Contour (USGS, 20' interval)

SCALE

0 500' 1000' 1500'

Martin Marietta

Parkdale Expansion Mine Plan

Parkdale Quarry
Fremont County, Colorado

QUARRY: Parkdale

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JBK	1"=500'		Figure 8

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FILE NAME: Parkdale Expansion Map.dwg

DESIGN FIRM: Geology and Exploration

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NORTH

Legend

40' Contours

Proposed Drainage Channel

SCALE

0 300' 600' 900'

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Conceptual Drainage Channel Layout

Parkdale Quarry
Fremont County, Colorado

QUARRY: Parkdale

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DWB	1"=300'		Figure 9

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FILE NAME: Parkdale Expansion Map 12-03-2018.dwg

DESIGN FIRM: Rocky Mountain Division

Note: Drainage Locations are Approximate,
Final Location will be Determined as Areas are Reclaimed.

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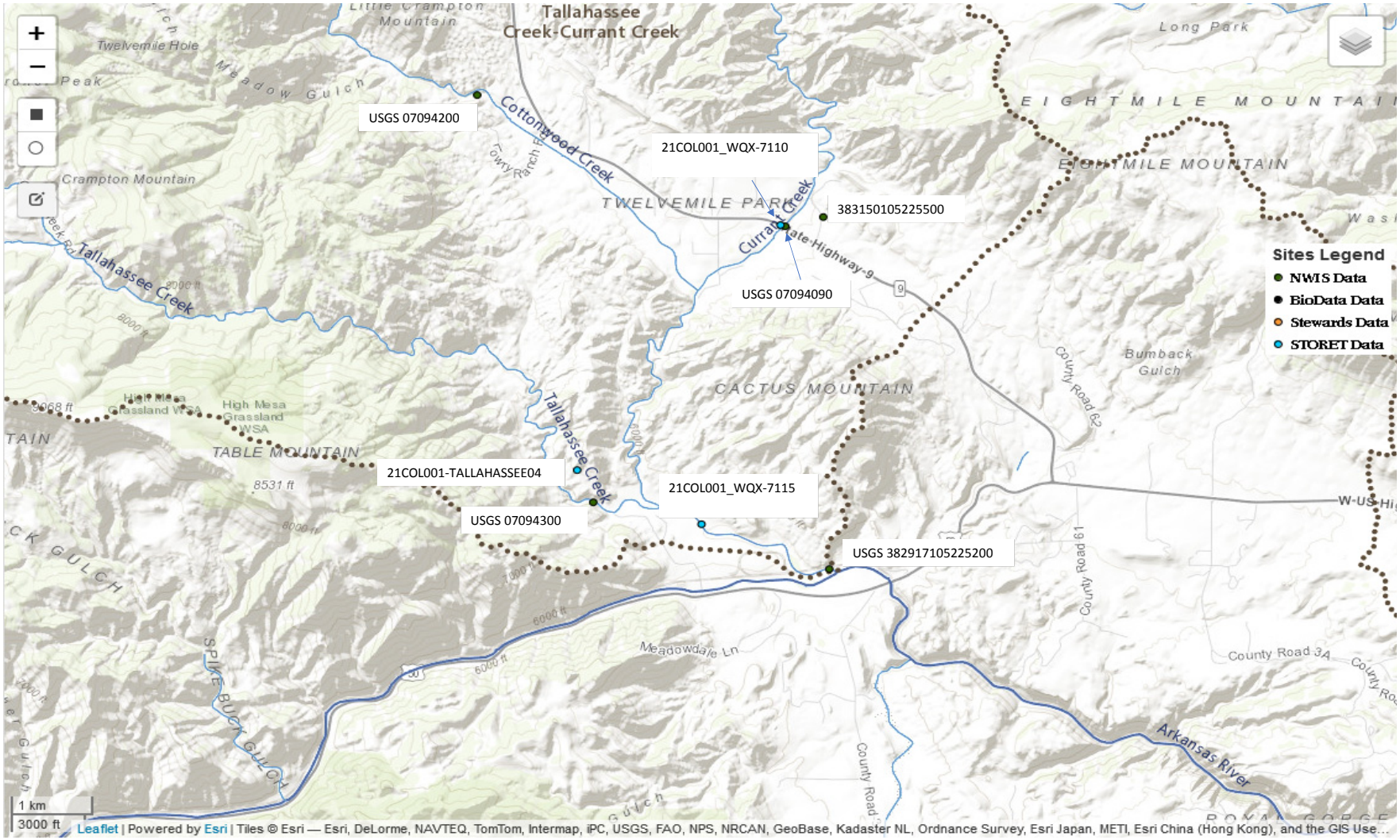
Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix F

Supporting Water Resources Information

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Station Locations



Whetstone Associates

Technical Memorandum

To:	Scott Duncan (ICF)	**4189A**
From:	Susan Wyman, P.E., P.G. (Whetstone Associates)	
Date:	January 15, 2020	
Subject:	Runoff Modeling, Parkdale Quarry Project	

Potential impacts to surface water flow rates in Currant Creek and Tallahassee Creek resulting from proposed mining at the Parkdale Quarry Project were evaluated using the Natural Resources Conservation Service (NRCS) TR-55 method and HydroCAD® modeling software. The models estimate the surface water runoff from the proposed quarry expansion area (Sale Area) under existing conditions, which are then compared to the potential runoff after mining and reclamation.

1. SITE DESCRIPTION

1.1 Surface Water Flow

The Sale Area is located on the flank of Cactus Mountain and drains southwest toward Currant Creek and Tallahassee Creek. All drainages within the proposed pit disturbance are intermittent or ephemeral and flow for limited periods during most years in response to direct precipitation and snowmelt.

The proposed mining operation would remove vegetation and overburden soils to expose the granite deposit. Granite would be blasted, excavated, and hauled to an existing onsite processing facility. Final reclamation of the Sale Area would create a landscape that substantially mimics the landscape in Webster Park, south of and bordering the Sale Area. After mining is complete, the topography of the quarry would generally slope in the same direction and drainage channels would be excavated into the quarry floor to maintain the current general patterns of runoff. The drainage channels would be constructed with a channel profile and sinuosity similar to that of natural drainages in Webster Park that feed into the south side of the Arkansas River.

1.2 Precipitation

Lower areas of the watershed receive about 13 inches of annual precipitation and higher elevation areas receive about 19 inches, with most of the rainfall events occurring in July and August. The average precipitation at the site is about 17 inches annually (BLM 2017) with recharge to groundwater being estimated to be about 0.16 inches per year (ERM 2019).

The precipitation frequency (magnitude and recurrence interval) of storms for the site are shown in Table 1. The rainfall intensity for 24-hour storms with 2-year to 100-year recurrence intervals were interpolated from the online NOAA Atlas 14, Vol. 8, version 2 (NOAA 2020, **Error! Reference source not found.**), for the purpose of runoff calculations.

Table 1. Design Storm Parameters

Recurrence Interval	Duration (Hours)	Storm Magnitude NOAA Atlas (inches)
100-year	24	4.35
50-year	24	3.73
25-year	24	3.17
10-year	24	2.52
5-year	24	2.12
2-year	24	1.69

Rainfall is assumed to follow the 24-hr Type II rainfall-time distribution curve which is applicable to this area of the United States (USDC, 1973).

1.3 Hydrologic Characteristics of Local Soils

The dominant soils in the Sales Area are Ustic Torriorthents, which are shown as soil type 120 in Figure 1. Additionally, the southern third of the drainages are mapped as the Roygorge very gravelly sandy clay loam, shown as soil type 98 in Figure 1 and Table 2. Soils in the lower reaches of the drainages, just north of Tallahassee Creek, are mapped as Shanta loam (104), Kim loam (50), Louviers-Travessilla complex (64), Otero fine sandy loam (81), and Riverwash (92) (**Error! Reference source not found.**).

The Ustic Torriorthents and Roygorge gravelly sandy clay loam occupy the majority of the area and are mapped as Hydrologic Soil Group D. Much smaller areas are mapped as Hydrologic Group A and Group B. These soil groups are defined by the NRCS (2007) as:

> ***Group A.*** *Soils having a low runoff potential (high infiltration rate) when thoroughly wet. Water is transmitted freely through the soil.*
>
> ***Group B.*** *Soils having a moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand and have loamy sand or sandy loam textures.*
>
> ***Group C.*** *Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.*
>
> ***Group D.*** *Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. Water movement through the soil is restricted or very restricted. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.*

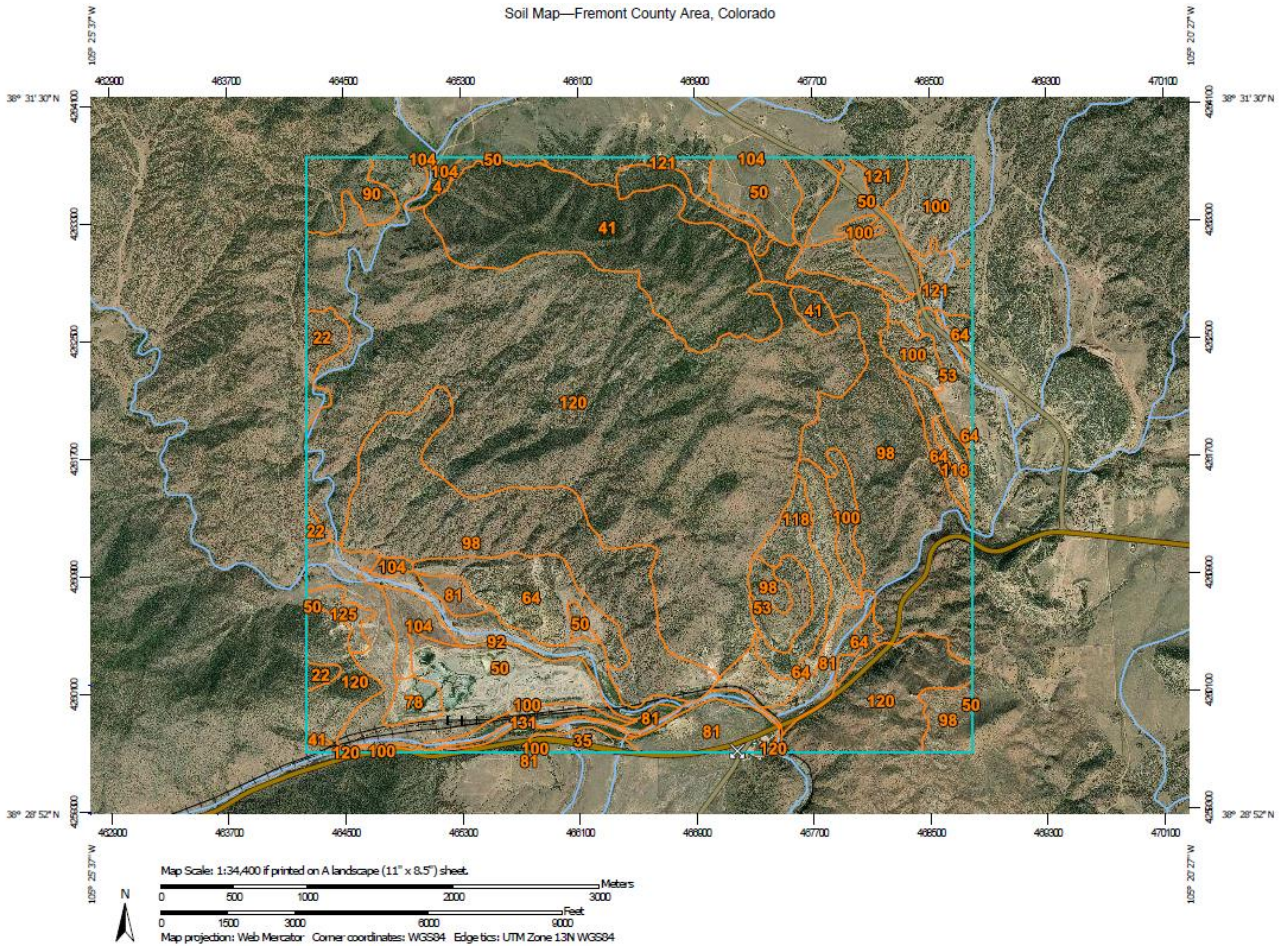


Figure 1. Soil Map

Table 2. Soils Types in Vicinity of the Sales Area

Map Unit Symbol	Map Unit Name	Acres in AOI	Hydrologic Group
50	Kim loam, cool, 3 to 8 percent slopes	377.8	B
64	Louviers-Travessilla complex, 20 to 50 percent slopes	252.2	D
81	Otero fine sandy loam, 3 to 8 percent slopes	132.2	A
92	Riverwash	71.9	n/a
98	Roygorge very gravelly sandy clay loam, 25 to 50 percent slopes	849.9	D
104	Shanta loam, 0 to 3 percent slopes	45.4	B
120	Ustic Torriorthents, bouldery-Rock outcrop complex, 35 to 90 percent slopes	1,712.70	D

The runoff curve numbers for the model were selected based on soil type, land use, and vegetative cover. A curve number of 75 was applied for pinyon-juniper with grass understory, in fair to good condition (30-70% vegetative cover) and group D soils (Table 3). A curve number of 89 was applied to areas revegetated with an herbaceous mixture of grasses, weeds, and low-lying brush in fair condition. Site curve numbers are summarized in Table 4.

Table 3. Runoff Curve Numbers for Arid and Semi-Arid Rangelands

(Table 2-2d of TR-55 [NRCS, 1986])

Cover Description (1)		**Curve Numbers for Hydrologic Soil Group**			
Cover Type	**Hydrologic Condition (2)**	**A**	**B**	**C**	**D**
Herbaceous-mixture of grass, weeds, and low-growing brush, with brush the minor element	Poor		80	87	93
	Fair		71	81	**89**
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory	Poor		75	85	89
	Fair		58	73	**80**
	Good		41	61	**71**
Sagebrush with grass understory	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosote bush, blackbrush, bursage, palo verde, mesquite, and cactus	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84
Gravel Road (3)		76	85	89	91

Notes:

(1) Based on average runoff condition, and Ia, = 0.2S.

(2) Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.

(3) Source for gravel road CN is Table 2-2a of TR-55 (NRCS 1986)

Table 4. Runoff Curve Numbers for Parkdale Quarry Sales Area

Description	**CN**
Pinyon-juniper, grass understory, fair to good condition, Group D soils	75
Herbaceous mixture of grasses, weeds, low-lying brush, fair condition (revegetated)	89

1.4 Approach for Evaluation of Surface Water Impacts

Pre-mining and post-mining runoff rates were computed to evaluate the relative changes in surface water flow resulting from mining disturbance (changes in slope, stream lengths, and vegetation). Four drainages were simulated in the pre-mining condition (Figure 2). In keeping with scope of the analysis, the pre-mining drainage areas were limited to the area from the southern confluence of the intermittent

or ephemeral stream channels with Currant Creek or Tallahassee Creek to the northern boundary of proposed disturbance.

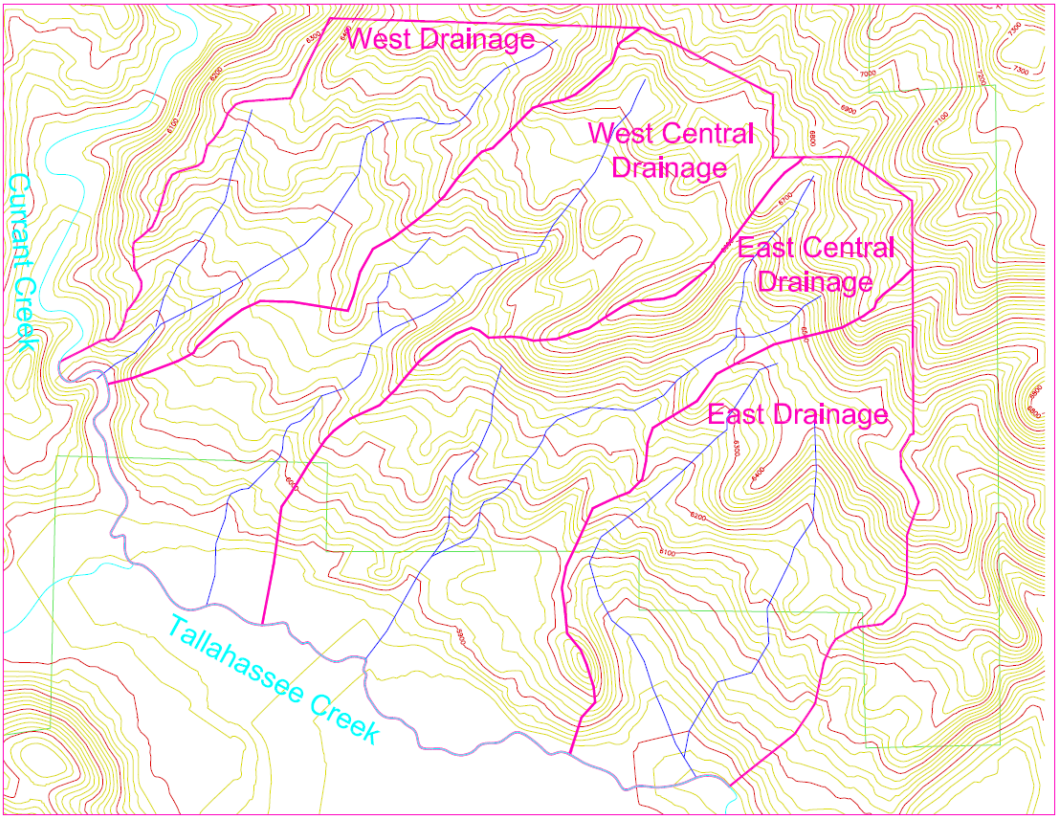


Figure 2. Pre-Mining Watersheds Evaluated

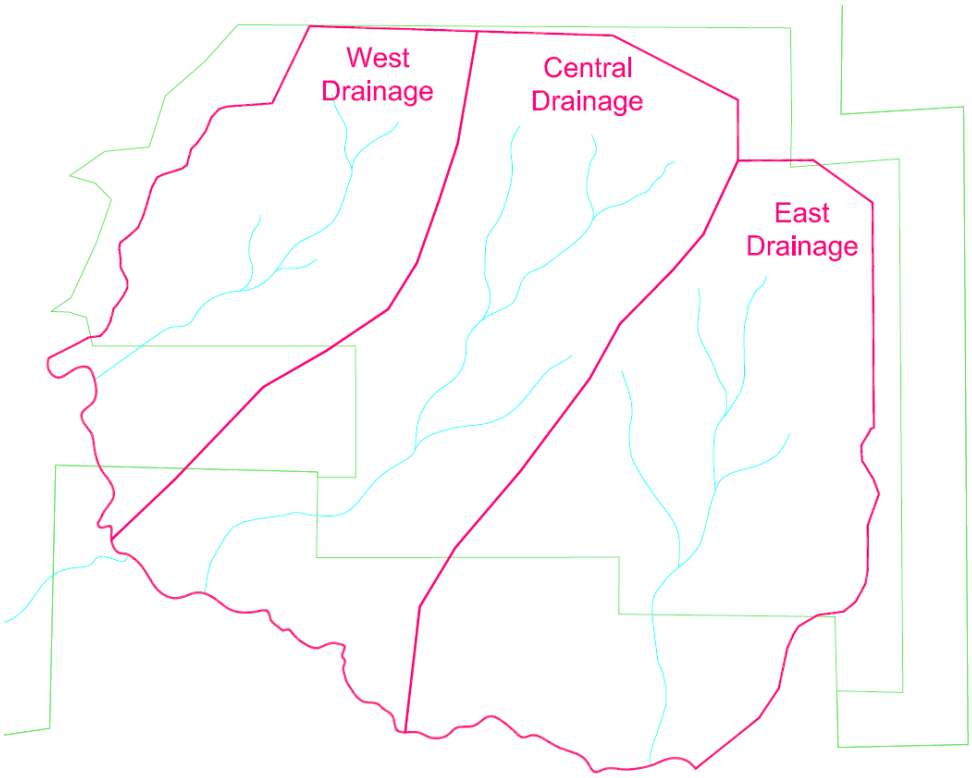


Figure 3. Post-Mining Watersheds Evaluated

2. RUNOFF MODELING

2.1 Runoff Estimation Methodology

Watershed runoff was estimated using the methods described in Technical Release 55 (TR-55), which was developed by the U. S. Department of Agriculture Natural Resources Conservation Service (NRCS, 1986). TR-55 presents simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs in small watersheds.

Runoff depth (q_d) is calculated in TR-55 by the Curve Number (CN) method, using the following equation:

$$q_d = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

where: q_d = Runoff depth, inches ($q_d = 0$, if $P < 0.2S$),
P = Rainfall depth, inches
S = Potential maximum rainfall retention after runoff begins, inches

This method assumes initial abstraction (losses before runoff begins due to retention in surface depressions, interception by vegetation, evaporation, infiltration etc.) is equal to 0.2S.

The parameter S is related to curve number (CN) by:

$$S = \frac{1000}{CN} - 10$$

Site-specific curve numbers are discussed in Section 1.3.

Runoff volume (Q) is obtained from : $Q = q_d / 12 \cdot A \cdot 43{,}560$

where: Q = Runoff volume, cubic feet
q_d = Runoff depth, inches
A = Catchment area, acres

Peak discharge is calculated using Time of Concentration (T_c) which is the time it takes for runoff to travel from the most hydraulically distant point in the watershed (or sub-basin) to a point of interest. T_c is the sum of travel time for sheet flow (T_{sh}) plus the travel time for shallow concentrated overland flow (T_{sc}) plus the travel time for channel flow (T_{ch}).

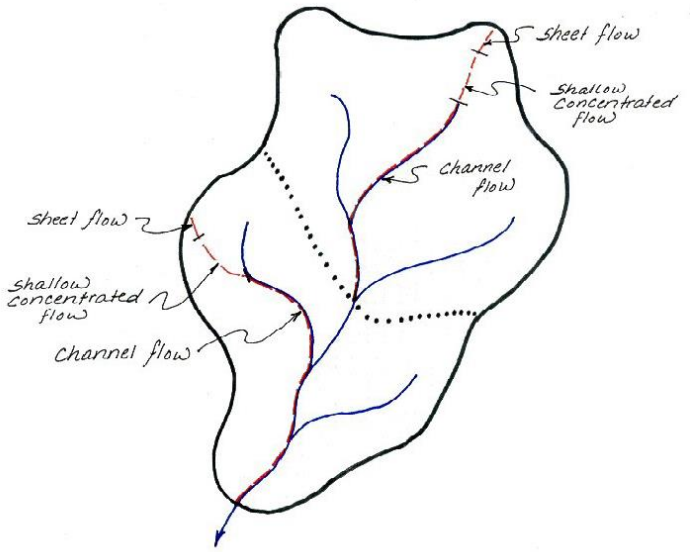


Figure 4. Location of Sheet Flow, Shallow Concentrated Flow, and Channel Flow within a Basin

Sheet flow occurs over plane surfaces in the "headwaters" or uppermost reaches of the watershed, as shown in Figure 4 above. For the pre-mining condition at the Parkdale Quarry Sales Area, sheet flow is assumed to occur in the upper 80 feet of the sub-basin. Sheet flow travel time is calculated using the simplified form of Manning's kinematic solution from Overton and Meadows (1976) which is Equation 3.3 of TR55 (NRCS, 1986):

$$T_{sh} = \frac{0.007\ (nL)^{0.8}}{P^{0.5} s^{0.4}}$$

where:

T_{sh} = sheet flow travel time (hr)
n = Manning's roughness coefficient for surface flow
L = flow length (ft)
P = 24-hour rainfall (in)
s = land slope (ft/ft)

Shallow concentrated flow has been assumed to occur from the end of sheet flow until the flow path reaches an incised intermittent stream channel. The travel time for shallow concentrated flow is calculated as:

$$T_{sc} = \frac{L}{3600 \cdot V}$$

where:

T_{sc} = shallow concentrated flow travel time (hr)
L = flow length (ft)
3600= conversion factor for seconds to hours
V = velocity on unpaved surface, interpolated from Figure 3-1 of TR-55 for land slope (ft/s) or calculated using Manning's equation:

$$V = \frac{1.49\, r^{2/3} s^{1/2}}{n}$$

where:

r = hydraulic radius = depth of flow = 0.4 ft
s = slope of the hydraulic grade line (land surface) (ft/ft)
n = Manning's n (roughness coefficient) for open channel flow = 0.05

Simplifying for unpaved conditions:

V = $16.13\ s^{1/2}$

Channelized flow occurs in defined channels or intermittent drainages. The travel time for channelized flow is calculated using Manning's equation for channelized flow and the channel-specific geometry and hydraulic characteristics (rather than the simplifying assumptions used for shallow concentrated flow).

Shallow concentrated flow has been assumed to occur from the end of sheet flow until the flow path reaches a topographically well-defined channel. The travel time for shallow concentrated flow is calculated as:

$$T_{ch} = \frac{L}{3600 \cdot V}$$

where:

T_{ch} = channel flow travel time (hr)
L = flow length (ft)

3600= conversion factor for seconds to hours
V = velocity (ft/sec) calculated using Manning's equation for channelized flow:

$$V = \frac{1.49\, r^{2/3} s^{1/2}}{n}$$

where:

r = hydraulic radius = cross sectional area / wetted perimeter (A/Pw) (ft)
s = slope of the hydraulic grade line (channel bottom) (ft/ft)
n = Manning's n (roughness coefficient) for open channel flow (as discussed in Section 2.3.2 and Table 5)

The T_c values calculated using WinTR-55 and HydroCAD are provided in Section 2.3.3.

Runoff peak discharge is calculated from the TR-55 graphical peak discharge method. This approach graphically generates a unit peak discharge rate (Q_u) based upon the general catchment parameters of curve number (CN), initial abstraction (I_a), precipitation (P) and rainfall distribution type (type II for Colorado) and the individual catchment time of concentration (T_c). The input variables used in determining Q_u using the graphical method were determined as follows:

CN = curve number based soil type, as discussed in Section 1.3 and Table 4
I_a = initial abstraction, lookup value in Table 4-1 of TR-55 based on CN
P = Precipitation, based on design storms listed in Table 1 of this tech memo
T_c = Time of concentration, calculated as discussed above

Peak discharge (Q_p) for the catchment area is then calculated from:

$$Q_p = Q_u \cdot A_m \cdot q \cdot F_p$$

where: Q_p = Sub-basin peak discharge (cubic feet per second [cfs])
Q_u = Sub-basin unit peak discharge (cfs/mi^2/in [csm/in])
A_m = Sub-basin area (square miles)
q = Runoff (inches)
F_p = Pond and swamp adjustment factor

2.2 Computational Methods

2.2.1 NRCS WinTR-55

Peak discharge was computed using the NRCS WinTR-55 software (NRCS, 2009). WinTR-55 is a single-event rainfall-runoff, small watershed hydrologic model. The model generates hydrographs from urban, agricultural, and rural areas and at selected points along the stream system. Runoff hydrographs were generated by the model and routed downstream through channels. Multiple sub-areas were modeled within the watershed and routed to the applicable outfalls on Currant Creek and Tallahassee Creek. Although the computational methods employed in WinTR-55 are similar to the worksheet calculations in TR-55 (NRCS, 1986), WinTR-55 uses the TR-20 software engine for more accurate analysis of the hydrology of small watershed systems.

2.2.2 HydroCAD

Peak discharge for sub-basins reporting to the Stormwater Retention Pond was also computed using the HydroCAD-10 software, distributed by HydroCAD Software Solutions, LLC. HydroCAD® uses the procedures described in TR-55 and TR-20 with added features for multiple pond routing, variable pond geometry, pond pumping, exfiltration, baseflow and inflow losses (that is, inflow to and exfiltration from reaches), and an increased number of "nodes" (reaches, sub-basin, and ponds) over the limited number available in WinTR-55. The runoff results computed by HydroCAD are essentially identical to those from the NRCS WinTR-55 software, but additional graphing capability, volumetric calculations, and reporting are available in HydroCAD.

2.3 Model Input

2.3.1 Watershed Delineation

The model area was delineated into four catchments for the pre-mining simulation (Figure 2, Figure 5). These watersheds extended from the confluence with Currant Creek or Tallahassee Creek to the northern boundary of proposed disturbance, and totaled 1,040 acres. For the post-mining simulation, the total watershed area was kept constant with the pre-mining simulation (1,040 acres), but was subdivided into three catchments reflecting the proposed constructed stream channels in the mine reclamation plan (Figure 3, Figure 6).

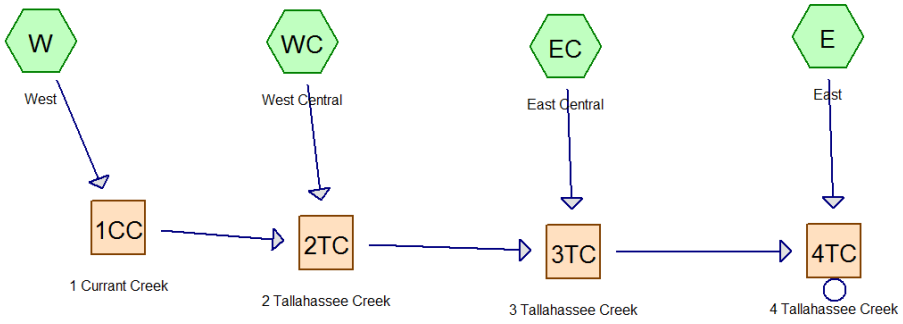


Figure 5. HydroCAD Node Routing, Pre-Mining

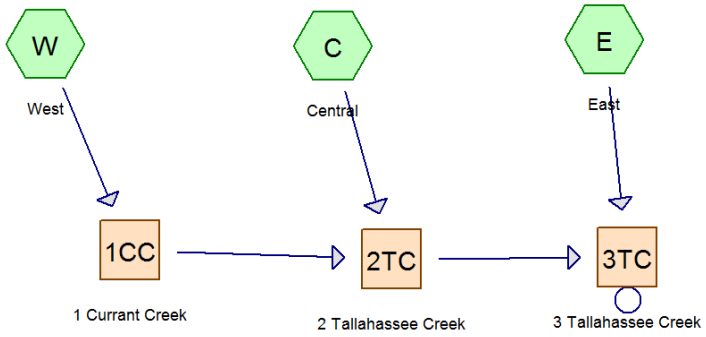


Figure 6. HydroCAD Node Routing, Post-Mining

2.3.2 Manning's n

The value of Manning's n selected for each channel affects channel velocity, conveyance capacity, and peak flows. The most important factors that affect the selection of channel n values are:

1. Type and size of the materials that compose the bed and banks of the channel; and
2. Shape of the channel.

Cowan (1956) developed a procedure for estimating the effects of these factors to determine the value of n for a channel. The value of n may be computed by:

$$n = (n_b + n_1 + n_2 + n_3 + n_4) \cdot m$$

where :

n_b = a base value of n for a straight, uniform, smooth channel in natural materials
n_1 = a correction factor for the effect of surface irregularities
n_2 = a value for variations in shape and size of the channel cross section,
n_3 = a value for obstructions
n_4 = a value for vegetation and flow conditions
m= a correction factor for meandering of the channel

Table 5. Manning's "n" Values Used in Cowan's Method for Channel Roughness

Channel Condition	n Values	Natural Channels	Borrow Ditches	Engineered Channels	Short Natural Channels
Material Involved	n_b				
Earth	0.02				0.02
Rock cut	0.025	0.022	0.022	0.022	
Fine gravel	0.024				
Coarse gravel	0.028				
Degree of Irregularity	n_1				
Smooth	0				
Minor	0.005			0.005	
Moderate	0.01	0.01	0.01		0.01
Severe	0.02				
Variations of Channel Cross Section	n_2				
Gradual	0				
Alternating occasionally	0.005		0.005	0.005	0.005
Alternating frequently	0.010-0.015	0.01			
Relative Effect of Obstructions	n_3				
Negligible	0				
Minor	0.010-0.015		0.01	0.01	0.01
Appreciable	0.020-0.030	0.02			
Severe	0.040-0.060				
Vegetation	n_4				
Low	0.005-0.010	0.005	0.005	0.005	0.005
Medium	0.010-0.025				
High	0.025-0.050				
Very high	0.050-0.100				
Degree of Meandering	m				
Minor	1	1	1	1	1
Appreciable	1.15				
Severe	1.3				
Calculated Manning's n value		0.067	0.052	0.047	0.05

A Manning's n value of 0.067 was used for natural channels in the pre-mining simulation and for reconstructed channels in the post-mining simulation. These values affect the Time of Concentration (Section 2.3.3) and therefore the timing of peak flows, but do not affect the total volumetric runoff predicted by the model.

2.3.3 Time of Concentration

As described in Section 2.1, Time of Concentration (T_c) is the time it takes for runoff to travel from the most hydraulically distant point in the watershed to the discharge outlet (or other point of interest). Tc values computed for the modeled basins are shown in Table 6 and Table 7.

The area-weighted average Tc (Table 8) was 24% higher in the post-mining scenario, due the lower slopes and longer channel lengths in the reconstructed channels. The higher Tc helps to delay the arrival of peak flows from the watershed into the creek.

Table 6. Watershed Channel Length, Slope, and Time of Concentration (Pre-Mining)

Sub-Basin West (Pre-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	80	0.4878	0.48		**Sheet Flow, Sheet Flow**
					Range n= 0.130 P2= 1.69"
0.6	375	0.3733	9.84		**Shallow Concentrated Flow, Concentrated**
					Unpaved Kv= 16.1 fps
32.7	5,880	0.0722	3.00	4.50	**Channel Flow, Intermittent Channel West**
					Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.067
36.1	6,335	Total			

Sub-Basin West Central (Pre-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	80	0.4167	0.45		**Sheet Flow, Sheet Flow**
					Range n= 0.130 P2= 1.69"
0.5	300	0.4667	11.00		**Shallow Concentrated Flow, Concentrated Flow**
					Unpaved Kv= 16.1 fps
32.4	7,117	0.1075	3.66	5.49	**Channel Flow, Channel West Central**
					Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.067
35.9	7,497	Total			

Sub-Basin East Central (Pre-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	80	0.3750	0.43		**Sheet Flow, Sheet Flow**
					Range n= 0.130 P2= 1.69"
0.5	325	0.4923	11.30		**Shallow Concentrated Flow, Concentrated Flow**
					Unpaved Kv= 16.1 fps
28.6	6,890	0.1292	4.01	6.02	**Channel Flow, Channel Flow**
					Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.067
32.2	7,295	Total			

Sub-Basin East (Pre-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	80	0.5634	0.50		**Sheet Flow, Sheet Flow**
					Range n= 0.130 P2= 1.69"
1.2	730	0.4110	10.32		**Shallow Concentrated Flow, Concentrated**
					Unpaved Kv= 16.1 fps
21.2	5,115	0.1300	4.03	6.04	**Channel Flow, East Channel**
					Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.067
25.0	5,925	Total			

Table 7. Watershed Channel Length, Slope, and Time of Concentration (Post-Mining)

Sub-Basin West (Post-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	40	0.5300	3.09		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.69"
0.9	650	0.5300	11.72		**Shallow Concentrated Flow, Concentrated** Unpaved Kv= 16.1 fps
13.5	3,560	0.0183	4.40	6.60	**Channel Flow, Reclaimed Channel West** Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.023 Earth, clean & winding
4.2	770	0.0779	3.07	4.60	**Channel Flow, Outside pit channel** Area= 1.5 sf Perim= 4.3' r= 0.35' n= 0.067
18.8	5,020	Total			

Sub-Basin Central (Post-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	40	0.5300	3.09		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.69"
1.1	775	0.5300	11.72		**Shallow Concentrated Flow, Concentrated Flow** Unpaved Kv= 16.1 fps
61.0	5,310	0.0169	1.45	2.18	**Channel Flow, Reclaimed channel Central** Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.067
7.7	1,520	0.0888	3.28	4.91	**Channel Flow, Channel outside pit Central** Area= 1.5 sf Perim= 4.3' r= 0.35' n= 0.067
70.0	7,645	Total			

Sub-Basin East (Post-Mining)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	40	0.5300	0.43		**Sheet Flow, Sheet Flow** Range n= 0.130 P2= 1.69"
1.0	708	0.5300	11.72		**Shallow Concentrated Flow, Concentrated** Unpaved Kv= 16.1 fps
14.0	3,820	0.0196	4.55	6.83	**Channel Flow, Reclaimed Channel within Pit East** Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.023 Earth, clean & winding
5.4	1,490	0.1711	4.62	6.93	**Channel Flow, Channel outside pit - East** Area= 1.5 sf Perim= 4.2' r= 0.36' n= 0.067
22.0	6,058	Total			

Table 8. Area-Weighted Average Time of Concentration

Watershed Catchment	Phase	Tc (hydroCAD) (min)	SubBasin Area (acres)	Weighted Average Tc (min)
West	Pre-mining	36.1	180	
West Central	Pre-mining	35.9	290	
East Central	Pre-mining	32.2	320	
East	Pre-mining	25.00	250	32.2
West-Reclaimed	Post-mining	18.8	235	
Central-Reclaimed	Post-mining	70.0	400	
East-Reclaimed	Post-mining	22.0	405	39.7

3. MODEL RESULTS

3.1 Results

Model results are provided in **Error! Reference source not found.**. Runoff hydrographs for the 100-year storm are shown in Figure 7 and Figure 8. The cumulative peak flows for the 100-year storm after reclamation (2,750 cfs) are 67% higher than before mining (1,650 cfs). Cumulative peak flows for the more frequent recurrence interval storms (2-yr, 5-yr, 10-yr, 25-yr, and 50-yr) are similarly higher in the post-mining model than in the pre-mining model. This implies that the mining project would result in higher flow rates in the intermittent drainages reporting to Currant Creek and Tallahassee Creek after major storm events.

The timing of peak flows is similar in the post-mining and pre-mining scenarios, with post-mining catchments West and East peaking earlier (12.10 – 12.15 hrs) than the pre-mining peaks (12.20 – 12.35 hrs) and the post-mining catchment Central peaking later (12.70 hrs). Runoff hydrographs for all storm events modeled are provided in **Error! Reference source not found.**.

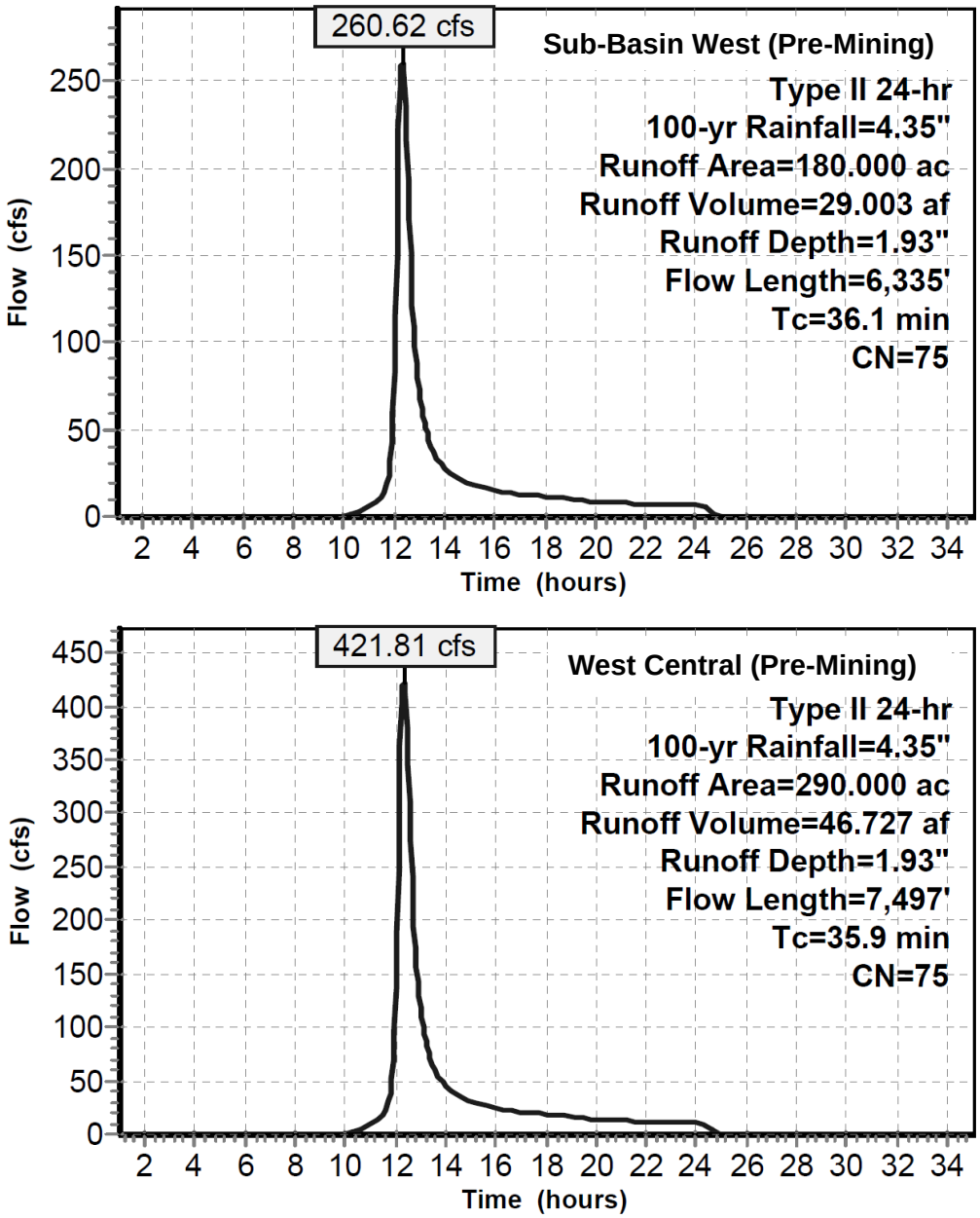


Figure 7. Runoff Hydrographs for 100-Year Storm Event (Pre-Mining)

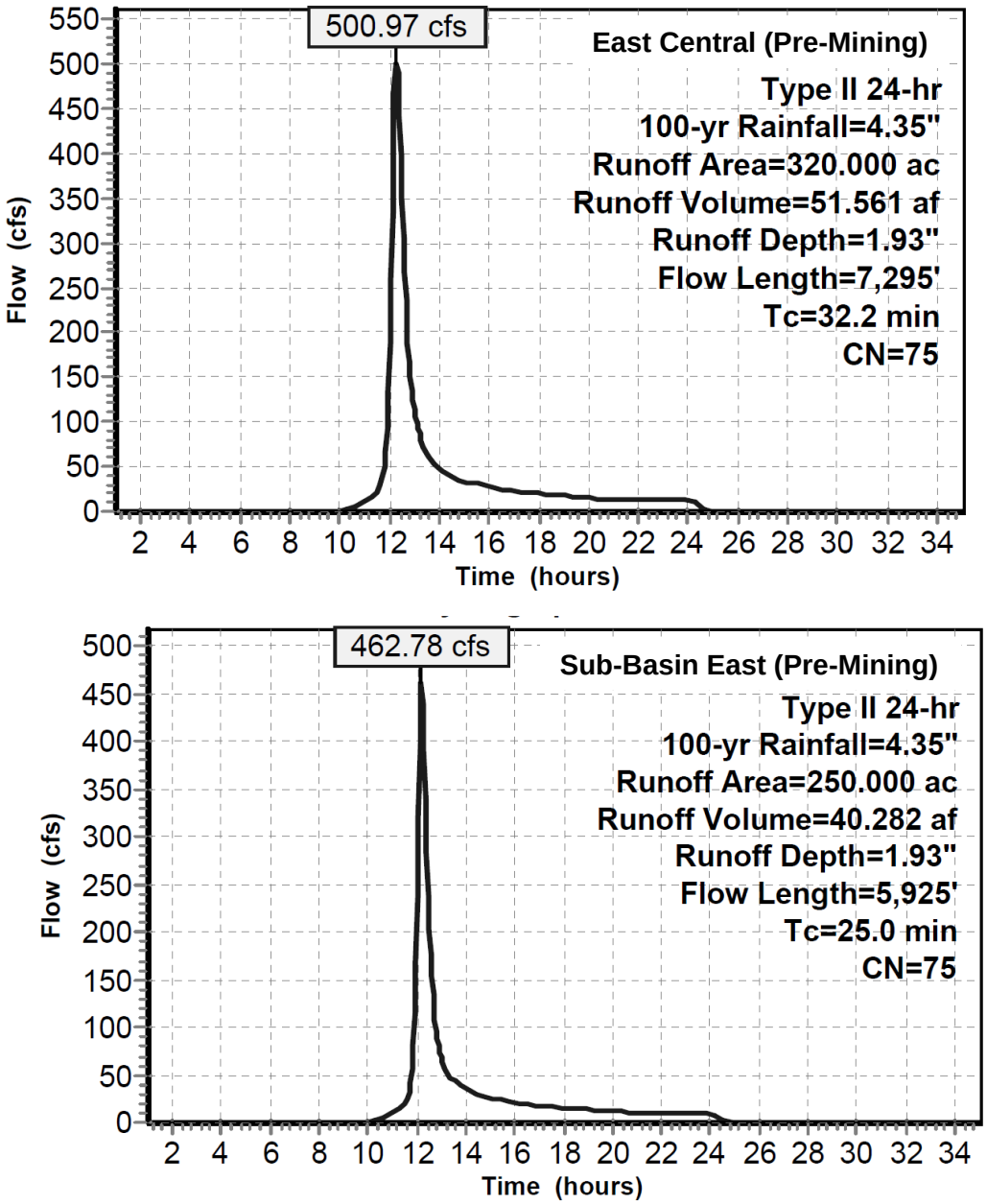


Figure 7. Runoff Hydrographs for 100-Year Storm Event (Pre-Mining) (Part 2)

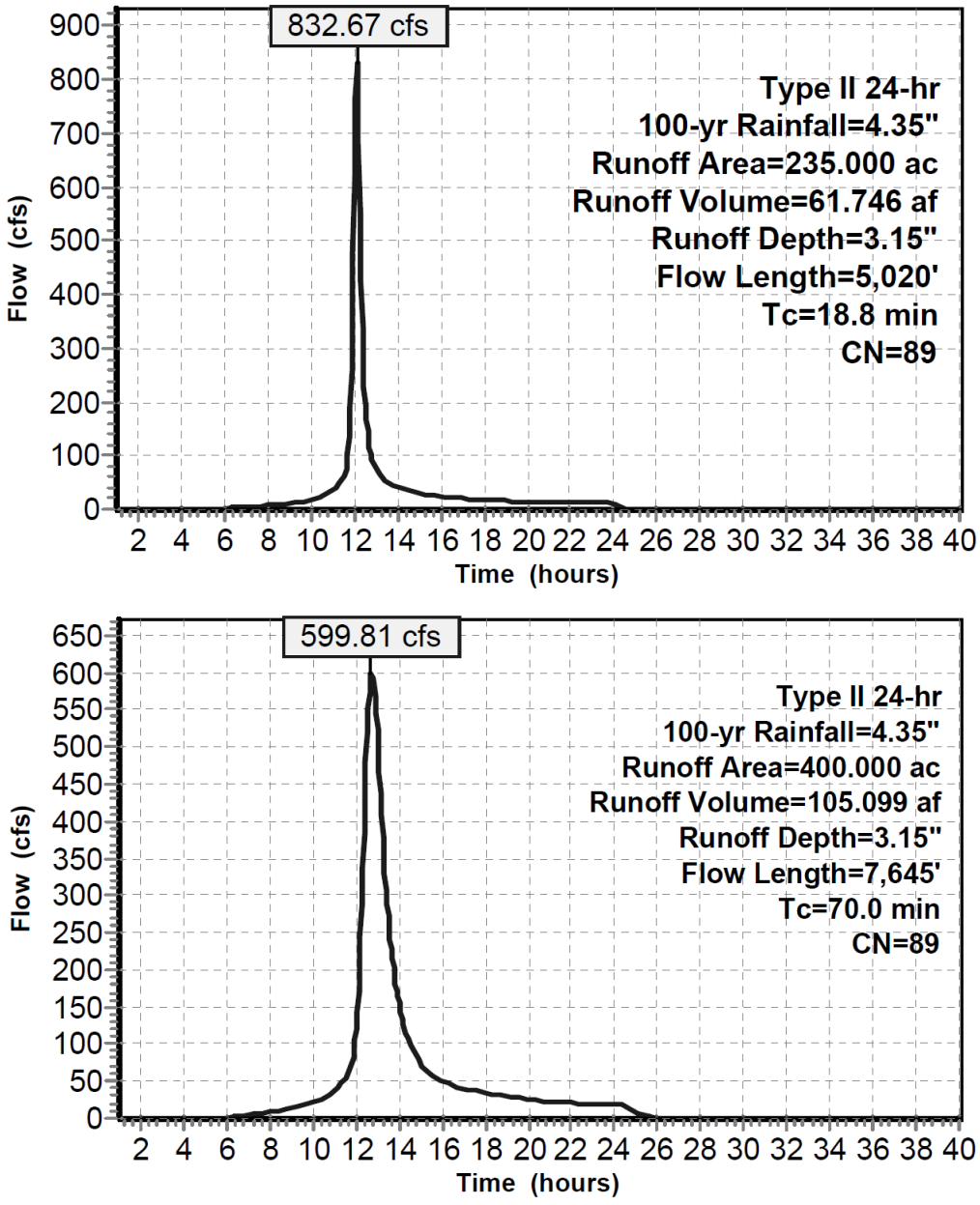


Figure 8. Runoff Hydrographs for 100-Year Storm Event (Post-Mining)

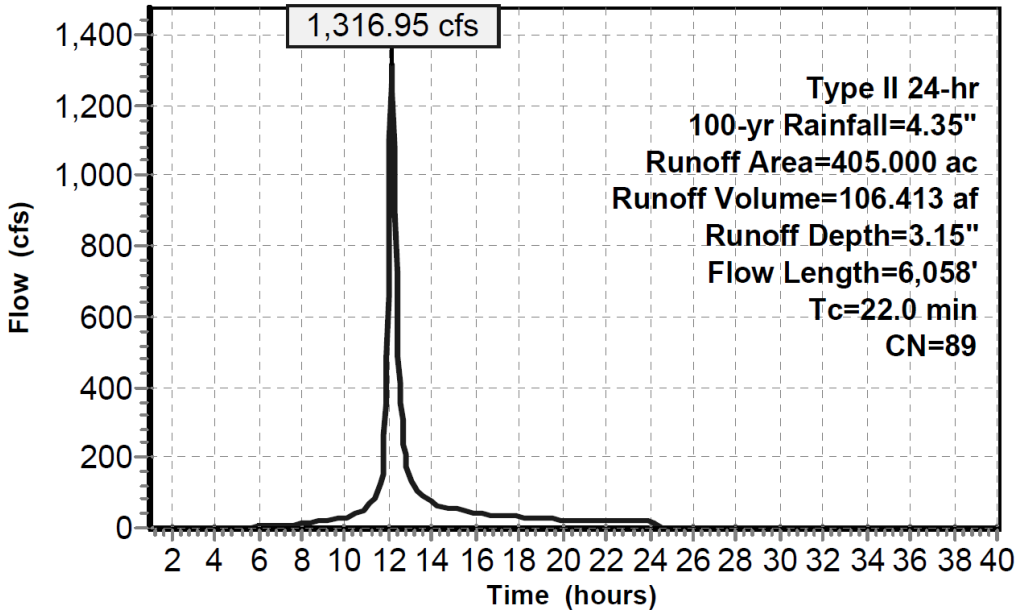


Figure 8. Runoff Hydrographs for 100-Year Storm Event (Post-Mining) (Part 2)

The total volume of runoff from major storms would increase as a result of mining and reclamation. The model results (**Error! Reference source not found.**) indicates that the volume of runoff reporting to the creeks would increase by 160% for the 100-year precipitation event and by 220% for the 10-year precipitation event (Table 9). The increased runoff is primarily due to the change in vegetation after reclamation.

Increased runoff could consequently decrease evapotranspiration and infiltration of precipitation and snowmelt to groundwater. Decreased infiltration to groundwater is expected to result in decreased baseflows to the creeks, which would be partially offset by increased streamflows during major storm events.

Table 9. Relative Comparison Pre-Mining and Post-Mining Runoff Volumes

Watershed Drainage	Phase	Runoff Volume (acre-ft) P2yr-24hr	Runoff Volume (acre-ft) P5yr-24hr	Runoff Volume (acre-ft) P10yr-24hr	Runoff Volume (acre-ft) P25yr-24hr	Runoff Volume (acre-ft) P50yr-24hr	Runoff Volume (acre-ft) P100yr-24hr
West	Pre-mining	3.6	6.6	9.9	16.1	22.0	29.0
West Central	Pre-mining	5.8	10.7	16.0	25.9	35.5	46.7
East Central	Pre-mining	6.4	11.8	17.7	28.6	39.1	51.6
East	Pre-mining	5.0	9.2	13.8	22.4	30.6	40.3
West-Reclaimed	Post-mining	15.2	22.1	28.8	40.2	50.3	61.7
Central-Reclaimed	Post-mining	25.9	37.6	49.1	68.5	85.7	105.1
East-Reclaimed	Post-mining	26.2	38.1	49.7	69.3	86.8	106.4
Total Pre	Pre-mining	20.8	38.2	57.4	93.1	127.1	167.6
Total Post	Post-mining	67.4	97.8	127.6	178.0	222.8	273.3
Increase (multiplier)		3.2	2.6	2.2	1.9	1.8	1.6

The long-term average annual change in runoff volumes was calculated using the probability of occurrence for each design storm in a given year. The probability-weighted average annual runoff volume for the pre-mining condition is 31.7 acre-ft compared to 80.3 acre-ft for the post-mining condition. The annualized increase in runoff in Tallahassee Creek below the Sale Area, calculated from the probability-weighted changes in runoff for the 2-yr, 5-yr, 10-yr, 25-yr, 50-yr, and 100-yr storms, is 0.067 cfs

Table 10. Relative Comparison of Pre-Mining and Post-Mining Annualized Average Runoff Volumes

Watershed Drainage	Phase	Annualized Runoff (acre-ft/yr)	Outlet	% Change
West	Pre-mining	5.5	Currant Creek	
West Central	Pre-mining	8.9	Tallahassee Ck	
East Central	Pre-mining	9.8	Tallahassee Ck	
East	Pre-mining	7.6	Tallahassee Ck	
West-Reclaimed	Post-mining	18.1	Currant Creek	330%
Central-Reclaimed	Post-mining	30.9	Tallahassee Ck	
East-Reclaimed	Post-mining	31.3	Tallahassee Ck	237%
Total Pre	Pre-mining	31.7		
Total Post	Post-mining	80.3	Total	253%

3.2 Comparison to Tallahassee Creek-Currant Creek Watershed Runoff

The runoff results for the Sale Area were compared to the runoff from the regional watershed to determine the magnitude of change as a percentage of regional flows. The portion of the Sale Area modeled is 1,040 acres, or approximately 1.37% of the 108.3 square miles in the Tallahassee Creek-Currant Creek watershed (HUC 1102000111) (Table 11).

Table 11. Hydrologic Units in the Arkansas River Headwaters

4th Level Sub-Basin (HUC 8)	5th Level Watershed (HUC 10)	6th Level Sub-Watershed (HUC 12)	Sq. Mile
Arkansas Headwaters (11020001)	**Tallahassee Creek-Currant Creek (1102000111)**	Lower Cottonwood Creek (110200011108)	32.8
		Lower Currant Creek (110200011109)	35.3
		Tallahassee Creek (110200011110)	50.2
	Royal Gorge-Arkansas River (1102000114)	Five Point Gulch-Arkansas River (110200011407)	47.4
		Royal Gorge (110200011409)	26.0

3.3 Model Sensitivity

The runoff volumes predicted by the model are most sensitive to precipitation and runoff curve numbers. The curve numbers used in the model are the best engineering estimates of pre-mining and reclaimed conditions. If mine reclamation were to more nearly mimic the pre-mining condition, with respect to soils and vegetation, the post-mining runoff would more nearly resemble the pre-mining conditions.

4. REFERENCES

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Whetstone Associates

To:	Scott Duncan	**4189A**
From:	Scott Effner, P.G.	
Date:	April 3, 2020	
Subject:	Drawdown Scoping Analysis - Parkdale Quarry EIS	

1. INTRODUCTION

A MODFLOW-SURFACT simulation was prepared to provide a scoping-level analysis of the potential area that could be affected by groundwater drawdown related to passive dewatering of the proposed Parkdale Quarry Expansion. The purpose of the analysis was to define the area that should be included in the water resources analysis area for the Parkdale Quarry Environmental Impact Study (EIS). The model incorporates a number of simplifying but conservative assumptions that differ from the complex and relatively undocumented hydrogeologic conditions at the site. Model results are believed to significantly over estimate potential drawdowns in areas distal to the proposed quarry, and although it is an appropriate use of the model to conservatively determine the area that should be included in the water resources analysis, model results should not be interpreted to be predictions of the actual drawdowns that would occur from dewatering of the quarry.

2. MODEL CODE

The model was developed using MODFLOW-SURFACT 4.0 (HydroGeologic, 2011), a finite-difference code based on the USGS software package MODFLOW (McDonald and Harbaugh, 1988). MODFLOW-SURFACT is functionally identical to MODFLOW with several enhancements that improve its ability to solve numerical matrices. Model input and output files were processed using the graphical user interface software Groundwater Vistas version 6.96, build 49 (ESI, 2011).

3. MODEL DESCRIPTION AND INPUT PARAMETERS

The model considered an unconfined aquifer (layer type 1) simulated as a flat-lying single layer 520 feet thick. The model domain (Figure 1) is 106,000 x 106,000 feet wide (20.1 x 20.1 miles). It consists of 212 columns and 212 rows with a uniform cell spacing of 500 x 500 feet. The base reference elevation of the model was set at 5,780 feet. The top elevation of the model was set at 6,300 feet. A relatively flat, but east-flowing gradient of 0.00009 ft/ft was established across the model domain using constant head cells located on the east and west margins of the model grid (Figure 1). The assigned constant head elevations for the east and west margins were 6,275 and 6,285 feet respectively. No flow cells were assigned in the drainages for Currant Creek, Tallahassee Creek, and the Arkansas River where the surface elevations are below the level of the proposed pit floor (Figure 1). Given that the elevation of the pit floor (6,020 feet average, 5,940 minimum) is the lowest elevation to which groundwater levels could be drawn down, surface elevations below this level are areas into which the cone of depression cannot expand.

The following parameters were assigned to each cell in the model:

- Hydraulic conductivity = 0.0039 ft/d. This value is the mean of three single-well pumping tests that were performed in granitic rocks within the Sale Area (ERM 2019).

- Specific yield = 0.01. This is an estimated value from ERC 2019 that is considered to be reasonable for fractured granite. Reported literature values of specific yield in crystalline rocks including granite range from 0.0009 (Heath 1983) to 0.03 (Singhal and Gupta 2010) The estimate specific yield value of 0.01 by ERC is near the center of the reference range.
- Recharge is not simulated in the model

4. MODEL RUNS

The model was prepared in three parts including an initial steady-state simulation that was completed to develop the pre-mining flow field and starting heads for the transient simulations that evaluated EIS Alternatives A and C. The transient runs simulated passive dewatering of the proposed quarry using drain cells within the respective footprints of the proposed mining areas. The stage elevations of the drains were set at 6,020 feet which is the average elevation of the proposed pit floors, and the drains in individual cells were specified to have areas of 500 x 500 feet, thicknesses of 10 feet, and hydraulic conductivities of 10 ft/d. Drains cells became active over the entire footprints of the proposed mining areas at the start of the simulations. The duration of the transient simulations was 100 years.

5. MODEL RESULTS

5.1 Steady State Run

The flow field for the steady-state simulation is shown in Figure 2. The simulation establishes a generally flat gradient with simulated heads of about 6,260 feet elevation within the sale area. Observed heads in the Sale Area range from about 6,027 to 6,260 feet elevation and the steady-state simulation provides a conservative starting point to evaluate the maximum drawdown that could occur from mining. The water balance mass error for the steady-state simulation was 0.12%.

5.2 Transient Simulations for Alternatives A and C

Drawdown contours for transient runs that evaluated Alternative A and Alternative C are presented in Figures 3 and 4, respectively. Calculated inflows to the mining area (drain cells) at the end of the 100-year simulations were 5,167 cubic feet per day (26.84 gpm) for Alternative A, and 5,716 cubic feet per day (29.69 gpm) for Alternative C.

Given the conservative and simplistic nature of these scoping-level analyses, the 5-foot drawdown contours are considered to be the maximum extents of the areas in which drawdown-related impacts could occur from the Parkdale Quarry expansion under Alternatives A and C. The water balance mass errors for the Alternative A and Alternative C simulations were 0.00% and 0.03%, respectively.

6. DISCUSSION

The transient runs for Alternatives A and C were developed to define the areas in which groundwater levels could be theoretically reduced by 5 feet or more after 100 years of mining. The simulations incorporate numerous simplifying assumptions, the most important of which are: 1) groundwater near the proposed quarry expansion is well-connected over the modeled area in a flat-lying aquifer with a relatively flat water table, 2) the modeled area has consistent hydrogeologic characteristics, and 3) groundwater levels are drawn-down to the level of the final pit floor at the start of mining.

In reality, available water level data from DWR well records indicate that groundwater elevations in the modeled area vary widely, ranging from 5,657 to 7,041 feet elevation. The variation occurs over relatively short distances and often exceeds 100 to 200 feet between wells that are located within 1,000 to 2,000 feet of each other. The accuracy of the DWR water level data is affected by a number of factors including the accuracy of the reported well locations, completion details for individual wells, and the range of time over which the groundwater levels were measured. However, it is noted that the reported variability is consistent with groundwater systems in low-permeable rocks that are poorly interconnected over short distances.

A number of major faults occur near the Sale Area are not simulated. These faults include the Parkdale Fault, unnamed faults 1 and 2, and the Mikesell Gulch Fault (Figure 5). The Parkdale Fault is located north of the Sale Area and places granitic rocks in contact with younger sedimentary rocks. The majority of groundwater users within the defined area of potential impact are located on the north side of the Parkdale Fault and have wells in sedimentary rocks that are expected to have different hydraulic characteristics than the granite that would be mined. Water from perennial sections of Currant and Cottonwood creeks are sources of recharge to the sedimentary rocks. The stream become intermittent where they cross the sedimentary rocks near State Highway 9. A number of smaller intermittent drainages located northeast of the highway also contribute runoff that infiltrates into the sedimentary rocks. The different hydraulic characteristics of the sedimentary rocks and additional recharge they receive from surface water are not considered in the model which tends to increase the conservatism of the predicted drawdowns in areas north of the proposed quarry expansion.

Finally, the simulation of water levels being drawn down to the level of the ultimate pit floor at the start of mining is inherently conservative. Groundwater drawdown would occur gradually as the mine is developed over its expected 100-year life.

For the reasons stated above, the results of the transient simulations are believed to significantly over estimate potential drawdowns in areas distal to the proposed quarry. Therefore, the modeled drawdown contours presented in Figures 3 and 4 should not be interpreted to be predictions of the actual drawdown that would occur at any given location from the proposed quarry expansion.

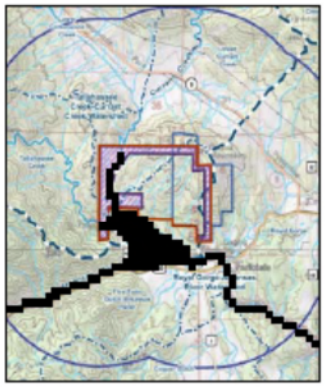


Figure 1. Model Domain and Boundary Conditions

The blue lines at the east and west borders are the locations of the constant head cells. The black lines and black field within the map image are the locations of no flow cells where the surface topography is below the elevation of the planned pit floor.

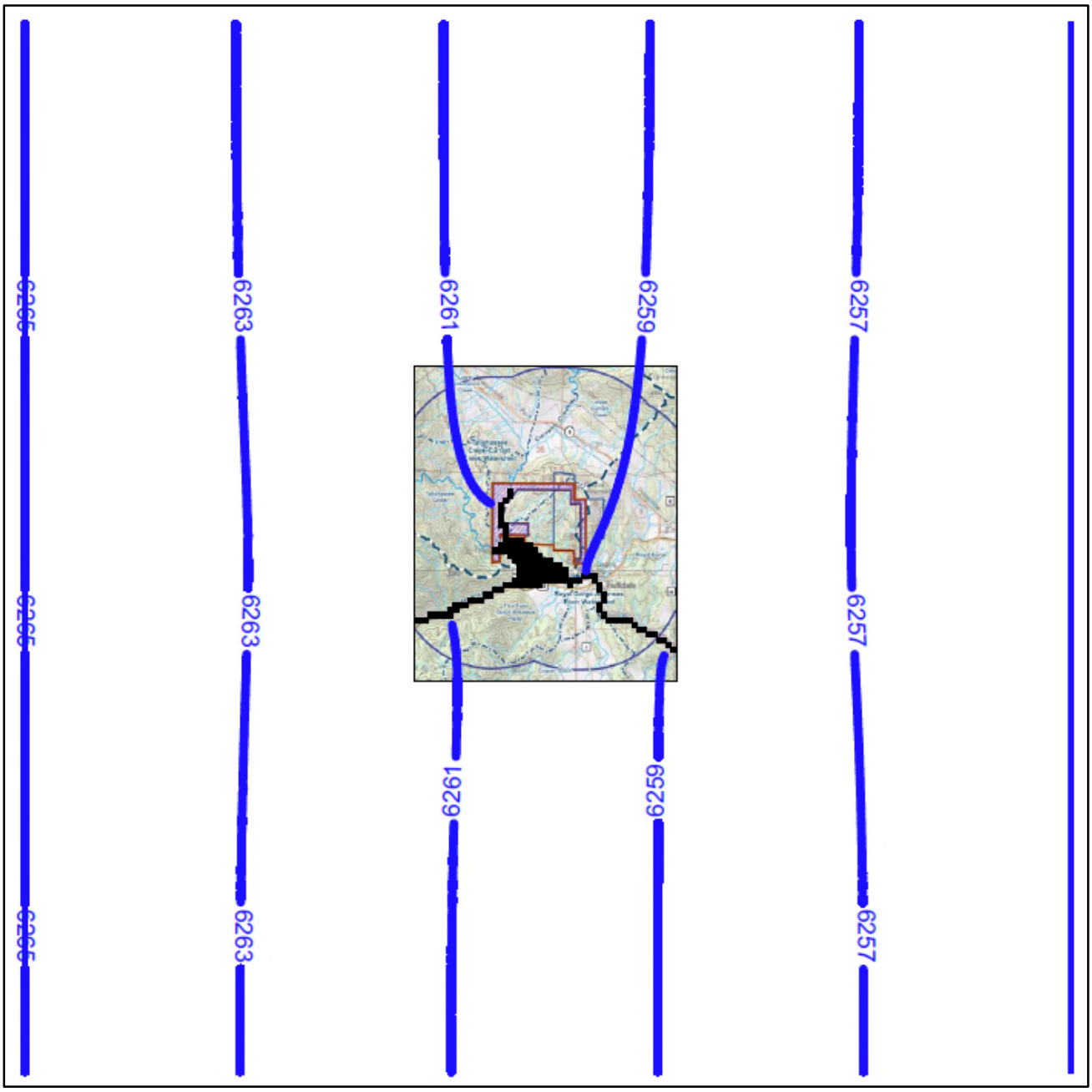


Figure 2. Steady State Flow Field

The blue contours indicated the modeled steady-state water levels. The black lines and black field within the map image are the locations of no flow cells where the surface topography is below the elevation of the planned pit floor.

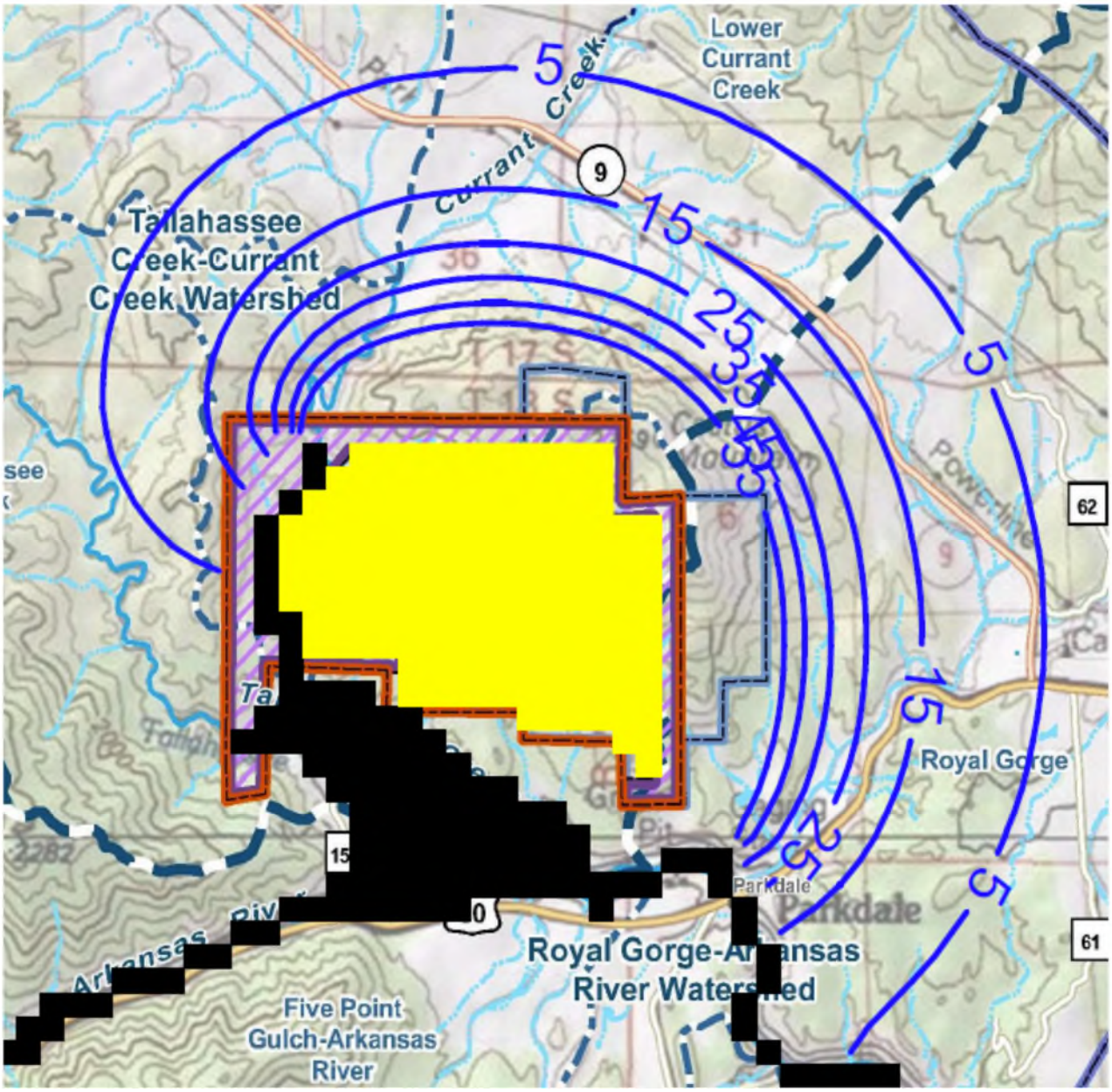


Figure 3. Modeled Drawdown for Alternative A

The yellow field within the mining area for Alternative A indicates the locations of drain cells. The black lines and black field south and east of the Sale Area are the locations of no flow cells where the surface topography is below the elevation of the planned pit floor.

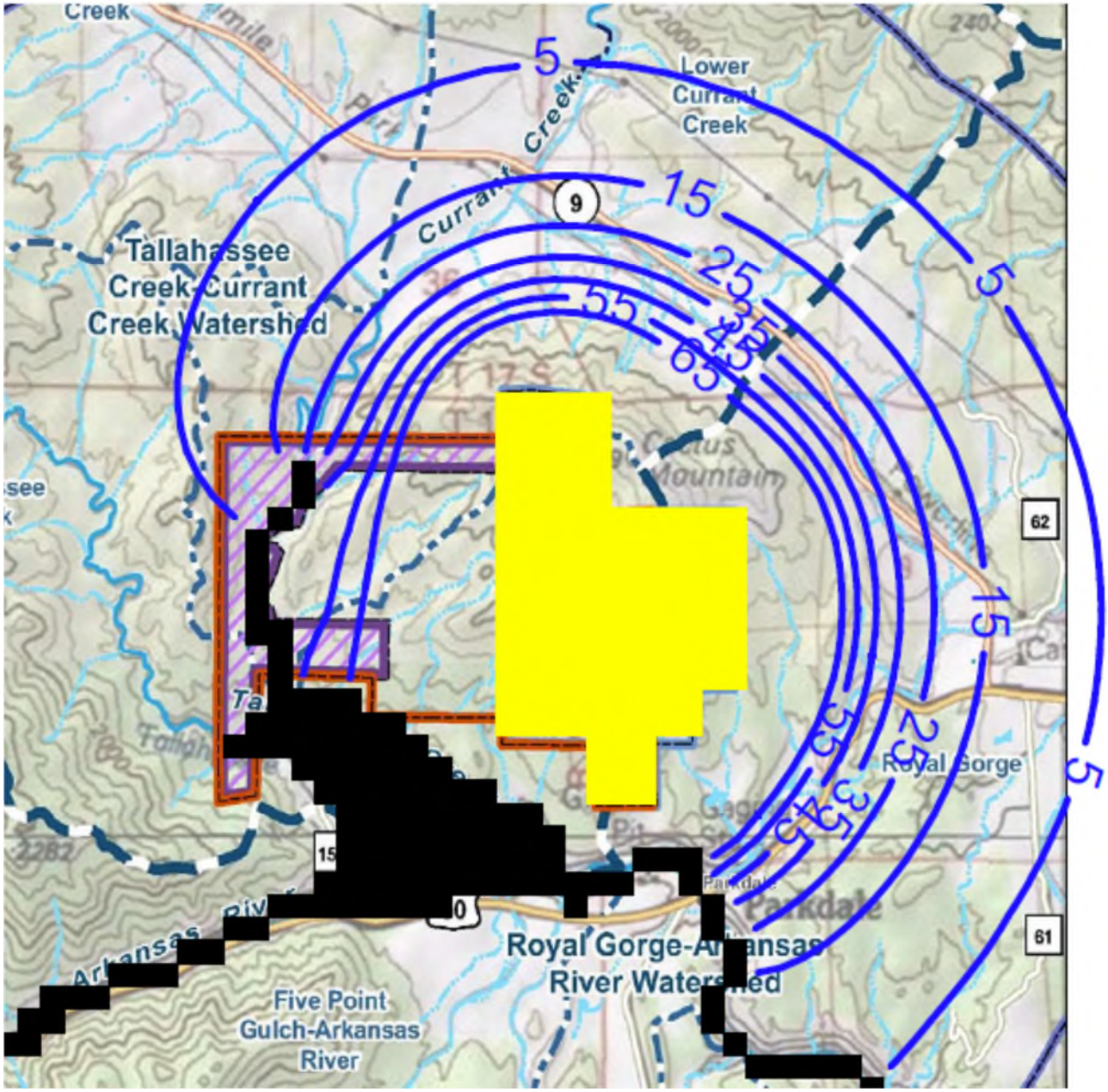


Figure 4. Modeled Drawdown for Alternative C

The yellow field within the mining area for Alternative C indicates the locations of drain cells. The black lines and black field south and east of the Sale Area are the locations of no flow cells where the surface topography is below the elevation of the planned pit floor.

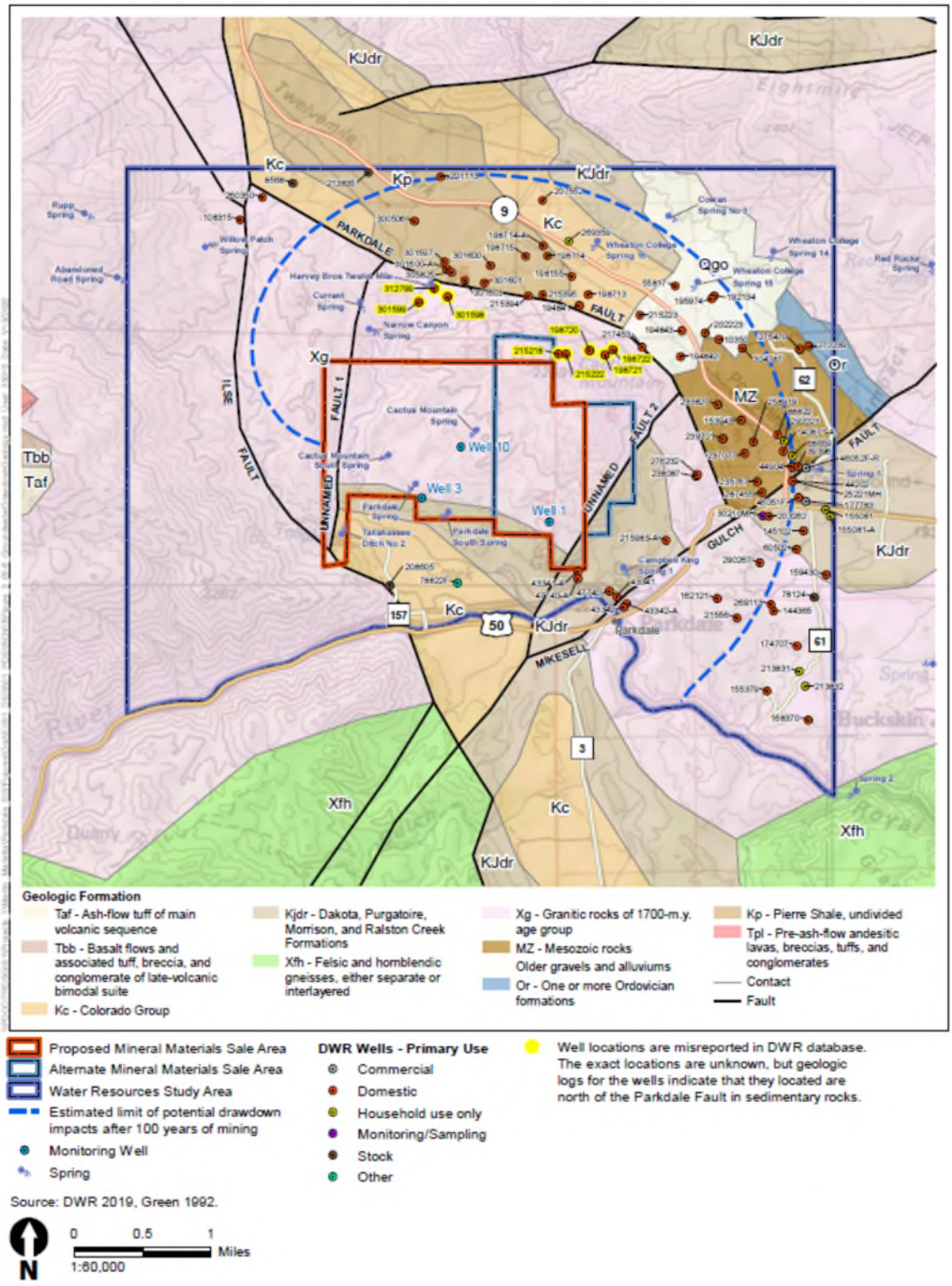


Figure 5. Geology within the Modeled Area

7. REFERENCES

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Whetstone Associates

To:	Scott Duncan	**4189A**
From:	Scott Effner, P.G.	
Date:	April 10, 2020	
Subject:	Baseflow Reduction Analysis - Parkdale Quarry EIS	

1. OVERVIEW

This memorandum documents Darcy calculations of the potential reduction in groundwater baseflow to Currant and Tallahassee creeks from the proposed Parkdale Quarry expansion.

Where: Q=KIA

Q is the calculated baseflow to the stream

K is the average hydraulic conductivity of bedrock in the Sale Area

I is the groundwater gradient

A is the area of the stream channel

2. ASSUMPTIONS

- The average hydraulic conductivity of bedrock from site-specific tests is equal to 0.0039 ft/d (ERM 2019).
- The pre-mining groundwater gradient is equal to the measured gradient of 0.089 ft/ft between Wells 3 and 10 on August 29, 2019.
  - Water level elevations for Wells 3 and 10 were 6,026.56 and 6,252.87 feet, respectively
  - The distance between wells is 2,535 feet
- The post-mining gradient of 0.024 ft/ft is equal to the slope of the pit floor as shown on Figure 8 of the Mining and Reclamation Plan (Martin Marietta 2019)
- The length of Currant Creek where it forms the western edge of the mining area extending to Tallahassee Creek is 1.51 miles (7,985 feet) and the width of the stream is 5 feet (source Google Earth)
- The length of Tallahassee Creek from Currant Creek to the Arkansas River is 1.78 miles (9,425 feet) and the width of the stream is 10 feet (source Google Earth)
- Low flow in Current Creek is assumed to be 0.1 cfs (≈45 gpm). The observed range of flows at USGS station 07094090 on Currant Creek above the Project at Highway 9 is 0.3 to 31 cfs.
- Low flow in Tallahassee Creek is assumed to be 0.5 cfs (≈225 gpm). The observed range of flows at USGS station 382917105225200 on Tallahassee Creek above the Arkansas River is 0.14 to 172 cfs.

3. CALCULATIONS

Table 1. Currant Creek

K (ft/d)	I (ft/ft)	Length (ft)	Width (ft)	Q (cfd)	Q (cfs)	Q (gpm)
Pre-Mining Baseflow Calculation						
0.0039	0.089	7985	5	13.90	0.00016	0.072
Post Mining Baseflow Calculation						
0.0039	0.024	7985	5	3.75	0.00004	0.019
Reduction in Baseflow						
				10.15	0.00012	0.053
Baseflow Reduction as a Percentage of Stream Flow Under Assumed Low-Flow Conditions = 0.12%						

Table 2. Tallahassee Creek

K (ft/d)	I (ft/ft)	Length (ft)	Width (ft)	Q (cfd)	Q (cfs)	Q (gpm)
Pre-Mining Baseflow Calculation						
0.0039	0.089	9425	10	32.81	0.00038	0.170
Post Mining Baseflow Calculation						
0.0039	0.024	9425	10	8.86	0.00010	0.046
Reduction in Baseflow						
				23.96	0.00028	0.124
Baseflow Reduction as a Percentage of Stream Flow Under Assumed Low-Flow Conditions = 0.06%						

4. REFERENCES

ERM 2019. Interim Hydrogeologic Assessment, Parkdale Quarry Expansion Area, prepared by Environmental Resources Management (ERM) for Martin Marietta Materials, Project No. 0488586, August 20, 2019. 192 p.

Martin Marietta 2019. Parkdale Quarry Expansion Mineral Materials Sale COC-078119 Mining and Reclamation Plan. 30p.

Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix G

Well Data

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Permit	Current Status	Contact Name	DIV	WD	County	PM	Township
25221MH	Well Constructed	MASSEY, LEE	2	12	FREMONT	S	18.0 S
30210MH	Well Constructed	SHIPPEY, RONALD	2	12	FREMONT	S	18.0 S
78124	Well Constructed	BARTLESON	2	12	FREMONT	S	18.0 S
88822	Well Constructed	LITTLEFIELD, GEORGE L	2	12	FREMONT	S	18.0 S
140871-A	Well Constructed	CROWFOOT, FLOYD	2	12	FREMONT	S	18.0 S
145102	Well Constructed	PRUETT, FLOYD D	2	12	FREMONT	S	18.0 S
153943	Well Constructed	NUTLY, ALBERT J.	2	12	FREMONT	S	18.0 S
43341-A	Well Constructed	AJET	2	12	FREMONT	S	18.0 S
153943	Well Constructed	NUTLY, MARY ANN	2	12	FREMONT	S	18.0 S
155081	Well Constructed	KRESKI, JOHN	2	12	FREMONT	S	18.0 S
155081-A	Well Constructed	MORENO LEIDY SASTOQUE	2	12	FREMONT	S	18.0 S
155379	Well Constructed	BURKHOLDER NORMAN L & CONNIE J	2	12	FREMONT	S	18.0 S
47740-A	Well Constructed	KING ALEXANDER CAMPBELL	2	12	FREMONT	S	18.0 S
159430	Well Constructed	TOLLIS, GENE P	2	12	FREMONT	S	18.0 S
162121	Well Constructed	BROWN, MARK N	2	12	FREMONT	S	18.0 S
168370	Well Constructed	JOHNSON CURTIS & BLACKE HELENE	2	12	FREMONT	S	18.0 S
174707	Well Constructed	TOLLIS, ERNIE P	2	12	FREMONT	S	18.0 S
177783	Well Constructed	KRIZMAN, ARTHUR	2	12	FREMONT	S	18.0 S
192134	Well Constructed	BOWERS SPENCER & LINDSEY	2	12	FREMONT	S	17.0 S
46051F	Well Constructed	CAMP SCHIRADO LLC	2	12	FREMONT	S	18.0 S
194842	Well Constructed	DUNCAN, GEORGIA L	2	12	FREMONT	S	18.0 S
194843	Well Constructed	EMBRY, JACK	2	12	FREMONT	S	17.0 S
194841	Well Constructed	SKEPI, ESAT	2	12	FREMONT	S	17.0 S
194841	Well Constructed	ROFOFSKY, DAVID W.	2	12	FREMONT	S	17.0 S
195974	Well Constructed	KUEHL, ROBERT N	2	12	FREMONT	S	17.0 S
198721	Well Constructed	WILTSE DONALD CHARLES	2	12	FREMONT	S	18.0 S
198714	Well Constructed	EMBRY, DON J	2	12	FREMONT	S	17.0 S
198722	Well Constructed	WILTSE DONALD CHARLES	2	12	FREMONT	S	18.0 S
198715	Well Constructed	BEDFORD RUSSELL & SHARON LEE	2	12	FREMONT	S	17.0 S
198155	Well Constructed	MOSER MICHAEL & SWENSUN PHYLLIS	2	12	FREMONT	S	17.0 S
198713	Well Constructed	BAXTER, PAUL	2	12	FREMONT	S	17.0 S
202223	Well Constructed	ROBINSON, SAMUEL G	2	12	FREMONT	S	17.0 S
203262	Well Constructed	SHIPPEY, RONALD	2	12	FREMONT	S	18.0 S
207552	Well Constructed	MILLS ART & PATRICIA	2	12	FREMONT	S	17.0 S
208605	Well Constructed	COOPER DONALD E & MARTHA J	2	12	FREMONT	S	18.0 S
213831	Well Constructed	LESKOSKY, BERNICE P	2	12	FREMONT	S	18.0 S
213835	Well Constructed	MARCHAND GARY JOANN & HELEN	2	12	FREMONT	S	17.0 S
213832	Well Constructed	LESKOSKY, BERNICE P	2	12	FREMONT	S	18.0 S
215223	Well Constructed	BAUM, DOUGLAS W	2	12	FREMONT	S	17.0 S
198714-A	Well Constructed	IGLESIAS, FIDEL	2	12	FREMONT	S	17.0 S
215395	Well Constructed	DYE, WILLIAM E	2	12	FREMONT	S	17.0 S
215222	Well Constructed	GARETT, CAROL M	2	12	FREMONT	S	18.0 S
215394	Well Constructed	BRADSHAW DEAN & PATRICIA	2	12	FREMONT	S	17.0 S
215218	Well Constructed	BEAN, KEITH D	2	12	FREMONT	S	18.0 S
217453	Well Constructed	AMMEL HARVEY D & DEANNA L	2	12	FREMONT	S	18.0 S
221113	Well Constructed	KEELER, JOHN	2	12	FREMONT	S	17.0 S
233827	Well Constructed	CROSBY, JACKIE	2	12	FREMONT	S	18.0 S
235767	Well Constructed	NORHOLM, COLLEEN	2	12	FREMONT	S	18.0 S
237077	Well Constructed	SCHOMCKER DENNIS & KATHLEEN	2	12	FREMONT	S	18.0 S
238087	Well Constructed	HEYEN RON & JEANETTE	2	12	FREMONT	S	18.0 S
239701	Well Constructed	ASQUITH, JOHN	2	12	FREMONT	S	18.0 S
239701	Well Constructed	CARROLL, JANICE	2	12	FREMONT	S	18.0 S
46052F-R	Well Replaced	CAMP SCHIRADO LLC	2	12	FREMONT	S	18.0 S
258919	Well Constructed	SIMS JONATHAN M & PASLEY WHITNEY N	2	12	FREMONT	S	18.0 S
260350	Well Constructed	MARCHAND RANCH	2	12	FREMONT	S	17.0 S
43342-A	Well Constructed	WILLIAMS, BLAIR	2	12	FREMONT	S	18.0 S
270239	Well Constructed	TATUM MATTHEW C & KATIA	2	12	FREMONT	S	18.0 S
275470	Well Constructed	LYNN, STUART C.	2	12	FREMONT	S	18.0 S
275470	Well Constructed	LYNN, SALLY J.	2	12	FREMONT	S	18.0 S
276232	Well Constructed	LEWIS-MARTIN, CLAIRE	2	12	FREMONT	S	18.0 S
215983-A	Well Constructed	CLARK, JAMES	2	12	FREMONT	S	18.0 S
287455	Well Constructed	PHILLIPS, MICHAEL F	2	12	FREMONT	S	18.0 S
290267	Well Constructed	ELDRED JACQUE & MARKUS	2	12	FREMONT	S	18.0 S
292021	Well Constructed	CHALMERS HUGH & ROXANE	2	12	FREMONT	S	18.0 S
78822F	Well Constructed	FRONT RANGE AGGREGATES LLC	2	12	FREMONT	S	18.0 S
300506	Well Constructed	BARGER, TROY C	2	12	FREMONT	S	17.0 S
301600	Well Replaced	FEDIE, MARK	2	12	FREMONT	S	17.0 S

Permit	Range	Township_D	Range_D	Section	Q10	Q40	Q160	CoordsEW	CoordsEW Dir	CoordsNS
25221MH	71.0 W	-18	-71	8		NE	NE			
30210MH	71.0 W	-18	-71	8		SW	NE			
78124	71.0 W	-18	-71	8		SE	SE	16	E	150
88822	71.0 W	-18	-71	5		SE	SE	1086	E	1150
140871-A	71.0 W	-18	-71	5		SE	SE	900	E	500
145102	71.0 W	-18	-71	8		SE	NE	300	E	2600
153943	71.0 W	-18	-71	5		NW	SW	2170	W	1740
43341-A	71.0 W	-18	-71	7		SE	SW	4224	E	3960
153943	71.0 W	-18	-71	5		NW	SW	2170	W	1740
155081	71.0 W	-18	-71	9		SW	NW	600	W	1800
155081-A	71.0 W	-18	-71	9		SW	NW	760	W	2080
155379	71.0 W	-18	-71	17		NW	SE	2900	W	3500
47740-A	71.0 W	-18	-71	7		SW	SW	890	W	1040
159430	71.0 W	-18	-71	9		SW	SW	500	W	1000
162121	71.0 W	-18	-71	8		SW	SW	1100	W	100
168370	71.0 W	-18	-71	17		SE	SE	660	E	660
174707	71.0 W	-18	-71	17		SE	NE	845	E	1745
177783	71.0 W	-18	-71	8		SE	NE	150	E	1450
192134	71.0 W	-17	-71	32		NW	SW	900	W	1520
46051F	71.0 W	-18	-71	8		NE	NE	400	E	1300
194842	71.0 W	-18	-71	6		NE	NE	400	E	800
194843	71.0 W	-17	-71	31		SE	SE	400	E	200
194841	71.0 W	-17	-71	31		SE	SW	2500	W	1162
194841	71.0 W	-17	-71	31		SE	SW	2500	W	1162
195974	71.0 W	-17	-71	32		NW	SW	800	W	1400
198721	71.0 W	-18	-71	6		NE	NW	1850		450
198714	71.0 W	-17	-71	31		SW	NW	1250	W	2050
198722	71.0 W	-18	-71	6		NE	NW	2300	W	450
198715	71.0 W	-17	-71	31		SW	NW	400	W	2050
198155	71.0 W	-17	-71	31		NE	SW	2200	W	2300
198713	71.0 W	-17	-71	31		NW	SE	2850	W	1600
202223	71.0 W	-17	-71	32		SW	SW	500	W	100
203262	71.0 W	-18	-71	8		SW	NE	1600	E	2000
207552	71.0 W	-17	-71	30		SW	SW	1000	W	100
208605	72.0 W	-18	-72	11		SE	SE	530	E	725
213831	71.0 W	-18	-71	17		NE	SE	850	E	2550
213835	72.0 W	-17	-72	26		SE	SE	400	E	1120
213832	71.0 W	-18	-71	17		NE	SE	660	E	1980
215223	71.0 W	-17	-71	31		SW	SE	2000	E	800
198714-A	71.0 W	-17	-71	31		SW	NW	1070	W	1640
215395	71.0 W	-17	-71	31		NW	SW	1100	W	1600
215222	71.0 W	-18	-71	6		NW	NW	500	W	550
215394	71.0 W	-17	-71	31		NW	SW	525	W	1550
215218	71.0 W	-18	-71	6		NW	NW	200	W	550
217453	71.0 W	-18	-71	6		NW	NE	1910	E	390
221113	72.0 W	-17	-72	25		SE	SW	2400	W	1000
233827	71.0 W	-18	-71	5		NE	SW	1200	W	2700
235767	71.0 W	-18	-71	8		NW	NE	1980	E	660
237077	71.0 W	-18	-71	5		SE	SW	2400	W	450
238087	71.0 W	-18	-71	8		NW	NW	525	W	375
239701	71.0 W	-18	-71	5		SE	SW	1500	W	1050
239701	71.0 W	-18	-71	5		SE	SW	1500	W	1050
46052F-R	71.0 W	-18	-71	8		NE	NE	59	E	169
258919	71.0 W	-18	-71	5		SW	SE	2025	E	900
260350	72.0 W	-17	-72	26		NW	SW	854	W	85
43342-A	71.0 W	-18	-71	18		NW	NE	2415	E	10
270239	71.0 W	-18	-71	4		SW	NW	336	W	546
275470	71.0 W	-18	-71	5		NE	NE	26	E	646
275470	71.0 W	-18	-71	5		NE	NE	26	E	646
276232	71.0 W	-18	-71	8		NW	NW	582	W	321
215983-A	71.0 W	-18	-71	7		NE	SE	749	E	2383
287455	71.0 W	-18	-71	8		NW	NE	1814	E	1055
290267	71.0 W	-18	-71	8		NW	SE	2043	E	1481
292021	71.0 W	-18	-71	5		SE	SE	850	E	900
78822F	72.0 W	-18	-72	12		SE	SW	1744	W	672
300506	72.0 W	-17	-72	36		NE	NW	1377	W	739
301600	72.0 W	-17	-72	36		SE	NE	960	E	2438

Permit	Coords NS Dir	UTM x	UTM y	Latitude	Longitude	Location Accuracy
25221MH		469494.8	4261460.6	38.500984	-105.349843	Spotted from quarters
30210MH		469146.6	4261050.6	38.497277	-105.353818	Spotted from quarters
78124	S	469751.4	4260092	38.488659	-105.346841	Spotted from section lines
88822	S	469316.4	4262008	38.505911	-105.351913	Spotted from section lines
140871-A	S	469385.4	4261812.1	38.504148	-105.351113	Spotted from section lines
145102	N	469621.5	4260873.6	38.495698	-105.348365	Spotted from section lines
153943	S	468893.2	4262176.6	38.507416	-105.356774	Spotted from section lines
43341-A	N	466965.9	4260396.1	38.491301	-105.378794	Spotted from section lines
153943	S	468893.2	4262176.6	38.507416	-105.356774	Spotted from section lines
155081	N	469882.1	4261126.1	38.497983	-105.345387	Spotted from section lines
155081-A	N	469935.6	4261043.1	38.497237	-105.34477	Spotted from section lines
155379	N	469198.2	4258982.1	38.478638	-105.353135	Spotted from section lines
47740-A	S	466964.3	4260310.1	38.490526	-105.378809	Spotted from section lines
159430	S	469894.3	4260352.6	38.491012	-105.345214	Spotted from section lines
162121	S	468607.2	4260077.1	38.488485	-105.35996	Spotted from section lines
168370	S	469676.9	4258639.6	38.475568	-105.347633	Spotted from section lines
174707	N	469546.1	4259516.1	38.483462	-105.34917	Spotted from section lines
177783	N	469647.8	4261224.6	38.498862	-105.348078	Spotted from section lines
192134	S	468571.6	4263644	38.52063	-105.360529	Spotted from section lines
46051F	N	469569.2	4261268.1	38.499252	-105.348981	Spotted from section lines
194842	N	468172.4	4262925.1	38.514136	-105.365075	Spotted from section lines
194843	S	468189.8	4263233.1	38.516912	-105.36489	Spotted from section lines
194841	S	466979.5	4263523.1	38.519481	-105.378786	Spotted from section lines
194841	S	466979.5	4263523.1	38.519481	-105.378786	Spotted from section lines
195974	S	468542.5	4263606.6	38.520291	-105.360861	Spotted from section lines
198721	N	467283.4	4262946.5	38.514296	-105.375273	User supplied
198714	N	466610	4264114.6	38.524798	-105.383053	Spotted from section lines
198722	N	467376.8	4263005.6	38.514832	-105.374205	Spotted from section lines
198715	N	466350.9	4264111.6	38.524761	-105.386025	Spotted from section lines
198155	S	466894.8	4263869.6	38.522601	-105.379774	Spotted from section lines
198713	S	467088.8	4263657.1	38.520693	-105.377539	Spotted from section lines
202223	S	468465.1	4263207.6	38.516692	-105.361731	Spotted from section lines
203262	N	469215.5	4261046.1	38.497239	-105.353028	Spotted from section lines
207552	S	466546.7	4264769.1	38.530694	-105.38381	Spotted from section lines
208605	N	464881.6	4261476.6	38.500958	-105.402748	Spotted from section lines
213831	S	469570.2	4259214	38.480741	-105.348881	Spotted from section lines
213835	S	464497.9	4265099.1	38.533589	-105.407333	Spotted from section lines
213832	S	469642.9	4259041.1	38.479185	-105.34804	Spotted from section lines
215223	S	467695.6	4263414.6	38.51853	-105.370567	Spotted from section lines
198714-A	N	466557.6	4264239.1	38.525918	-105.38366	Spotted from section lines
215395	S	466555.4	4263655.6	38.52066	-105.383657	Spotted from section lines
215222	N	466827.8	4262957	38.514375	-105.380499	Spotted from section lines
215394	S	466379.9	4263640.1	38.520513	-105.38567	Spotted from section lines
215218	N	466736.4	4262954.1	38.514345	-105.381548	Spotted from section lines
217453	N	467722.4	4263035.1	38.515111	-105.370242	Spotted from section lines
221113	S	465350.8	4265051.1	38.53319	-105.397545	Spotted from section lines
233827	N	468613.3	4262362.6	38.509082	-105.359993	Spotted from section lines
235767	N	469077	4261451.1	38.500884	-105.354634	Spotted from section lines
237077	S	468931.7	4261785.6	38.503894	-105.356315	Spotted from section lines
238087	N	468355.4	4261520.1	38.501481	-105.362913	Spotted from section lines
239701	S	468672.2	4261961.1	38.505466	-105.359299	Spotted from section lines
239701	S	468672.2	4261961.1	38.505466	-105.359299	Spotted from section lines
46052F-R	N	469654	4261615.1	38.502382	-105.348024	Spotted from section lines
258919	S	469035	4261925	38.505153	-105.355137	Spotted from section lines
260350	S	463251.8	4264804.5	38.530883	-105.421614	Spotted from section lines
43342-A	N	467538.3	4260013.5	38.487873	-105.372213	Spotted from section lines
270239	N	469685.1	4263054	38.51535	-105.34773	Spotted from section lines
275470	N	469577	4263013	38.51498	-105.34897	User supplied
275470	N	469577	4263013	38.51498	-105.34897	User supplied
276232	N	468371.9	4261537	38.50163	-105.36272	Spotted from section lines
215983-A	S	468007	4260763	38.494645	-105.366873	Spotted from section lines
287455	N	469134.3	4261332	38.499813	-105.353972	Spotted from section lines
290267	S	469110.9	4260497.5	38.492291	-105.354203	Spotted from section lines
292021	S	469393.1	4261934	38.505246	-105.35103	Spotted from section lines
78822F	S	465546.7	4260255.8	38.489983	-105.395061	User supplied
300506	N	465037	4264525	38.528436	-105.401119	User supplied
301600	N	465934.2	4263996	38.523704	-105.3908	Spotted from section lines

Permit	Parcel Name	Address	City	State	Postal Code
25221MH					
30210MH					
78124					
88822					
140871-A	CROWFOOT/NIMMO				
145102					
153943		321 COUNTY RD 353A	CANON CITY	CO	81212
43341-A					
153943		321 COUNTY RD 353A	CANON CITY	CO	81212
155081					
155081-A					
155379					
47740-A					
159430					
162121					
168370					
174707					
177783					
192134	KUEHL RANCHETTES				
46051F					
194842	CACTUS MOUNTAIN RANCH				
194843	CACTUS MOUNTAIN RANCH				
194841	CACTUS MOUNTAIN RANCH				
194841	CACTUS MOUNTAIN RANCH				
195974	KUEHL RANCHETTES				
198721	CACTUS MOUNTAIN ESTATES				
198714	CACTUS MOUNTAIN ESTATES				
198722	CACTUS MOUNTAIN ESTATES				
198715	CACTUS MOUNTAIN ESTATES				
198155	CACTUS MOUNTAIN				
198713	CACTUS MOUNTAIN ESTATES				
202223	KUEHL RANCHETTES				
203262					
207552					
208605					
213831					
213835					
213832					
215223	CACTUS MOUNTAIN ESTATES				
198714-A	CACTUS MOUNTAIN ESTATES				
215395	CACTUS MOUNTAIN ESTATES				
215222	CACTUS MOUNTAIN ESTATES				
215394	CACTUS MOUNTAIN ESTATES				
215218	CACTUS MOUNTAIN ESTATES				
217453	CACTUS MOUNTAIN ESTATES				
221113		3700 STATE HWY 9	CANON CITY	CO	81212
233827					
235767	STAR RANCH				
237077	STAR RANCH				
238087	STAR RANCH				
239701	STAR RANCH				
239701	STAR RANCH				
46052F-R					
258919					
260350					
43342-A					
270239					
275470		1094 COUNTY ROAD 62	CANYON CITY	CO	81212
275470		1094 COUNTY ROAD 62	CANYON CITY	CO	81212
276232	STAR RANCH				
215983-A					
287455	STAR RANCH				
290267	ROYAL GORGE BLUFFS				
292021	CROWFOOT/NIMMO				
78822F					
300506	DOUBLE CREEK RANCH				
301600	DOUBLE CREEK RANCH				

Permit	Location Type	Permit Category	Permit Issued	First Beneficial Use
25221MH	Well (Application/Permit)	Monitoring Hole (Notice of Intent)	1995-02-28	
30210MH	Well (Application/Permit)	Monitoring Hole (Notice of Intent)	1997-03-04	
78124	Well (Application/Permit)	Residential	1975-02-20	
88822	Well (Application/Permit)	Residential	1977-03-16	1967-11-21
140871-A	Well (Application/Permit)	Residential	1985-08-20	
145102	Well (Application/Permit)	Residential	1987-08-25	
153943	Well (Application/Permit)	Residential	1989-04-28	1967-01-15
43341-A	Well (Application/Permit)	Residential	1989-07-10	
153943	Well (Application/Permit)	Residential	1989-04-28	1967-01-15
155081	Well (Application/Permit)	Residential	1989-08-22	1954-08-31
155081-A	Well (Application/Permit)	Residential	1989-08-22	
155379	Well (Application/Permit)	Residential	1989-09-22	
47740-A	Well (Application/Permit)	Residential	1990-05-30	
159430	Well (Application/Permit)	Residential	1991-02-19	
162121	Well (Application/Permit)	Residential	1991-10-23	
168370	Well (Application/Permit)	Residential	1993-02-02	
174707	Well (Application/Permit)	Residential	1993-11-19	
177783	Well (Application/Permit)	Residential	1994-05-06	
192134	Well (Application/Permit)	Residential	1995-12-27	
46051F	Well (Application/Permit)	General Purpose	1996-02-01	1996-04-01
194842	Well (Application/Permit)	Residential	1996-05-09	
194843	Well (Application/Permit)	Residential	1996-05-09	
194841	Well (Application/Permit)	Residential	1996-05-09	
194841	Well (Application/Permit)	Residential	1996-05-09	
195974	Well (Application/Permit)	Residential	1996-06-24	
198721	Well (Application/Permit)	Residential	1996-10-03	
198714	Well (Application/Permit)	Residential	1996-10-03	
198722	Well (Application/Permit)	Residential	1996-10-03	
198715	Well (Application/Permit)	Residential	1996-10-03	
198155	Well (Application/Permit)	Residential	1996-09-13	
198713	Well (Application/Permit)	Residential	1996-10-03	
202223	Well (Application/Permit)	Residential	1997-04-17	
203262	Well (Application/Permit)	Residential	1997-06-11	
207552	Well (Application/Permit)	Residential	1998-01-15	1950-12-31
208605	Well (Application/Permit)	Residential	1998-03-17	1960-12-31
213831	Well (Application/Permit)	Residential	1998-11-12	
213835	Well (Application/Permit)	Residential	1998-11-12	1936-12-31
213832	Well (Application/Permit)	Residential	1998-11-12	
215223	Well (Application/Permit)	Residential	1999-01-20	
198714-A	Well (Application/Permit)	Residential	1999-02-11	
215395	Well (Application/Permit)	Residential	1999-01-28	
215222	Well (Application/Permit)	Residential	1999-01-20	
215394	Well (Application/Permit)	Residential	1999-01-28	
215218	Well (Application/Permit)	Residential	1999-01-20	
217453	Well (Application/Permit)	Residential	1999-05-12	
221113	Well (Application/Permit)	Residential	1999-10-08	
233827	Well (Application/Permit)	Residential	2001-06-05	
235767	Well (Application/Permit)	Residential	2001-08-28	
237077	Well (Application/Permit)	Residential	2001-10-23	
238087	Well (Application/Permit)	Residential	2001-12-04	
239701	Well (Application/Permit)	Residential	2002-03-27	
239701	Well (Application/Permit)	Residential	2002-03-27	
46052F-R	Well (Application/Permit)	General Purpose	2003-07-25	
258919	Well (Application/Permit)	Residential	2004-08-27	
260350	Well (Application/Permit)	Residential	2004-11-15	
43342-A	Well (Application/Permit)	Residential	2006-05-02	
270239	Well (Application/Permit)	Residential	2006-08-21	
275470	Well (Application/Permit)	Residential	2007-10-01	
275470	Well (Application/Permit)	Residential	2007-10-01	
276232	Well (Application/Permit)	Residential	2007-12-17	
215983-A	Well (Application/Permit)	Residential	2009-09-11	
287455	Well (Application/Permit)	Residential	2012-02-01	
290267	Well (Application/Permit)	Residential	2013-02-01	
292021	Well (Application/Permit)	Residential	2013-07-22	
78822F	Well (Application/Permit)	Gravel Pit	2015-02-09	
300506	Well (Application/Permit)	Residential	2016-03-18	
301600	Well (Application/Permit)	Residential	2016-06-16	

Permit	Permit Expires	Well Constructed	Pump Installed	Well Plugged	Associated Aquifers
25221MH	1995-05-28	1995-03-14			ALL UNNAMED AQUIFERS
30210MH	1997-06-04	1997-03-21			ALL UNNAMED AQUIFERS
78124		1975-10-14			ALL UNNAMED AQUIFERS
88822					ALL UNNAMED AQUIFERS
140871-A	1987-08-20	1985-10-08	1995-09-15		ALL UNNAMED AQUIFERS
145102		1988-09-22			ALL UNNAMED AQUIFERS
153943					ALL UNNAMED AQUIFERS
43341-A		1989-06-15	1989-06-16		ALL UNNAMED AQUIFERS
153943					ALL UNNAMED AQUIFERS
155081					ALL UNNAMED AQUIFERS
155081-A		1989-06-15	1989-06-16		ALL UNNAMED AQUIFERS
155379	1991-09-22	1989-10-21			ALL UNNAMED AQUIFERS
47740-A		1990-05-29			ALL UNNAMED AQUIFERS
159430		1991-03-08	1992-05-12		ALL UNNAMED AQUIFERS
162121		1992-11-15			ALL UNNAMED AQUIFERS
168370		1993-03-11	1994-08-17		ALL UNNAMED AQUIFERS
174707	1995-11-19		1994-01-04		ALL UNNAMED AQUIFERS
177783	1996-05-06	1993-10-07			ALL UNNAMED AQUIFERS
192134	1997-12-27	1996-04-30	1996-05-30		ALL UNNAMED AQUIFERS
46051F	1997-02-01	1995-03-14	1997-03-10		ALL UNNAMED AQUIFERS
194842	1998-05-09	1996-06-10	1997-05-18		ALL UNNAMED AQUIFERS
194843	1998-05-09	1996-06-07	1997-02-28		ALL UNNAMED AQUIFERS
194841	1998-05-09	1996-08-30			ALL UNNAMED AQUIFERS
194841	1998-05-09	1996-08-30			ALL UNNAMED AQUIFERS
195974	1998-06-24	1996-06-05	1996-07-01		ALL UNNAMED AQUIFERS
198721	1998-10-03	1997-05-12			ALL UNNAMED AQUIFERS
198714	1998-10-03	1998-09-18			ALL UNNAMED AQUIFERS
198722	1998-10-03		1997-10-20		ALL UNNAMED AQUIFERS
198715	1998-10-03	1998-10-02	1998-10-19		ALL UNNAMED AQUIFERS
198155	1998-09-13	1996-09-18	1997-04-19		ALL UNNAMED AQUIFERS
198713	1998-10-03	1998-09-25			ALL UNNAMED AQUIFERS
202223	1999-04-17		1997-06-10		ALL UNNAMED AQUIFERS
203262	1999-06-11	1997-03-21	2002-07-16		ALL UNNAMED AQUIFERS
207552		1968-06-15			ALL UNNAMED AQUIFERS
208605		1960-12-31			ALL UNNAMED AQUIFERS
213831	2000-11-12	2000-05-26	2005-06-23		ALL UNNAMED AQUIFERS
213835					ALL UNNAMED AQUIFERS
213832	2000-11-12	1987-07-13			ALL UNNAMED AQUIFERS
215223	2001-01-20	1999-01-30	1999-03-16		ALL UNNAMED AQUIFERS
198714-A	2001-02-11	1999-02-13	1999-03-11		ALL UNNAMED AQUIFERS
215395	2001-01-28	1999-02-02	2002-02-08		ALL UNNAMED AQUIFERS
215222	2001-01-20	1999-01-28	1999-03-22		ALL UNNAMED AQUIFERS
215394	2001-01-28	1999-02-01	2000-04-20		ALL UNNAMED AQUIFERS
215218	2001-01-20	1999-01-29	1999-03-19		ALL UNNAMED AQUIFERS
217453	2001-05-12	1992-04-06			ALL UNNAMED AQUIFERS
221113	2001-10-08	1999-11-09			ALL UNNAMED AQUIFERS
233827	2003-06-05	2001-07-31			ALL UNNAMED AQUIFERS
235767	2003-08-28	2001-12-27			ALL UNNAMED AQUIFERS
237077	2003-10-23	2001-10-31			ALL UNNAMED AQUIFERS
238087	2003-12-04	2002-01-03			ALL UNNAMED AQUIFERS
239701	2004-03-27	2002-05-02			ALL UNNAMED AQUIFERS
239701	2004-03-27	2002-05-02			ALL UNNAMED AQUIFERS
46052F-R	2004-07-25	2003-08-20	2003-08-24		ALL UNNAMED AQUIFERS
258919	2006-08-27	2004-10-06			ALL UNNAMED AQUIFERS
260350	2006-11-15	2005-01-17	2005-01-21		ALL UNNAMED AQUIFERS
43342-A	2008-05-02	2006-07-14			ALL UNNAMED AQUIFERS
270239	2008-08-21	2006-10-10	2007-01-11		ALL UNNAMED AQUIFERS
275470	2009-10-01	2008-01-16	2008-04-11		ALL UNNAMED AQUIFERS
275470	2009-10-01	2008-01-16	2008-04-11		ALL UNNAMED AQUIFERS
276232	2009-12-17	2008-01-08	2008-01-31		ALL UNNAMED AQUIFERS
215983-A	2011-09-11	2009-09-18	2009-09-24		ALL UNNAMED AQUIFERS
287455	2014-02-01	2012-02-28			ALL UNNAMED AQUIFERS
290267	2015-02-01	2013-10-22			ALL UNNAMED AQUIFERS
292021		2004-03-26			ALL UNNAMED AQUIFERS
78822F		2004-10-18	2004-12-04		ALL UNNAMED AQUIFERS
300506	2018-03-18	2016-04-13			ALL UNNAMED AQUIFERS
301600	2018-06-16	2016-08-25		2016-10-06	ALL UNNAMED AQUIFERS

Permit	Associated Uses	Elevation	Well Depth	Top Perforated Casing	Bottom Perforated Casing	Yield
25221MH	Monitoring/Sampling		380	60	380	
30210MH	Monitoring/Sampling		380	40	380	
78124	Stock		200	38	200	
88822	Domestic, Stock					
140871-A	Domestic					
145102	Domestic, Stock		350	40	350	
153943	Domestic, Stock					
43341-A	Domestic		80	40	80	10
153943	Domestic, Stock					
155081	Household use only		264			
155081-A	Household use only		247	204	264	2
155379	Domestic		158	20	158	
47740-A	Domestic, Industrial		320	200	320	
159430	Domestic, Stock		360	80	360	1
162121	Domestic, Stock		250			
168370	Domestic		300	255	295	2
174707	Domestic		200			1
177783	Commercial		175	60	175	
192134	Domestic		175	115	175	13
46051F	Domestic		380	60	380	2.25
194842	Domestic, Stock		395	335	395	5
194843	Domestic, Stock		475	415	475	2
194841	Domestic, Stock		475	405	455	
194841	Domestic, Stock		475	405	455	
195974	Domestic		395	335	395	10
198721	Domestic		300	220	280	
198714	Domestic		750			
198722	Domestic		300			5
198715	Domestic	0	550	450	550	1.5
198155	Domestic		125	105	125	8
198713	Domestic		275	215	275	
202223	Domestic		225			7
203262	Domestic, Stock		380	40	380	1
207552	Domestic		628	254	355	
208605	Stock		110			
213831	Household use only		550	470	530	4
213835	Stock					
213832	Household use only		300	200	300	
215223	Domestic		550	410	550	7
198714-A	Domestic		350	290	350	6
215395	Domestic		600	500	600	12
215222	Domestic		700	560	700	1.5
215394	Domestic		350	270	330	1.75
215218	Domestic		675	575	675	1.25
217453	Domestic, Storage		335	160	335	
221113	Domestic, Stock		32	21	32	
233827	Domestic		180	80	180	
235767	Domestic		200	120	200	
237077	Domestic		215	175	215	
238087	Domestic		515	315	515	
239701	Domestic		315	255	315	
239701	Domestic		315	255	315	
46052F-R	Commercial		100	60	80	12
258919	Domestic		225	185	225	
260350	Domestic		480	400	480	7
43342-A	Domestic		240	160	240	
270239	Domestic, Stock		280	200	280	10
275470	Domestic, Stock		460	380	460	7.5
275470	Domestic, Stock		460	380	460	7.5
276232	Domestic, Stock		580	500	580	8
215983-A	Domestic		290	210	290	12
287455	Domestic		320	260	320	
290267	Domestic, Stock		400	320	400	
292021	Household use only					
78822F	Other				35	
300506	Domestic		775			
301600	Domestic		500	300	500	

Permit	Static Water Level	Static Water Level Date	WDID	sociated Case Numb	Modified
25221MH	65				04/18/1995 12:00:00 AM
30210MH	50				05/09/1997 12:00:00 AM
78124	42				12/15/1975 12:00:00 AM
88822					03/10/1977 12:00:00 AM
140871-A					10/26/1995 12:00:00 AM
145102	50				07/06/2010 12:00:00 AM
153943					09/07/2018 01:34:00 PM
43341-A	37				02/01/1990 12:00:00 AM
153943					09/07/2018 01:34:00 PM
155081					08/09/1989 12:00:00 AM
155081-A	235				04/14/2016 12:00:00 AM
155379	25				11/22/1989 12:00:00 AM
47740-A	60				07/03/1990 12:00:00 AM
159430	85				07/10/1992 12:00:00 AM
162121	100				01/13/1992 12:00:00 AM
168370	120				08/22/1994 12:00:00 AM
174707	41				01/24/1994 12:00:00 AM
177783	30				05/02/1994 12:00:00 AM
192134	90				07/16/1996 12:00:00 AM
46051F	60		1205606		07/16/2003 12:00:00 AM
194842	136				07/30/1997 12:00:00 AM
194843	64				04/25/1997 12:00:00 AM
194841	70				07/11/2019 01:49:00 PM
194841	70				07/11/2019 01:49:00 PM
195974	6				07/16/1996 12:00:00 AM
198721	55				01/28/2005 12:00:00 AM
198714					11/30/1998 12:00:00 AM
198722	105				12/02/1997 12:00:00 AM
198715	362				12/21/1998 12:00:00 AM
198155	25				04/15/1998 12:00:00 AM
198713	50				07/17/2018 12:37:00 PM
202223	80				10/16/1996 12:00:00 AM
203262	50				12/26/2013 12:00:00 AM
207552	5		1208304		10/24/1997 12:00:00 AM
208605			1208308		01/16/1998 12:00:00 AM
213831	200				07/21/2005 12:00:00 AM
213835			1205551		08/13/1998 12:00:00 AM
213832	60				11/05/1998 12:00:00 AM
215223	135				04/15/1999 12:00:00 AM
198714-A	50				03/19/1999 12:00:00 AM
215395	190				04/12/2002 12:00:00 AM
215222	225				04/15/1999 12:00:00 AM
215394	38				06/12/2000 12:00:00 AM
215218	178				04/15/1999 12:00:00 AM
217453	130				05/03/1999 12:00:00 AM
221113	15				08/07/2018 04:31:00 PM
233827	80				08/15/2001 12:00:00 AM
235767	10				02/07/2002 12:00:00 AM
237077	102				12/03/2001 12:00:00 AM
238087					03/08/2002 12:00:00 AM
239701	128				09/05/2018 02:22:00 PM
239701	128				09/05/2018 02:22:00 PM
46052F-R	7		1205607		06/09/2014 12:00:00 AM
258919	1				11/15/2004 12:00:00 AM
260350	30				03/05/2014 12:00:00 AM
43342-A	90				08/17/2006 12:00:00 AM
270239	43				02/06/2007 12:00:00 AM
275470	0				10/16/2019 06:47:00 AM
275470	0				10/16/2019 06:47:00 AM
276232	100				12/15/2009 12:00:00 AM
215983-A	40				11/30/2009 12:00:00 AM
287455	10				01/15/2014 12:00:00 AM
290267	45				11/14/2013 12:00:00 AM
292021					05/06/2013 12:00:00 AM
78822F	30		1205065		02/10/2015 12:00:00 AM
300506					05/08/2017 12:00:00 AM
301600	10				04/04/2017 12:00:00 AM

Permit	More Information	Location	IDKey
25221MH	https://dwr.state.co.us/Tools/WellPermits/0025221	(38.500984, -105.349843)	0025221 184397
30210MH	https://dwr.state.co.us/Tools/WellPermits/0030210	(38.497277, -105.353818)	0030210 90865
78124	https://dwr.state.co.us/Tools/WellPermits/0057935	(38.488659, -105.346841)	0057935 221010
88822	https://dwr.state.co.us/Tools/WellPermits/0078591A	(38.505911, -105.351913)	0078591A 139530
140871-A	https://dwr.state.co.us/Tools/WellPermits/0256699B	(38.504148, -105.351113)	0256699B 94229
145102	https://dwr.state.co.us/Tools/WellPermits/0263499	(38.495698, -105.348365)	0263499 17709
153943	https://dwr.state.co.us/Tools/WellPermits/0298963	(38.507416, -105.356774)	0298963 393540
43341-A	https://dwr.state.co.us/Tools/WellPermits/0298903	(38.491301, -105.378794)	0298903 156556
153943	https://dwr.state.co.us/Tools/WellPermits/0298963	(38.507416, -105.356774)	0298963 393541
155081	https://dwr.state.co.us/Tools/WellPermits/0300895A	(38.497983, -105.345387)	0300895A 89856
155081-A	https://dwr.state.co.us/Tools/WellPermits/0300895B	(38.497237, -105.34477)	0300895B 150103
155379	https://dwr.state.co.us/Tools/WellPermits/0304008	(38.478638, -105.353135)	0304008 141915
47740-A	https://dwr.state.co.us/Tools/WellPermits/0312268	(38.490526, -105.378809)	0312268 223582
159430	https://dwr.state.co.us/Tools/WellPermits/0321527	(38.491012, -105.345214)	0321527 273139
162121	https://dwr.state.co.us/Tools/WellPermits/0330646B	(38.488485, -105.35996)	0330646B 3801
168370	https://dwr.state.co.us/Tools/WellPermits/0348451	(38.475568, -105.347633)	0348451 253268
174707	https://dwr.state.co.us/Tools/WellPermits/0361132	(38.483462, -105.34917)	0361132 205273
177783	https://dwr.state.co.us/Tools/WellPermits/0366520	(38.498862, -105.348078)	0366520 110926
192134	https://dwr.state.co.us/Tools/WellPermits/0393018	(38.52063, -105.360529)	0393018 152848
46051F	https://dwr.state.co.us/Tools/WellPermits/0395254A	(38.499252, -105.348981)	0395254A 356256
194842	https://dwr.state.co.us/Tools/WellPermits/0396600	(38.514136, -105.365075)	0396600 237908
194843	https://dwr.state.co.us/Tools/WellPermits/0396601	(38.516912, -105.36489)	0396601 366654
194841	https://dwr.state.co.us/Tools/WellPermits/0397345	(38.519481, -105.378786)	0397345 407717
194841	https://dwr.state.co.us/Tools/WellPermits/0397345	(38.519481, -105.378786)	0397345 407716
195974	https://dwr.state.co.us/Tools/WellPermits/0400151	(38.520291, -105.360861)	0400151 319708
198721	https://dwr.state.co.us/Tools/WellPermits/0405665J	(38.514296, -105.375273)	0405665J 299247
198714	https://dwr.state.co.us/Tools/WellPermits/0405665C	(38.524798, -105.383053)	0405665C 43760
198722	https://dwr.state.co.us/Tools/WellPermits/0405665K	(38.514832, -105.374205)	0405665K 311763
198715	https://dwr.state.co.us/Tools/WellPermits/0405665D	(38.524761, -105.386025)	0405665D 30500
198155	https://dwr.state.co.us/Tools/WellPermits/0405102	(38.522601, -105.379774)	0405102 18209
198713	https://dwr.state.co.us/Tools/WellPermits/0405665B	(38.520693, -105.377539)	0405665B 390653
202223	https://dwr.state.co.us/Tools/WellPermits/0408084	(38.516692, -105.361731)	0408084 83103
203262	https://dwr.state.co.us/Tools/WellPermits/0413647	(38.497239, -105.353028)	0413647 170313
207552	https://dwr.state.co.us/Tools/WellPermits/0422989	(38.530694, -105.38381)	0422989 123743
208605	https://dwr.state.co.us/Tools/WellPermits/0425594	(38.500958, -105.402748)	0425594 171495
213831	https://dwr.state.co.us/Tools/WellPermits/0434435	(38.480741, -105.348881)	0434435 328633
213835	https://dwr.state.co.us/Tools/WellPermits/0434434B	(38.533589, -105.407333)	0434434B 220338
213832	https://dwr.state.co.us/Tools/WellPermits/0437874	(38.479185, -105.34804)	0437874 328633
215223	https://dwr.state.co.us/Tools/WellPermits/0440016C	(38.51853, -105.370567)	0440016C 353957
198714-A	https://dwr.state.co.us/Tools/WellPermits/0441008	(38.525918, -105.38366)	0441008 359065
215395	https://dwr.state.co.us/Tools/WellPermits/0440016E	(38.52066, -105.383657)	0440016E 298771
215222	https://dwr.state.co.us/Tools/WellPermits/0440016A	(38.514375, -105.380499)	0440016A 50811
215394	https://dwr.state.co.us/Tools/WellPermits/0440016B	(38.520513, -105.38567)	0440016B 317488
215218	https://dwr.state.co.us/Tools/WellPermits/0440016D	(38.514345, -105.381548)	0440016D 17261
217453	https://dwr.state.co.us/Tools/WellPermits/0445027	(38.515111, -105.370242)	0445027 248894
221113	https://dwr.state.co.us/Tools/WellPermits/0450736	(38.53319, -105.397545)	0450736 391917
233827	https://dwr.state.co.us/Tools/WellPermits/0476598	(38.509082, -105.359993)	0476598 328544
235767	https://dwr.state.co.us/Tools/WellPermits/0481004	(38.500884, -105.354634)	0481004 215760
237077	https://dwr.state.co.us/Tools/WellPermits/0482349	(38.503894, -105.356315)	0482349 339906
238087	https://dwr.state.co.us/Tools/WellPermits/0484828	(38.501481, -105.362913)	0484828 225257
239701	https://dwr.state.co.us/Tools/WellPermits/0488962	(38.505466, -105.359299)	0488962 393396
239701	https://dwr.state.co.us/Tools/WellPermits/0488962	(38.505466, -105.359299)	0488962 393397
46052F-R	https://dwr.state.co.us/Tools/WellPermits/0512665	(38.502382, -105.348024)	0512665 356256
258919	https://dwr.state.co.us/Tools/WellPermits/0526341	(38.505153, -105.355137)	0526341 123238
260350	https://dwr.state.co.us/Tools/WellPermits/0530704	(38.530883, -105.421614)	0530704 227514
43342-A	https://dwr.state.co.us/Tools/WellPermits/3603278	(38.487873, -105.372213)	3603278 81940
270239	https://dwr.state.co.us/Tools/WellPermits/3606244	(38.51535, -105.34773)	3606244 115417
275470	https://dwr.state.co.us/Tools/WellPermits/3616673	(38.51498, -105.34897)	3616673 412695
275470	https://dwr.state.co.us/Tools/WellPermits/3616673	(38.51498, -105.34897)	3616673 412696
276232	https://dwr.state.co.us/Tools/WellPermits/3623960	(38.50163, -105.36272)	3623960 256444
215983-A	https://dwr.state.co.us/Tools/WellPermits/3642638	(38.494645, -105.366873)	3642638 289364
287455	https://dwr.state.co.us/Tools/WellPermits/3653791	(38.499813, -105.353972)	3653791 110717
290267	https://dwr.state.co.us/Tools/WellPermits/3658346A	(38.492291, -105.354203)	3658346A 284300
292021	https://dwr.state.co.us/Tools/WellPermits/3659855	(38.505246, -105.35103)	3659855 216737
78822F	https://dwr.state.co.us/Tools/WellPermits/3667100	(38.489983, -105.395061)	3667100 337172
300506	https://dwr.state.co.us/Tools/WellPermits/3673437	(38.528436, -105.401119)	3673437 202210
301600	https://dwr.state.co.us/Tools/WellPermits/3674526	(38.523704, -105.3908)	3674526 179511

Permit	Received From	Received Date	Publish Date	Received Projection	File Name
25221MH	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
30210MH	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
78124	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
88822	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
140871-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
145102	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
153943	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
43341-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
153943	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
155081	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
155081-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
155379	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
47740-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
159430	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
162121	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
168370	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
174707	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
177783	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
192134	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
46051F	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
194842	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
194843	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
194841	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
194841	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
195974	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198721	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198714	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198722	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198715	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198155	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198713	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
202223	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
203262	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
207552	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
208605	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
213831	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
213835	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
213832	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
215223	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198714-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
215395	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
215222	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
215394	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
215218	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
217453	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
221113	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
233827	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
235767	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
237077	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
238087	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
239701	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
239701	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
46052F-R	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
258919	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
260350	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
43342-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
270239	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
275470	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
275470	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
276232	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
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287455	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
290267	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
292021	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
78822F	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
300506	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301600	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit

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198715	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
198155	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
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207552	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
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213835	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
213832	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
215223	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
198714-A	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
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215394	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
215218	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
217453	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
221113	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
233827	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
235767	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
237077	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
238087	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
239701	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
239701	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
46052F-R	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
258919	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
260350	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
43342-A	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
270239	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
275470	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
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276232	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
215983-A	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
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78822F	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
300506	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301600	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well

Permit	Website
25221MH	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
30210MH	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
78124	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
88822	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
140871-A	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
145102	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
153943	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
43341-A	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
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155081-A	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
155379	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
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195974	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
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78822F	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
300506	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
301600	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb

Permit	Current Status	Contact Name	DIV	WD	County	PM	Township
301597	Well Constructed	TABISH MARK & WENDY	2	12	FREMONT	S	17.0 S
301601	Well Constructed	FEDIE, MARK	2	12	FREMONT	S	17.0 S
301598	Well Constructed	SANDERS, JAMES W.	2	12	FREMONT	S	17.0 S
301603	Well Constructed	FEDIE, MARK	2	12	FREMONT	S	17.0 S
301598	Well Constructed	SANDERS, NANCY	2	12	FREMONT	S	17.0 S
301600-A	Well Constructed	CABAY, HEATHER L.	2	12	FREMONT	S	17.0 S
301600-A	Well Constructed	CABAY, JASON J.	2	12	FREMONT	S	17.0 S
144365	Well Constructed	ALVIES, DIANE	2	12	FREMONT	S	18.0 S
44904	Well Constructed	MASSEY, JAN E	2	12	FREMONT	S	18.0 S
21556	Well Constructed	FREDICKSON WALKER & BOMBERG	2	12	FREMONT	S	18.0 S
10350	Well Constructed	GOWDY, BENITA F	2	12	FREMONT	S	18.0 S
44202	Well Constructed	TYLER, ROGER	2	12	FREMONT	S	18.0 S
8568	Well Constructed	BARTGIS KELLY D & PAMELA J	2	12	FREMONT	S	17.0 S
47740	Well Constructed	CF&I STEEL CORPORATION	2	12	FREMONT	S	18.0 S
39396	Well Constructed	MASSEY, JAN E	2	12	FREMONT	S	18.0 S
43341	Well Constructed	CF & I STEEL CORP	2	12	FREMONT	S	18.0 S
43342	Well Constructed	CF & I STEEL CORP	2	12	FREMONT	S	18.0 S
55817	Well Constructed	MOUNT, IMOGEAN	2	12	FREMONT	S	17.0 S
108315	Well Constructed	BARTGIS KELLY D & PAMELA D	2	12	FREMONT	S	17.0 S
60502	Well Constructed	STEWART, LEONARD	2	12	FREMONT	S	18.0 S
68659	Well Constructed	WINKIEWICZ, FRANK	2	12	FREMONT	S	18.0 S
304787	Well Constructed	CAIN, DANIEL E	2	12	FREMONT	S	18.0 S
46052F-R	Well Constructed	SCHIRADO, RHONDA J.	2	12	FREMONT	S	18.0 S
305825	Well Constructed	BARRY, KENNETH J.	2	12	FREMONT	S	17.0 S
269359	Well Constructed	OWENS RICHARD W & KRISTY ANN	2	12	FREMONT	S	17.0 S
301599	Well Constructed	HOUDEK, GRETCHEN	2	12	FREMONT	S	17.0 S
198720	Well Constructed	ANDERSON, DONALD	2	12	FREMONT	S	18.0 S
198720	Well Constructed	SLEZAK, SUSAN	2	12	FREMONT	S	18.0 S
269113	Well Constructed	ALVIES, DIANE	2	12	FREMONT	S	18.0 S
312799	Well Constructed	PARKER, CHRISTOPHER A.	2	12	FREMONT	S	17.0 S

Permit	Range	Township_D	Range_D	Section	Q10	Q40	Q160	CoordsEW	CoordsEW Dir	CoordsNS
301597	72.0 W	-17	-72	36				2595	W	2305
301601	72.0 W	-17	-72	36				1176	E	2059
301598	72.0 W	-17	-72	36				2589	E	1514
301603	72.0 W	-17	-72	36		NW	SE	1935	E	2162
301598	72.0 W	-17	-72	36				2589	E	1514
301600-A	72.0 W	-17	-72	36						
301600-A	72.0 W	-17	-72	36						
144365	71.0 W	-18	-71	17		NW	NE	1625	E	400
44904	71.0 W	-18	-71	8		NE	NE	600	E	100
21556	71.0 W	-18	-71	17		NE	NW			
10350	71.0 W	-18	-71	5		NE	NE	1041	W	185
44202	71.0 W	-18	-71	8		NE	NE			
8568	72.0 W	-17	-72	26		SE	SW			
47740	71.0 W	-18	-71	7		SW	SW	2090	W	500
39396	71.0 W	-18	-71	8		NE	NE	372	E	100
43341	71.0 W	-18	-71	7		SE	SW	2360	W	280
43342	71.0 W	-18	-71	18		NW	NE	2530	E	140
55817	71.0 W	-17	-71	31		NE	SE			
108315	72.0 W	-17	-72	34		NE	NE	50	E	800
60502	71.0 W	-18	-71	8		NE	SE			
68659	71.0 W	-18	-71	5		SE	SE	570	E	310
304787	71.0 W	-18	-71	5		NW	NE			
46052F-R	71.0 W	-18	-71	8		NE	NE			
305825	72.0 W	-17	-72	36		NW	SE			
269359	71.0 W	-17	-71	31		SW	NW			
301599	72.0 W	-17	-72	36		SE	SW			
198720	71.0 W	-18	-71	6		NE	NW			
198720	71.0 W	-18	-71	6		NE	NW			
269113	71.0 W	-18	-71	17		NW	NE			
312799	72.0 W	-17	-72	36		NE	SW			

Permit	CoordsNS Dir	UTM x	UTM y	Latitude	Longitude	Location Accuracy
301597	N	465393.8	4264043	38.524106	-105.397001	Spotted from section lines
301601	S	465864.5	4263795.5	38.521894	-105.39159	Spotted from section lines
301598	S	465430.6	4263630.5	38.520391	-105.396559	Spotted from section lines
301603	S	465633.7	4263827.5	38.522174	-105.394239	Spotted from section lines
301598	S	465430.6	4263630.5	38.520391	-105.396559	Spotted from section lines
301600-A		465418	4263957	38.523332	-105.39672	Spotted from quarters
301600-A		465418	4263957	38.523332	-105.39672	Spotted from quarters
144365	N	469273.7	4259925.1	38.487139	-105.352311	Spotted from section lines
44904	N	469488	4261632.1	38.502529	-105.349929	Spotted from section lines
21556		468841.6	4259847.1	38.486421	-105.357262	Spotted from quarters
10350	N	468626.5	4263126.5	38.51597	-105.35988	Spotted from section lines
44202		469494.8	4261460.6	38.500984	-105.349843	Spotted from quarters
8568		463604.7	4264973.6	38.532422	-105.417574	Spotted from quarters
47740	S	467335.5	4260161	38.489196	-105.374545	Spotted from section lines
39396	N	469557.5	4261633.6	38.502545	-105.349132	Spotted from section lines
43341	S	467420	4260097.1	38.488623	-105.373574	Spotted from section lines
43342	N	467504.7	4259972.6	38.487504	-105.372597	Spotted from section lines
55817		468111.8	4263759.6	38.521654	-105.365808	Spotted from quarters
108315	N	462985.3	4264539.6	38.528485	-105.424657	Spotted from section lines
60502		469539.3	4260652.6	38.493704	-105.349298	Spotted from quarters
68659	S	469489.6	4261756.5	38.503651	-105.349916	Spotted from section lines
304787		468901	4263025	38.515068	-105.356732	GPS
46052F-R		469654	4261615	38.502387	-105.348034	GPS
305825		465478	4263918	38.522989	-105.396039	GPS
269359		466860.3	4264288.5	38.526376	-105.380203	User supplied
301599		465089	4263565	38.519793	-105.400484	User supplied
198720		467102.6	4262996.5	38.514742	-105.377355	User supplied
198720		467102.6	4262996.5	38.514742	-105.377355	User supplied
269113		469244	4260003	38.487846	-105.352665	User supplied
312799		465271	4263730	38.521287	-105.398405	User supplied

Permit	Parcel Name	Address	City	State	Postal Code
301597	DOUBLE CREEK RANCH				
301601	DOUBLE CREEK RANCH				
301598	DOUBLE CREEK RANCH				
301603	DOUBLE CREEK RANCH				
301598	DOUBLE CREEK RANCH				
301600-A	DOUBLE CREEK RANCH				
301600-A	DOUBLE CREEK RANCH				
144365					
44904					
21556					
10350					
44202					
8568					
47740					
39396					
43341					
43342					
55817					
108315					
60502					
68659					
304787					
46052F-R		43595 US HWY 50	CANON CITY	CO	81212
305825	DOUBLE CREEK RANCH				
269359		2520 STATE HWY 9	CANON CITY	CO	81212
301599	DOUBLE CREEK RANCH	1111 HORSESHOE DR	CANON CITY	CO	81212
198720	CACTUS MOUNTAIN ESTATES	34 CACTUS DR W	CANON CITY	CO	81212
198720	CACTUS MOUNTAIN ESTATES	34 CACTUS DR W	CANON CITY	CO	81212
269113					
312799	DOUBLE CREEK RANCH	38 DOUBLE CREEK RD	CANYON CITY	CO	81212

Permit	Location Type	Permit Category	Permit Issued	First Beneficial Use
301597	Well (Application/Permit)	Residential	2016-06-16	
301601	Well (Application/Permit)	Residential	2016-06-16	
301598	Well (Application/Permit)	Residential	2016-06-16	
301603	Well (Application/Permit)	Residential	2016-06-16	
301598	Well (Application/Permit)	Residential	2016-06-16	
301600-A	Well (Application/Permit)	Residential	2017-01-26	
301600-A	Well (Application/Permit)	Residential	2017-01-26	
144365	Well (Application/Permit)	Residential		1986-07-14
44904	Well (Application/Permit)	Residential	1971-03-18	
21556	Well (Application/Permit)	Residential		1964-09-23
10350	Well (Application/Permit)	Residential		1961-08-28
44202	Well (Application/Permit)	Residential		1971-01-14
8568	Well (Application/Permit)	Residential		1961-04-30
47740	Well (Application/Permit)	Residential		1947-01-07
39396	Well (Application/Permit)	Residential	1969-09-22	1969-09-26
43341	Well (Application/Permit)	Residential		1947-01-07
43342	Well (Application/Permit)	Residential		1972-01-07
55817	Well (Application/Permit)	Residential	1972-04-06	1974-03-21
108315	Well (Application/Permit)	Residential		1979-09-08
60502	Well (Application/Permit)	Residential	1972-05-09	1973-03-20
68659	Well (Application/Permit)	Residential	1973-05-01	1973-05-01
304787	Well (Construction Report)	Residential	2017-03-09	
46052F-R	Well (Construction Report)	General Purpose	2017-07-12	
305825	Well (Construction Report)	Residential	2017-06-19	
269359	Well (Construction Report)	Residential	2006-06-14	
301599	Well (Construction Report)	Residential	2016-06-16	
198720	Well (Construction Report)	Residential	1996-10-03	
198720	Well (Construction Report)	Residential	1996-10-03	
269113	Well (Construction Report)	Residential	2006-05-30	
312799	Well (Construction Report)	Residential	2019-03-15	

Permit	Permit Expires	Well Constructed	Pump Installed	Well Plugged	Associated Aquifers
301597	2018-06-16	2016-09-15			ALL UNNAMED AQUIFERS
301601	2018-06-16	2016-08-31			ALL UNNAMED AQUIFERS
301598	2018-06-16	2017-03-17			ALL UNNAMED AQUIFERS
301603	2018-06-16	2016-09-12			ALL UNNAMED AQUIFERS
301598	2018-06-16	2017-03-17			ALL UNNAMED AQUIFERS
301600-A	2019-01-26	2017-03-15			ALL UNNAMED AQUIFERS
301600-A	2019-01-26	2017-03-15			ALL UNNAMED AQUIFERS
144365					ALL UNNAMED AQUIFERS
44904					ALL UNNAMED AQUIFERS
21556					ALL UNNAMED AQUIFERS
10350					ALL UNNAMED AQUIFERS
44202					ALL UNNAMED AQUIFERS
8568					ALL UNNAMED AQUIFERS
47740		1990-05-29			ALL UNNAMED AQUIFERS
39396		1969-09-26			ALL UNNAMED AQUIFERS
43341					ALL UNNAMED AQUIFERS
43342					ALL UNNAMED AQUIFERS
55817		1974-03-21			ALL UNNAMED AQUIFERS
108315					ALL UNNAMED AQUIFERS
60502		1973-03-20			ALL UNNAMED AQUIFERS
68659		1973-05-24			ALL UNNAMED AQUIFERS
304787	2019-03-09	2017-04-20			ALL UNNAMED AQUIFERS
46052F-R	2018-07-12	2017-07-17			DAKOTA
305825	2019-06-19	2017-09-14			ALL UNNAMED AQUIFERS
269359	2008-06-14	2006-10-13	2018-03-28		ALL UNNAMED AQUIFERS
301599	2018-06-16		2018-04-20		ALL UNNAMED AQUIFERS
198720	1998-10-03	1997-05-12	2018-06-25		ALL UNNAMED AQUIFERS
198720	1998-10-03	1997-05-12	2018-06-25		ALL UNNAMED AQUIFERS
269113	2008-05-30	2006-06-08	2019-06-05		ALL UNNAMED AQUIFERS
312799	2021-03-15	2019-06-27	2019-07-19		ALL UNNAMED AQUIFERS

Permit	Associated Uses	Elevation	Well Depth	Top Perforated Casing	Bottom Perforated Casing	Yield
301597	Domestic		100	40	100	
301601	Domestic		600	60	580	
301598	Domestic		100	21	100	
301603	Domestic		200	40	200	
301598	Domestic		100	21	100	
301600-A	Domestic		100	21	100	
301600-A	Domestic		100	21	100	
144365	Domestic					
44904	Domestic		22			
21556	Domestic					
10350	Domestic					
44202	Domestic					
8568	Stock					
47740	Domestic		320	200	320	
39396	Domestic		220	180	220	
43341	Domestic					
43342	Domestic					
55817	Domestic, Stock		173			
108315	Domestic					
60502	Domestic, Stock		80	40	80	
68659	Household use only		50	10	50	
304787	Domestic		175			
46052F-R	Commercial		250			
305825	Domestic, Irrigation		100			
269359	Household use only		320	240	320	3
301599	Domestic		100	24	100	15
198720	Domestic		280	220	280	5
198720	Domestic		280	220	280	5
269113	Domestic, Stock		360	280	360	3
312799	Domestic, Stock		100			3.5

Permit	Static Water Level	Static Water Level Date	WDID	sociated Case Numb	Modified
301597	10				10/25/2016 12:00:00 AM
301601	46				10/04/2016 12:00:00 AM
301598	14				09/11/2019 04:39:00 PM
301603					10/25/2016 12:00:00 AM
301598	14				09/11/2019 04:39:00 PM
301600-A	11				03/15/2018 03:33:00 PM
301600-A	11				03/15/2018 03:33:00 PM
144365					
44904	20				10/12/1995 12:00:00 AM
21556					
10350					03/12/2008 12:00:00 AM
44202					
8568					
47740	60				07/03/1990 12:00:00 AM
39396	35				10/08/1969 12:00:00 AM
43341					
43342					
55817					03/16/1974 12:00:00 AM
108315					
60502	20				05/21/1973 12:00:00 AM
68659	10				07/05/1973 12:00:00 AM
304787	50				08/02/2017 10:17:00 AM
46052F-R	29		1205607	07CW0128	08/02/2017 10:31:00 AM
305825	16				10/12/2017 02:19:00 PM
269359	85				04/09/2018 01:23:00 PM
301599	12				03/06/2019 11:59:00 AM
198720	100				10/03/2018 06:40:00 AM
198720	100				10/03/2018 06:40:00 AM
269113	110				07/10/2019 08:55:00 AM
312799	22				09/17/2019 12:12:00 PM

Permit	More Information	Location	IDKey
301597	https://dwr.state.co.us/Tools/WellPermits/3674531	(38.524106, -105.397001)	3674531 234833
301601	https://dwr.state.co.us/Tools/WellPermits/3674529	(38.521894, -105.39159)	3674529 179511
301598	https://dwr.state.co.us/Tools/WellPermits/3674524	(38.520391, -105.396559)	3674524 42913
301603	https://dwr.state.co.us/Tools/WellPermits/3674530	(38.522174, -105.394239)	3674530 179511
301598	https://dwr.state.co.us/Tools/WellPermits/3674524	(38.520391, -105.396559)	3674524 399779
301600-A	https://dwr.state.co.us/Tools/WellPermits/3678038	(38.523332, -105.39672)	3678038 384403
301600-A	https://dwr.state.co.us/Tools/WellPermits/3678038	(38.523332, -105.39672)	3678038 384402
144365	https://dwr.state.co.us/Tools/WellPermits/9086935	(38.487139, -105.352311)	9086935 351138
44904	https://dwr.state.co.us/Tools/WellPermits/9085964	(38.502529, -105.349929)	9085964 190736
21556	https://dwr.state.co.us/Tools/WellPermits/9085750	(38.486421, -105.357262)	9085750 123421
10350	https://dwr.state.co.us/Tools/WellPermits/9085616	(38.51597, -105.35988)	9085616 114140
44202	https://dwr.state.co.us/Tools/WellPermits/9085951	(38.500984, -105.349843)	9085951 318201
8568	https://dwr.state.co.us/Tools/WellPermits/9085600	(38.532422, -105.417574)	9085600 303552
47740	https://dwr.state.co.us/Tools/WellPermits/9086011	(38.489196, -105.374545)	9086011 279523
39396	https://dwr.state.co.us/Tools/WellPermits/9085905	(38.502545, -105.349132)	9085905 190736
43341	https://dwr.state.co.us/Tools/WellPermits/9085942	(38.488623, -105.373574)	9085942 173734
43342	https://dwr.state.co.us/Tools/WellPermits/9085943	(38.487504, -105.372597)	9085943 173734
55817	https://dwr.state.co.us/Tools/WellPermits/9086087	(38.521654, -105.365808)	9086087 197839
108315	https://dwr.state.co.us/Tools/WellPermits/9086763	(38.528485, -105.424657)	9086763 341072
60502	https://dwr.state.co.us/Tools/WellPermits/9086131	(38.493704, -105.349298)	9086131 40826
68659	https://dwr.state.co.us/Tools/WellPermits/9086241	(38.503651, -105.349916)	9086241 122170
304787	https://dwr.state.co.us/Tools/WellPermits/3678593	(38.515068, -105.356732)	3678593 285193
46052F-R	https://dwr.state.co.us/Tools/WellPermits/3680613	(38.502387, -105.348034)	3680613 370599
305825	https://dwr.state.co.us/Tools/WellPermits/3680224	(38.522989, -105.396039)	3680224 369537
269359	https://dwr.state.co.us/Tools/WellPermits/3604319	(38.526376, -105.380203)	3604319 86051
301599	https://dwr.state.co.us/Tools/WellPermits/3674525	(38.519793, -105.400484)	3674525 402088
198720	https://dwr.state.co.us/Tools/WellPermits/0405665I	(38.514742, -105.377355)	0405665I 394578
198720	https://dwr.state.co.us/Tools/WellPermits/0405665I	(38.514742, -105.377355)	0405665I 394577
269113	https://dwr.state.co.us/Tools/WellPermits/3604372	(38.487846, -105.352665)	3604372 163751
312799	https://dwr.state.co.us/Tools/WellPermits/3690612	(38.521287, -105.398405)	3690612 401334

Permit	Received From	Received Date	Publish Date	Received Projection	File Name
301597	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301601	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301598	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301603	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301598	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301600-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301600-A	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
144365	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
44904	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
21556	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
10350	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
44202	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
8568	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
47740	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
39396	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
43341	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
43342	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
55817	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
108315	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
60502	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
68659	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
304787	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
46052F-R	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
305825	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
269359	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
301599	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198720	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
198720	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
269113	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit
312799	Colorado DWR	2019-10-22	2019-10-22	CCS - NAD83	DWR_Well_Application_Permit

Permit	File Path
301597	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301601	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301598	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301603	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301598	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301600-A	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301600-A	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
144365	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
44904	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
21556	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
10350	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
44202	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
8568	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
47740	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
39396	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
43341	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
43342	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
55817	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
108315	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
60502	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
68659	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
304787	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
46052F-R	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
305825	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
269359	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
301599	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
198720	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
198720	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
269113	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well
312799	\\PDCCITRDSGIS1\Projects_1\Martin_Marietta\Parkdale_EIS\Transfer\Incoming\ColoradoDNR\20191022_WellApplications\DWR_Well

Permit	Website
301597	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
301601	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
301598	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
301603	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
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301600-A	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
144365	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
44904	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
21556	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
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60502	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
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301599	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
198720	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
198720	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
269113	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb
312799	https://data.colorado.gov/Water/DWR-Well-Application-Permit/wumm-7awb

Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix H

Visual Simulations

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Existing Conditions



Phase 1



Phase 2



Phase 3



Phase 4



Phase 5



Reclaimed

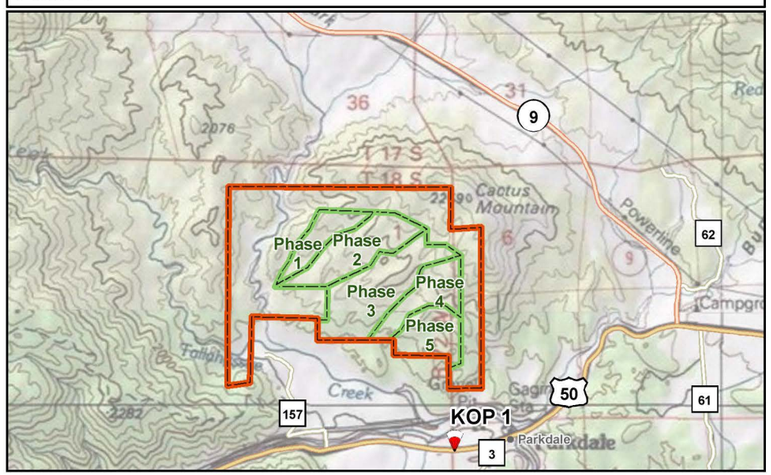


Figure H-1
Alternative A (Proposed Action) - Visual Simulation from KOP1

PDC:\TDSIS\Projects_Mining\Mining\Parkdale_EIS\Figures\DraftEIS_DEIS_PDEIS\Appendix_H\VisualSim\Fig_H_01_PropVisualSimulation_KOP1.mxd User: dsolis Date: 11/6/2019



Existing Conditions



Phase 1



Phase 2



Phase 3



Phase 4



Phase 5



Reclaimed

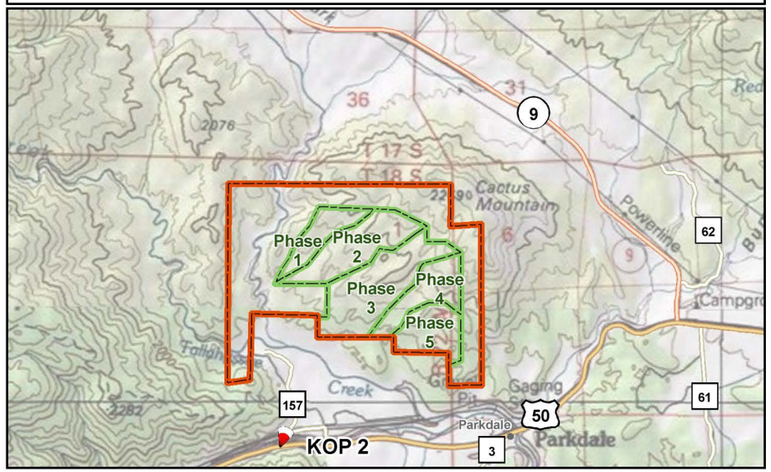


Figure H-2
Alternative A (Proposed Action) - Visual Simulation from KOP2

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Existing Conditions



Phase 1



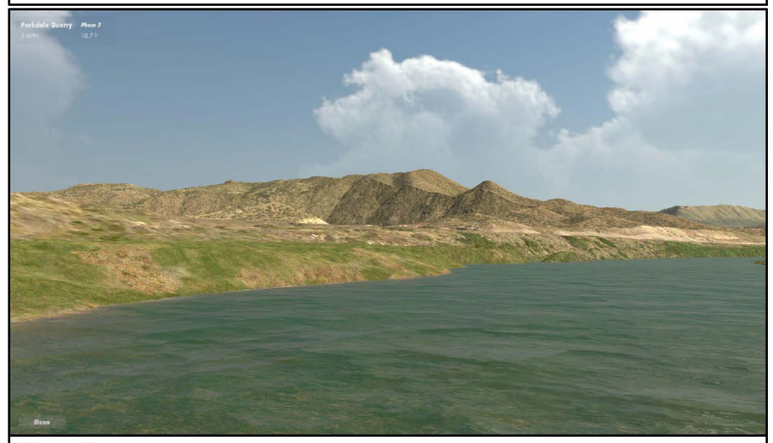
Phase 2



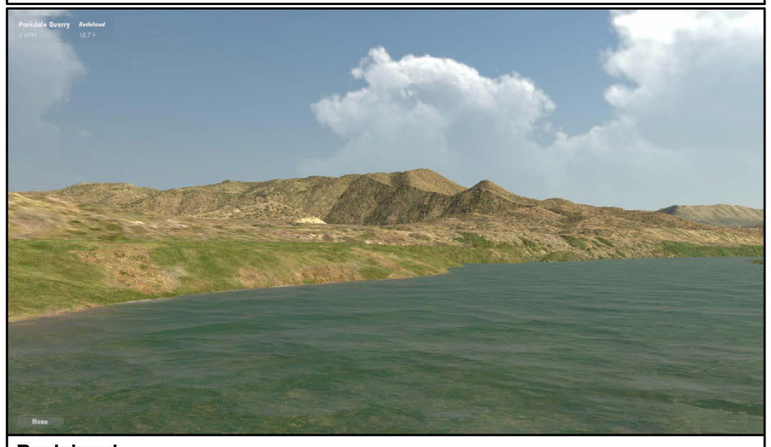
Phase 3



Phase 4



Phase 5



Reclaimed

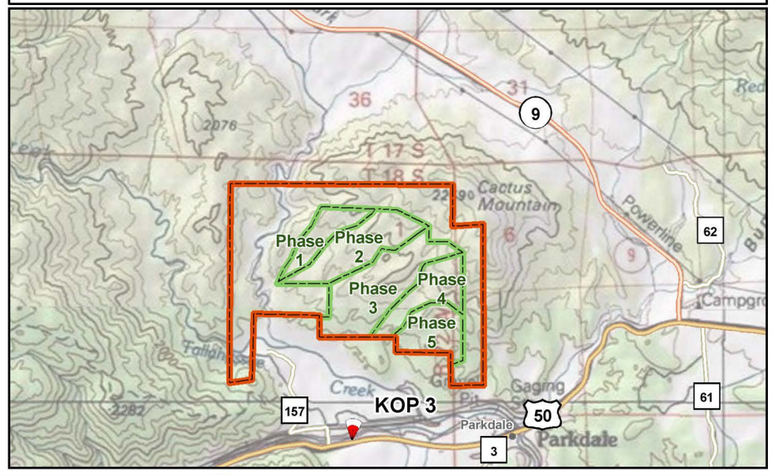
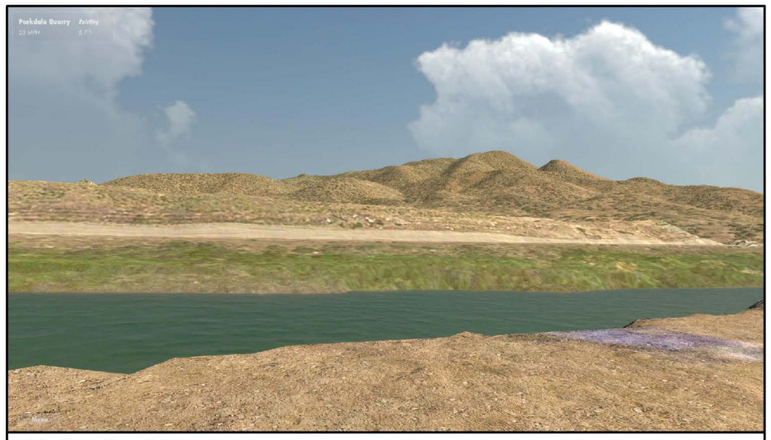
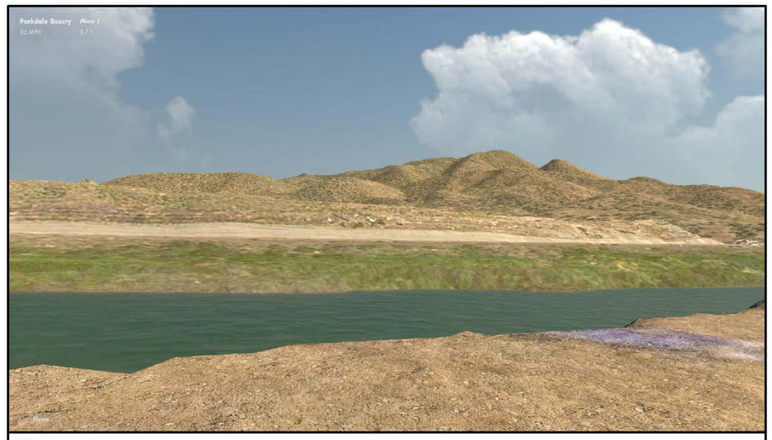


Figure H-3
Alternative A (Proposed Action) - Visual Simulation from KOP3

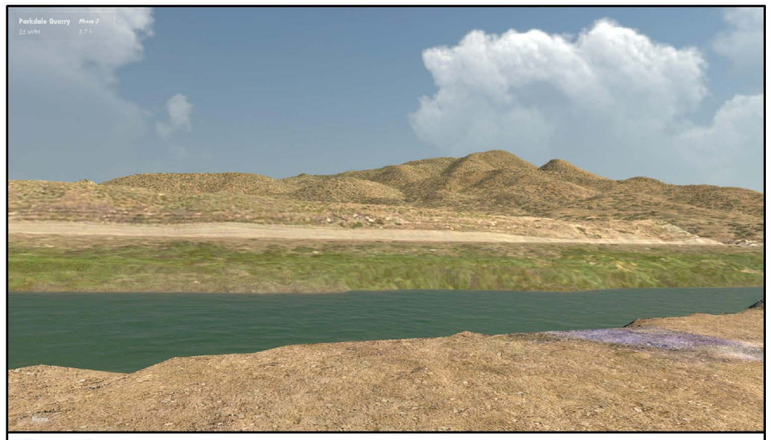
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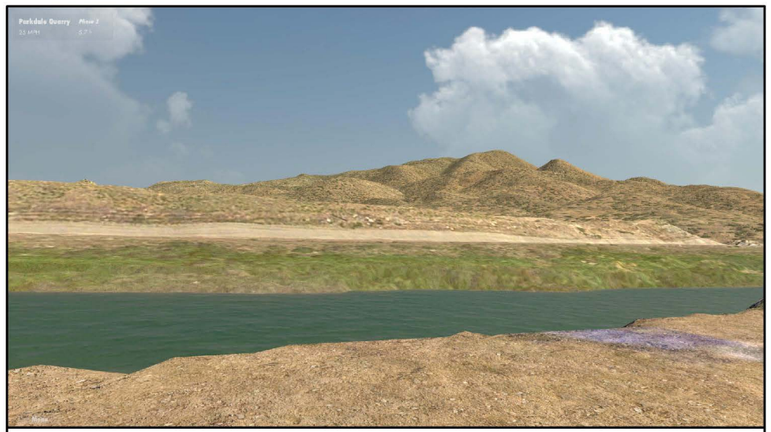
Existing Conditions



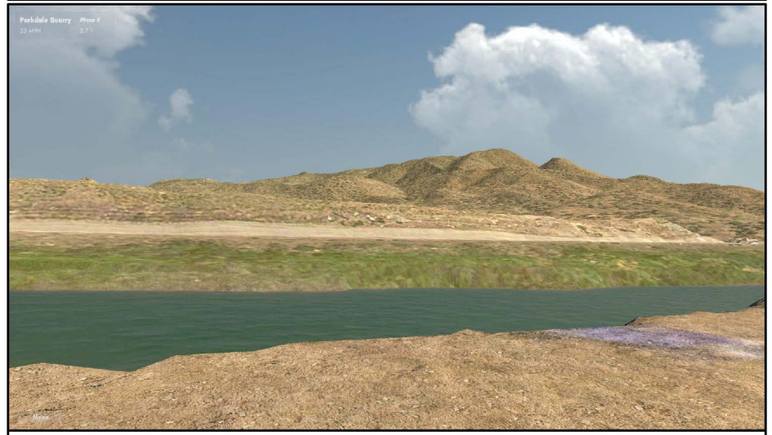
Phase 1



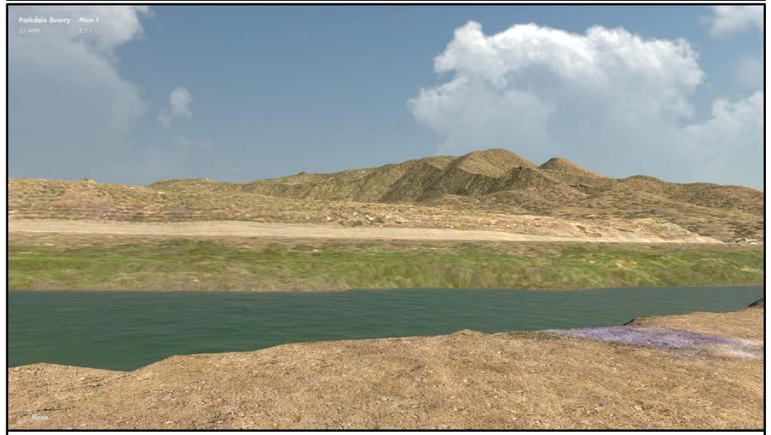
Phase 2



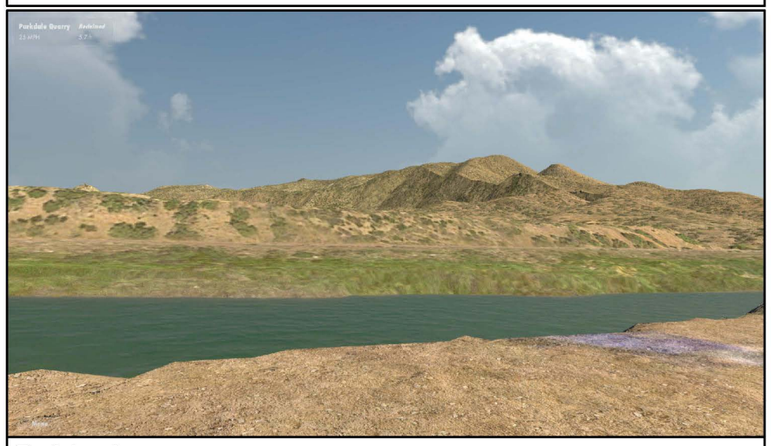
Phase 3



Phase 4



Phase 5



Reclaimed

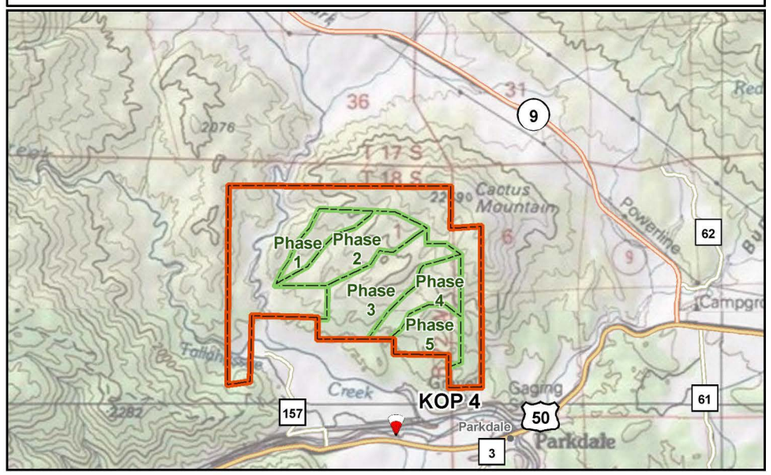


Figure H-4
Alternative A (Proposed Action) - Visual Simulation from KOP4

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Existing Conditions



Phase 1



Phase 2



Phase 3



Phase 4



Phase 5



Reclaimed

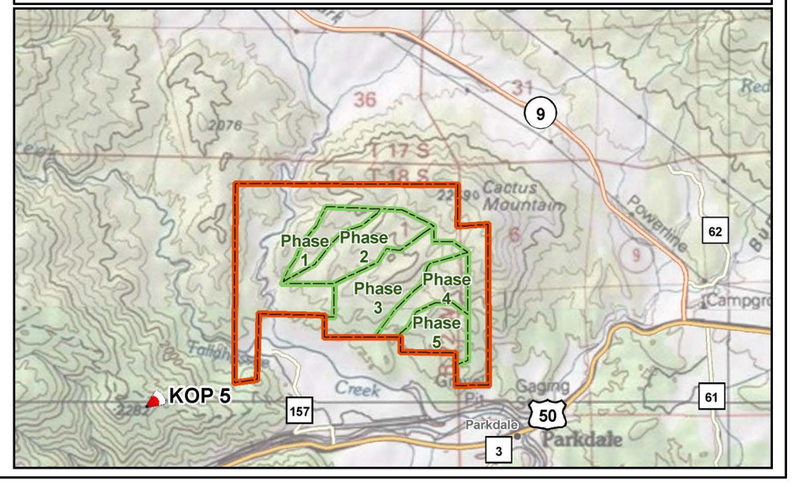
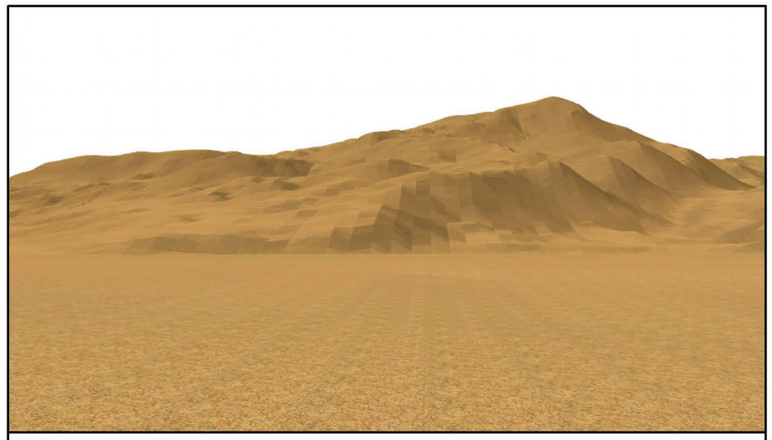


Figure H-5
Alternative A (Proposed Action) - Visual Simulation from KOP5

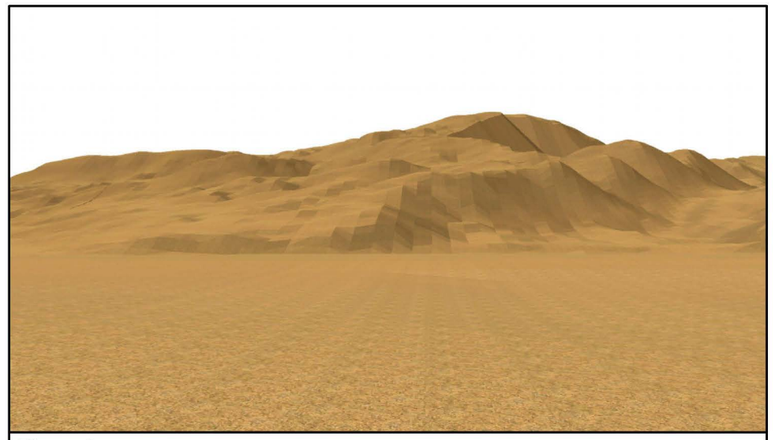
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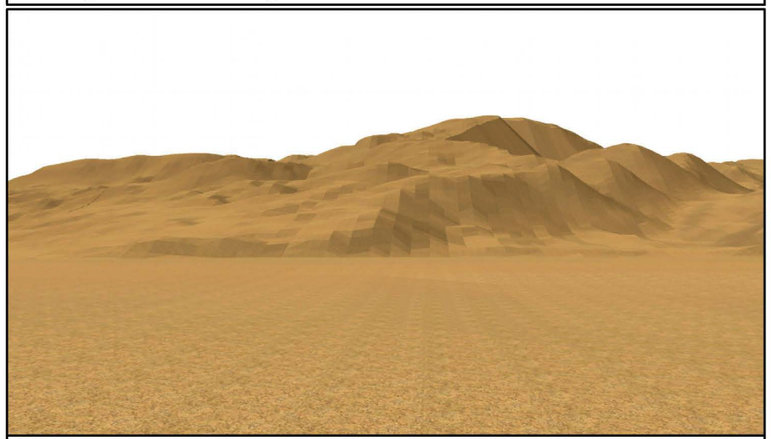
Existing Conditions - Google Earth



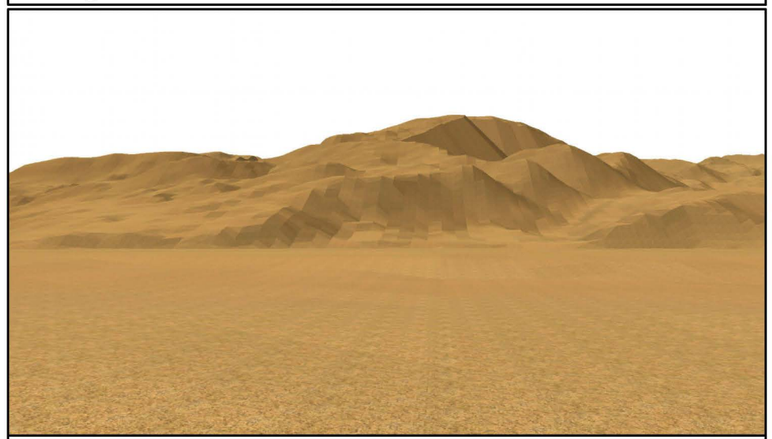
Existing Conditions - Carlson Topo



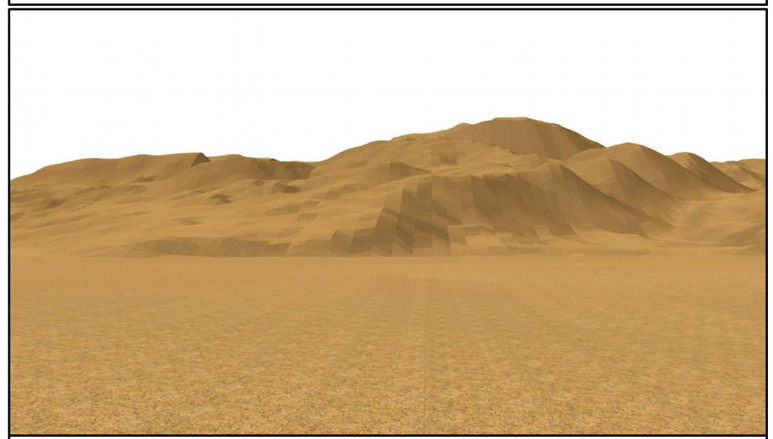
Phase 1



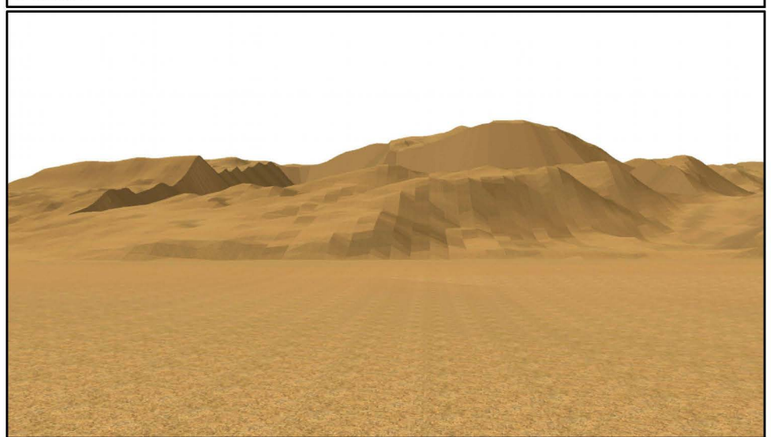
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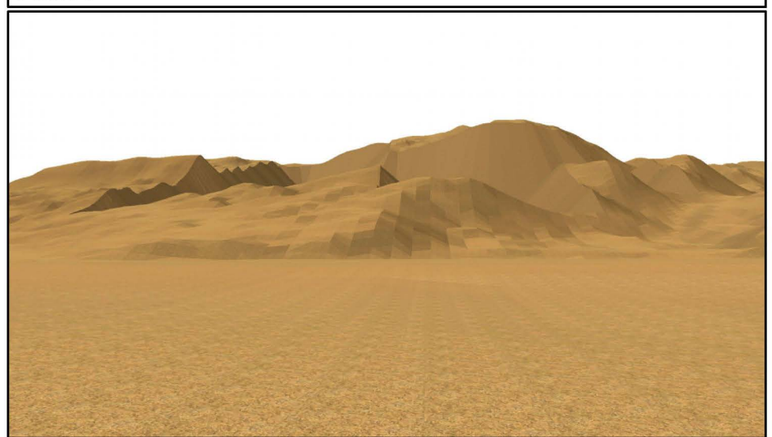
Phase 3



Phase 4



Phase 5



Phase 6

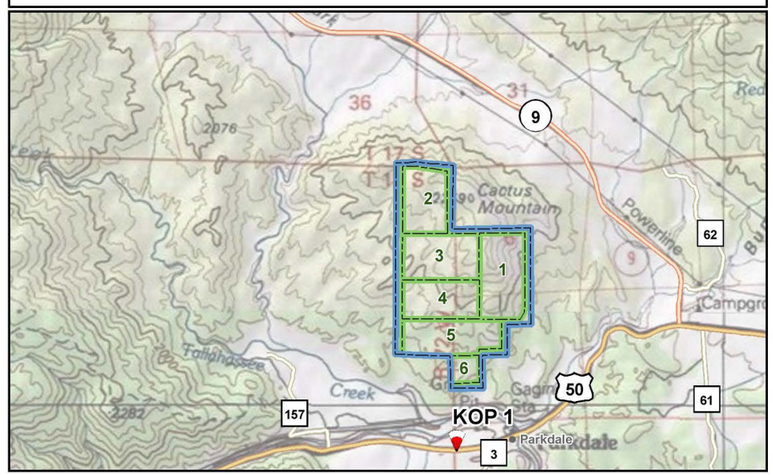
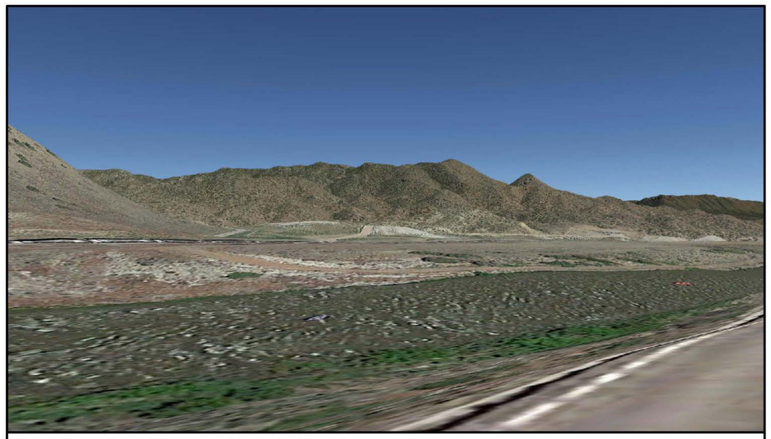
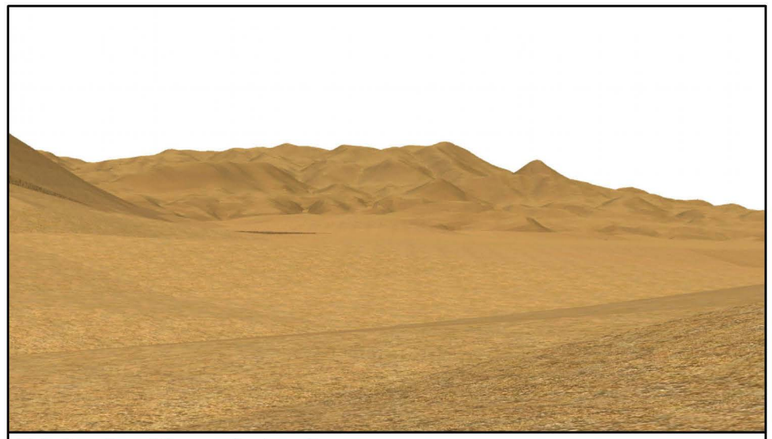


Figure H-6
Alternative C (Modified Sale Area) - Visual Simulation from KOP1

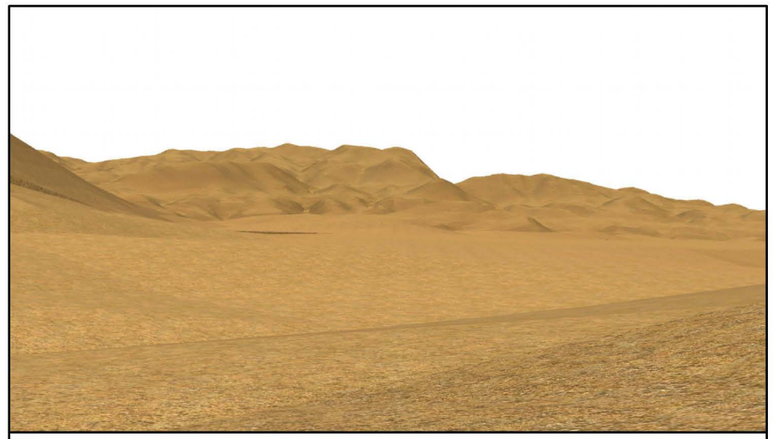
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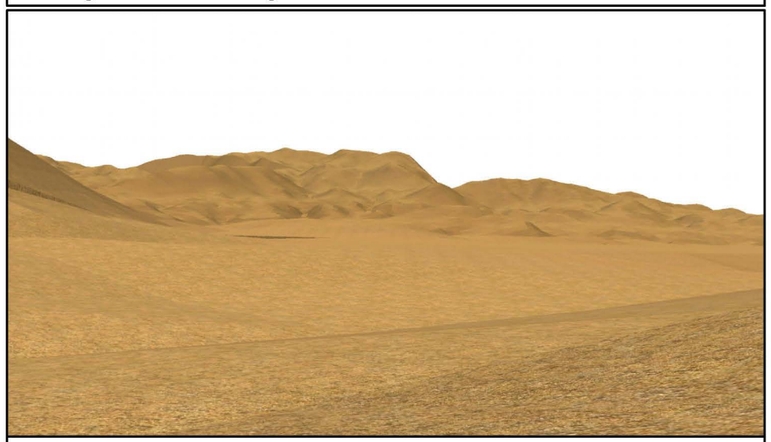
Existing Conditions - Google Earth



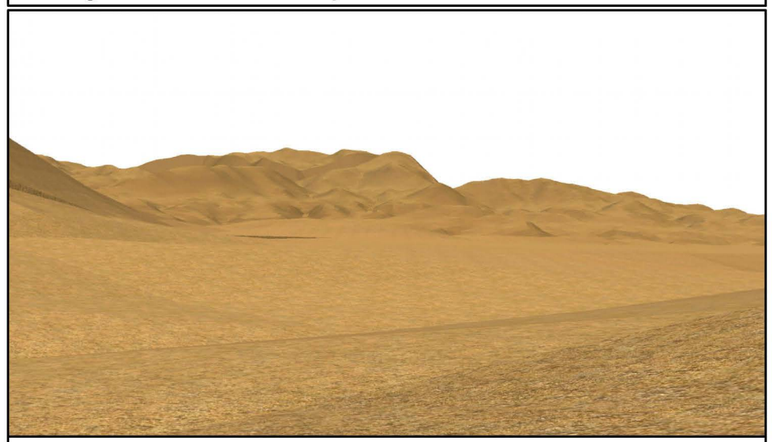
Existing Conditions - Carlson Topo



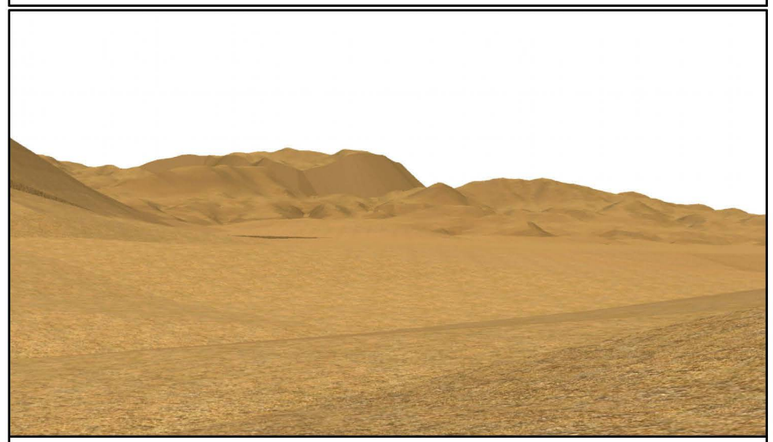
Phase 1



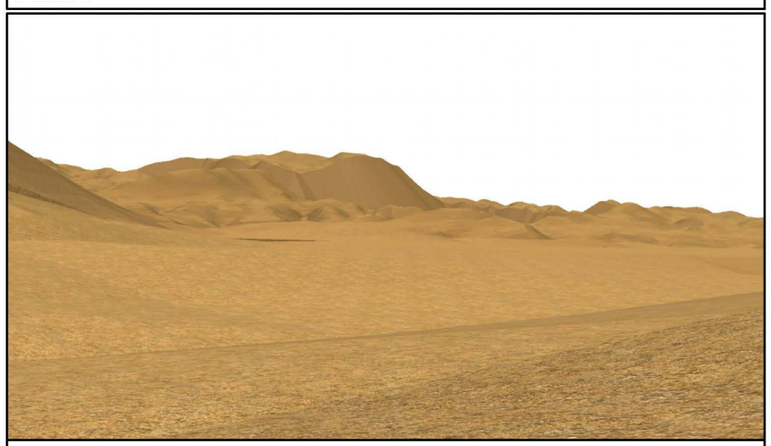
Phase 2



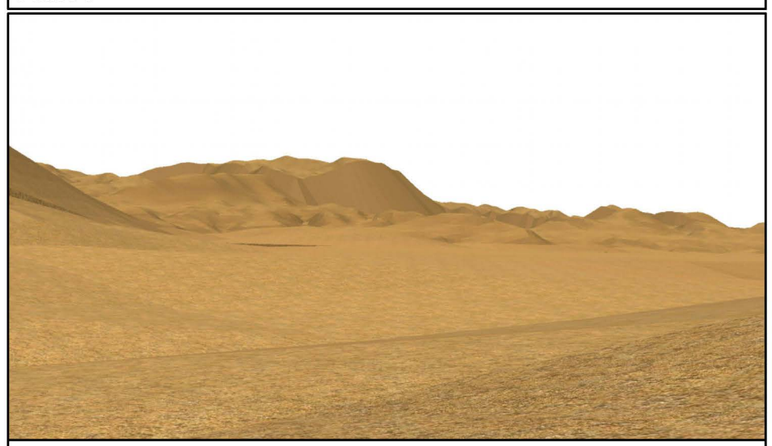
Phase 3



Phase 4



Phase 5



Phase 6

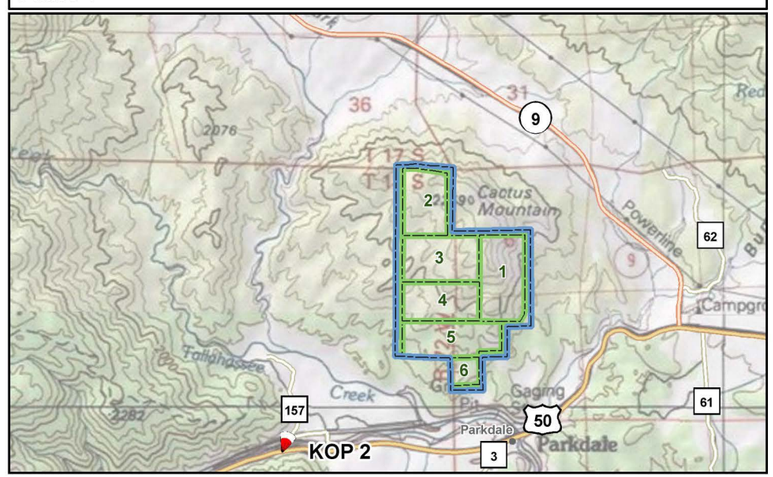
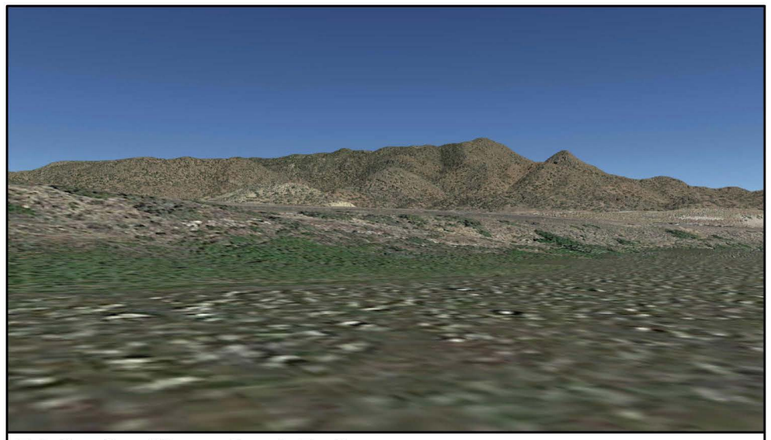
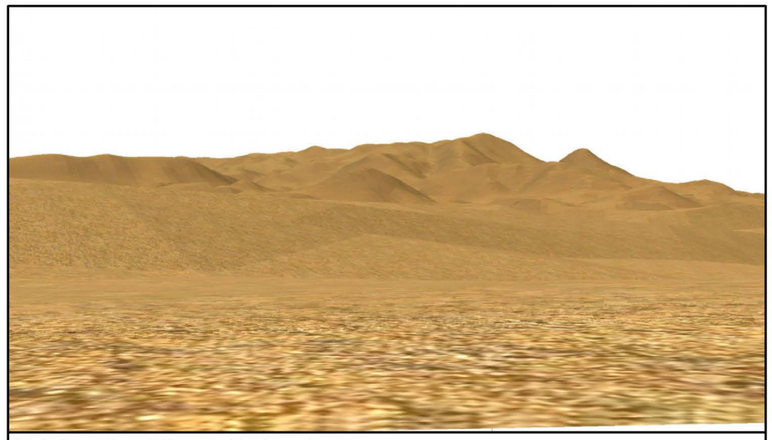


Figure H-7
Alternative C (Modified Sale Area) - Visual Simulation from KOP2

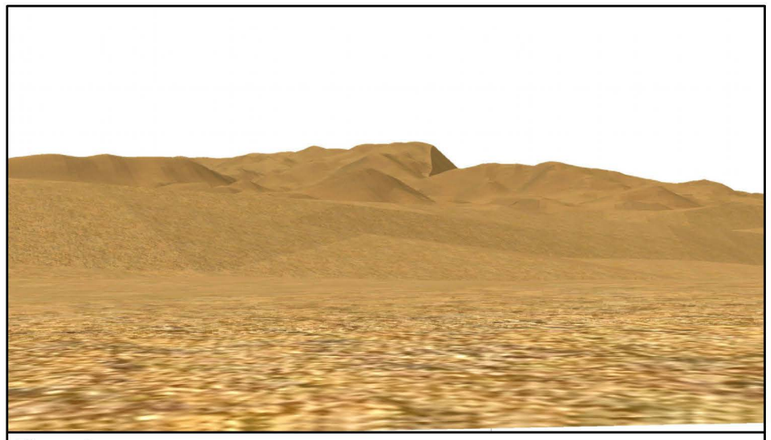
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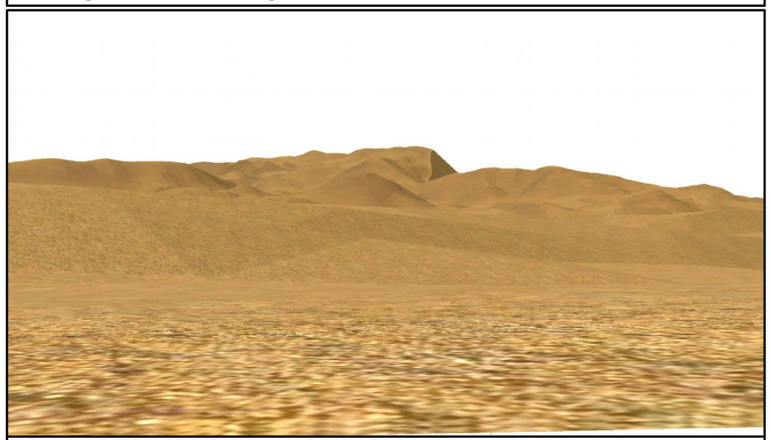
Existing Conditions - Google Earth



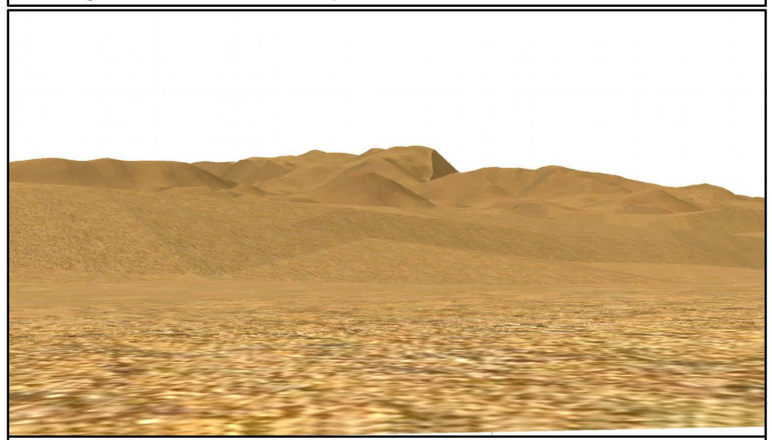
Existing Conditions - Carlson Topo



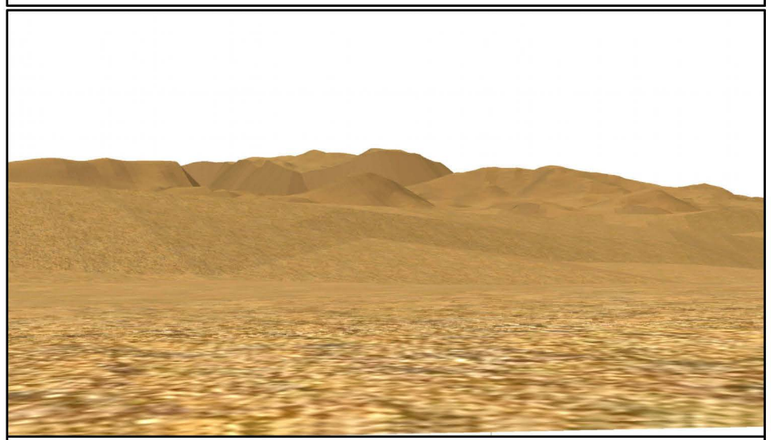
Phase 1



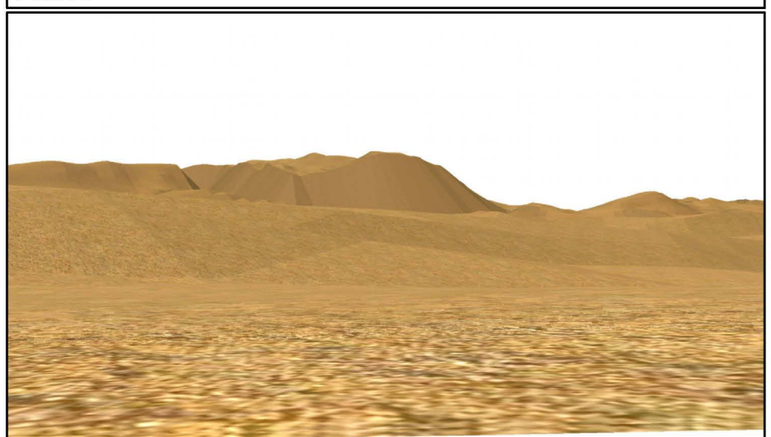
Phase 2



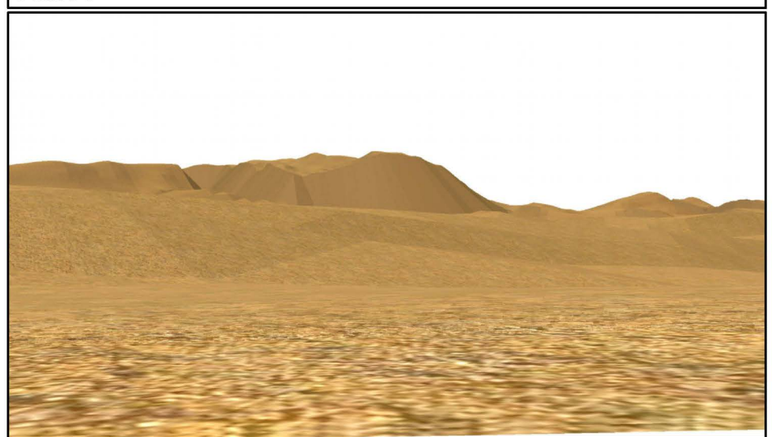
Phase 3



Phase 4



Phase 5



Phase 6

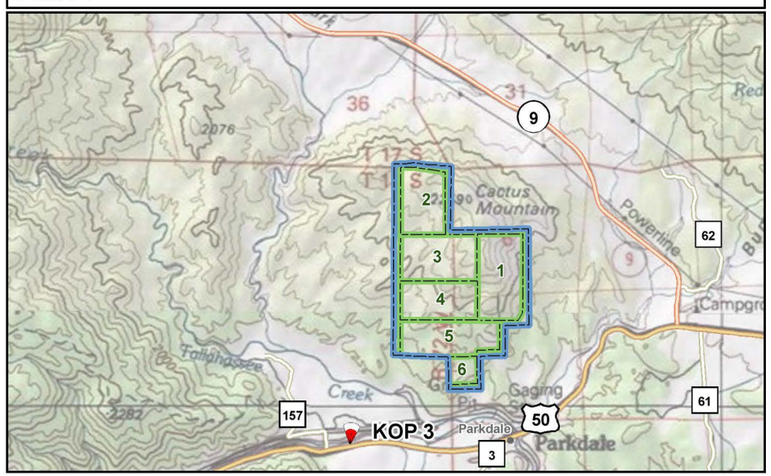
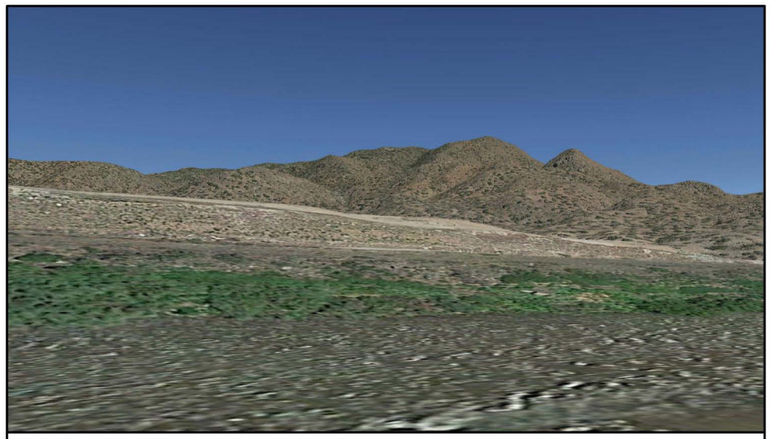
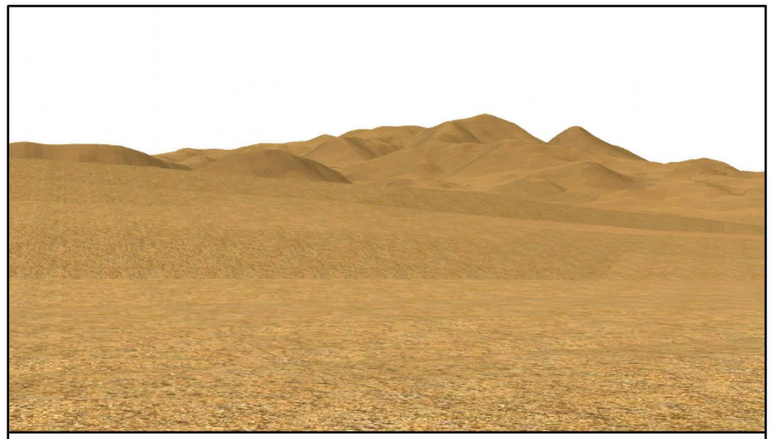


Figure H-8
Alternative C (Modified Sale Area) - Visual Simulation from KOP3

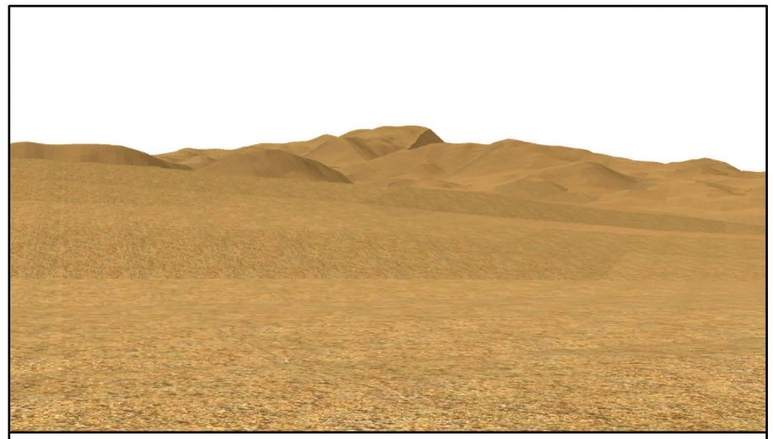
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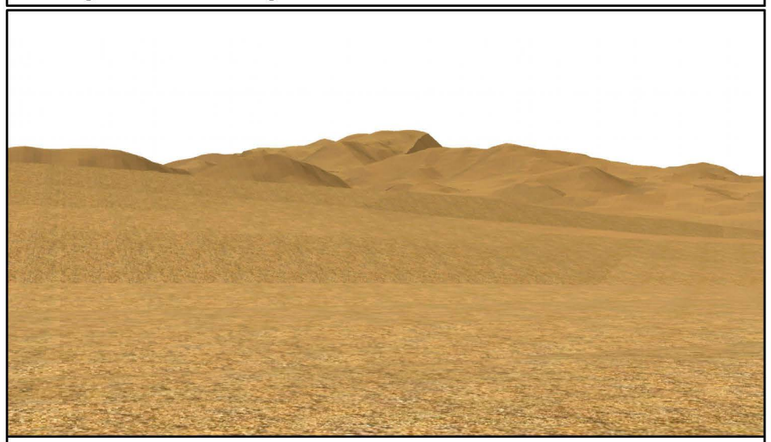
Existing Conditions - Google Earth



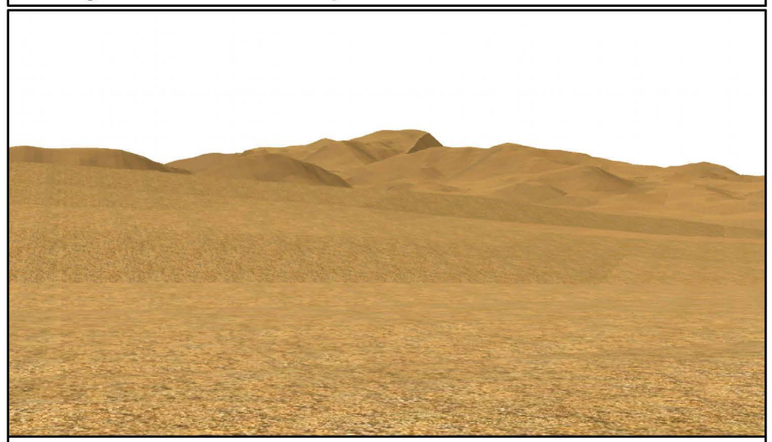
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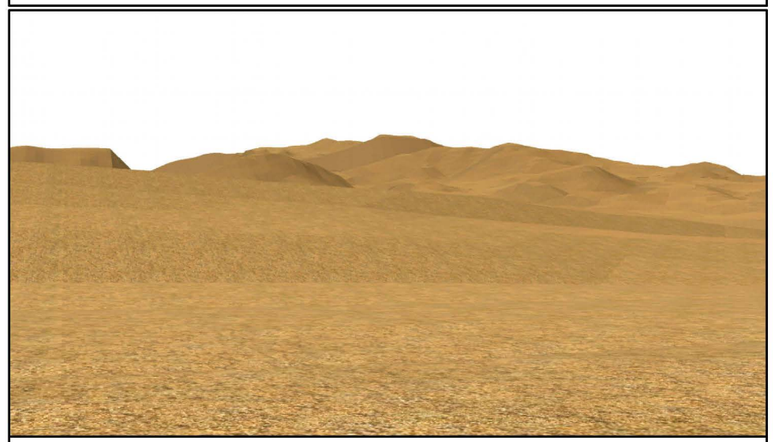
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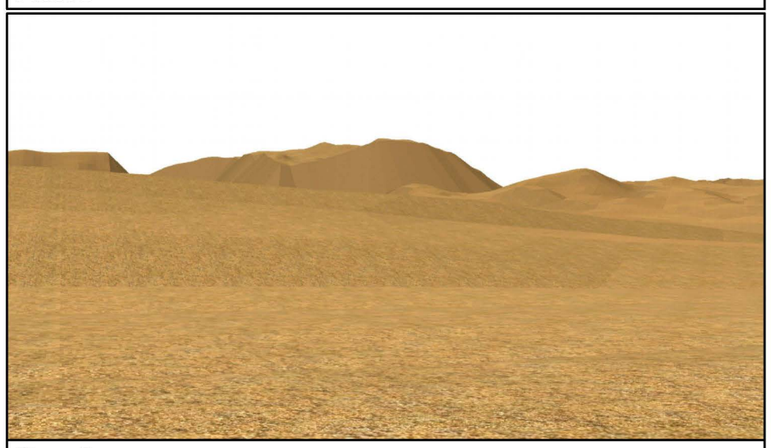
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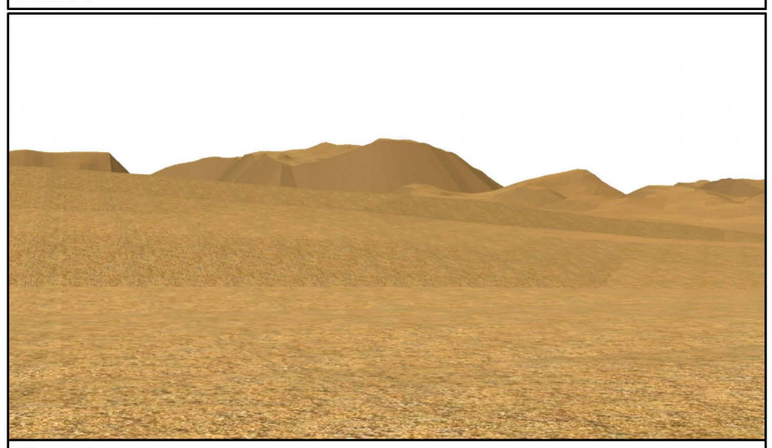
Phase 3



Phase 4



Phase 5



Phase 6

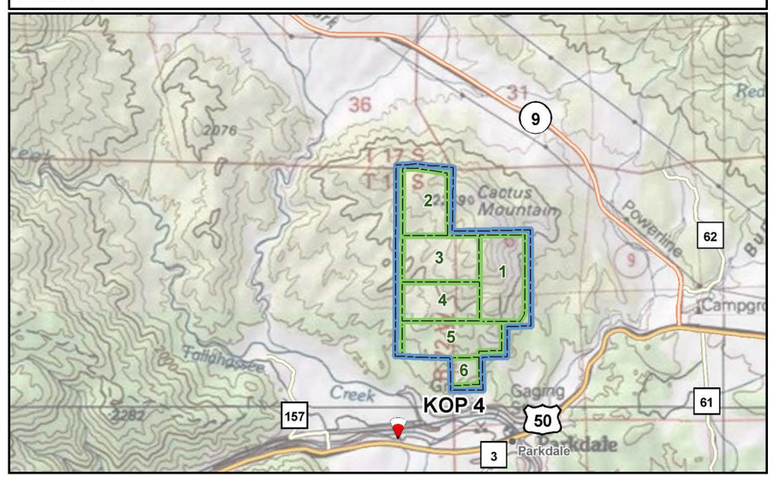
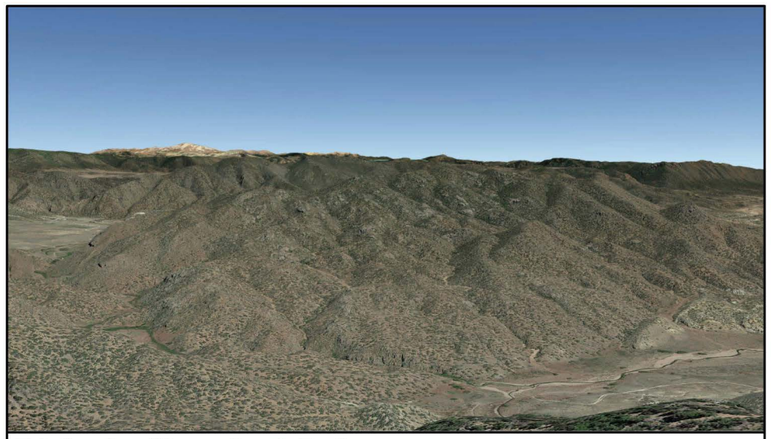
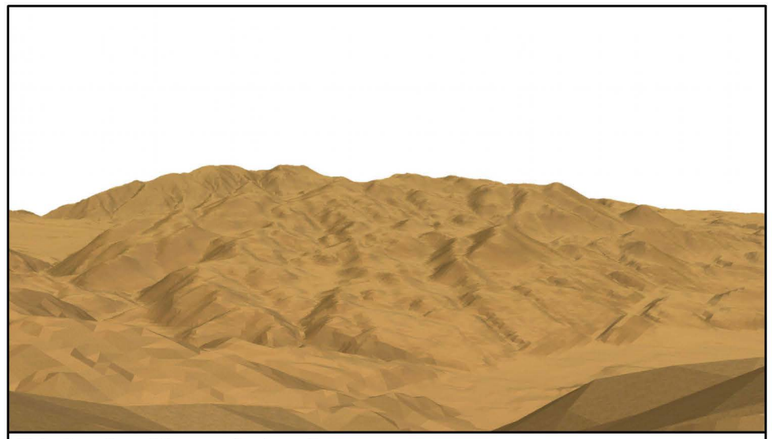


Figure H-9
Alternative C (Modified Sale Area) - Visual Simulation from KOP4

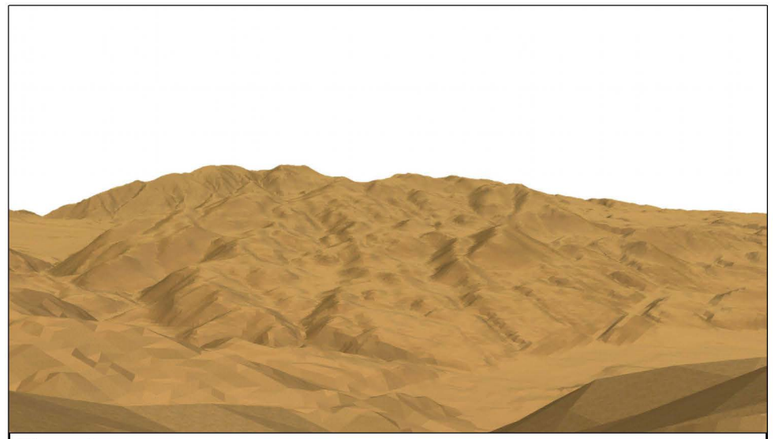
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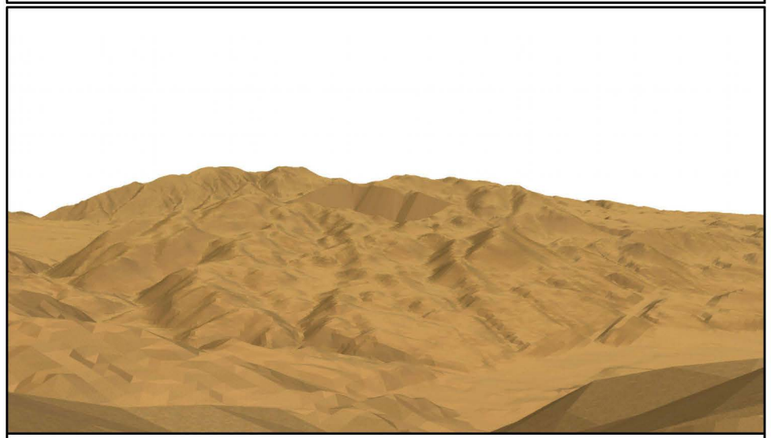
Existing Conditions - Google Earth



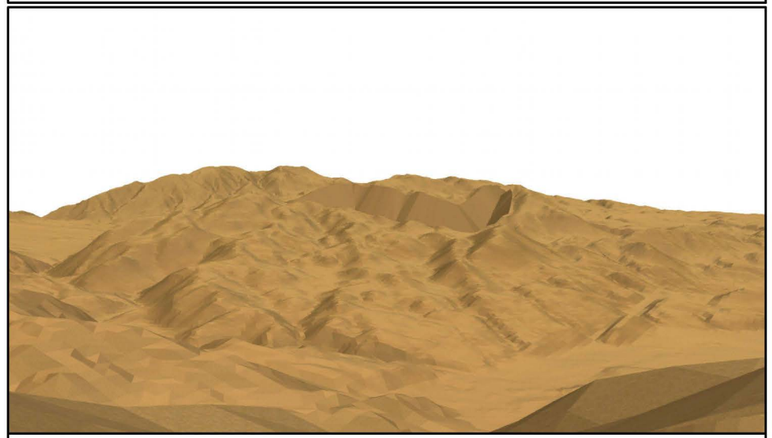
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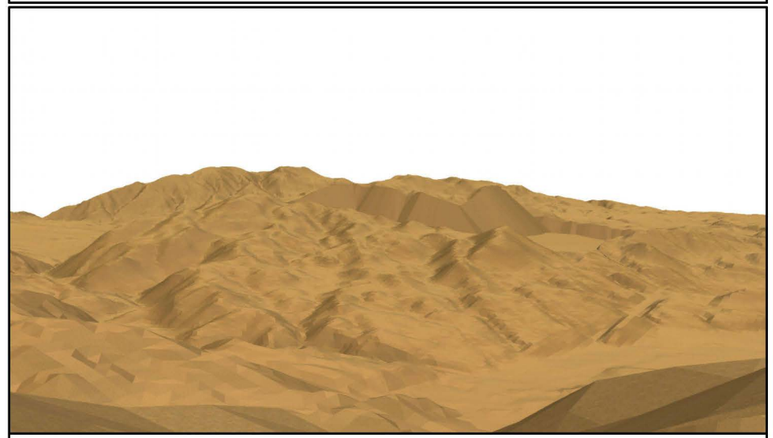
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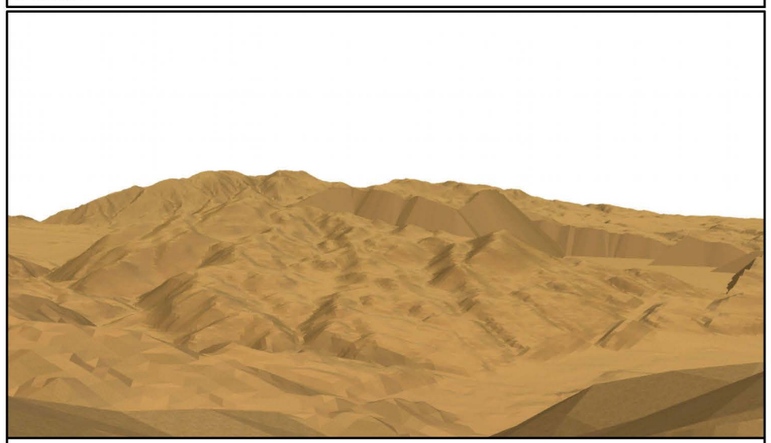
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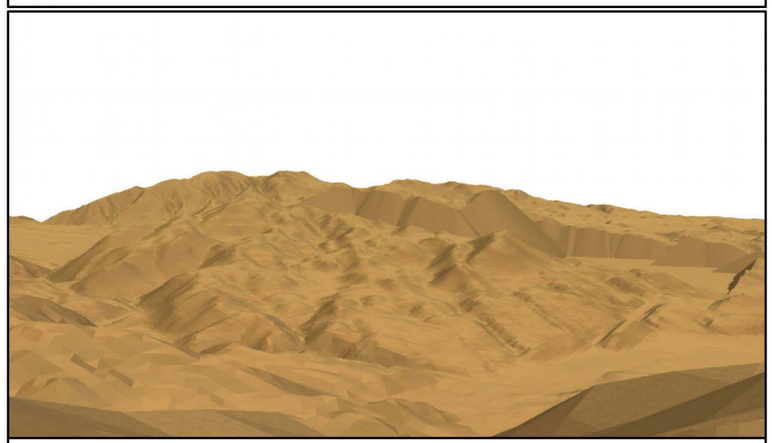
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Phase 4



Phase 5



Phase 6

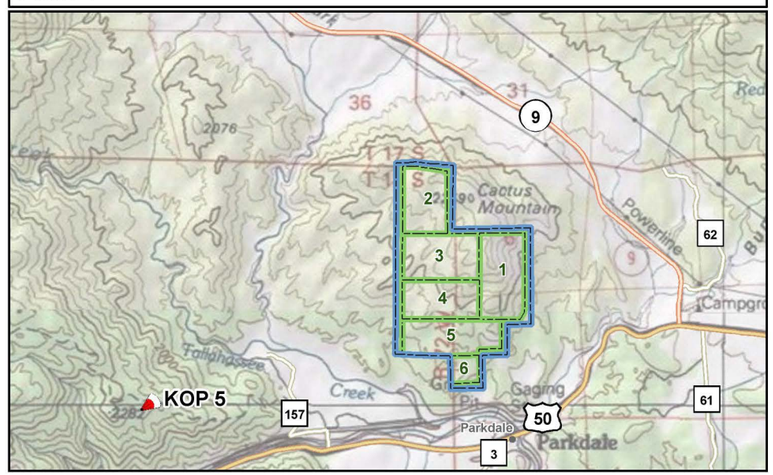
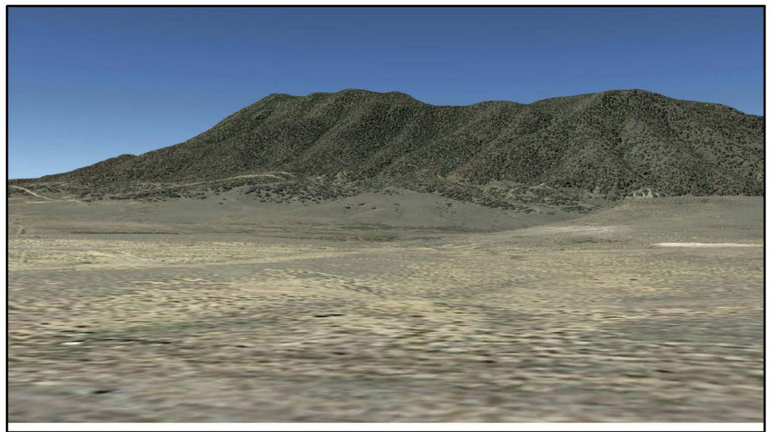
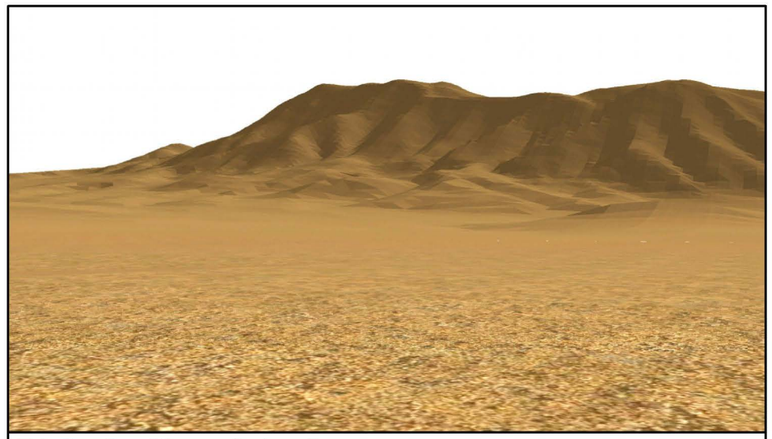


Figure H-10
Alternative C (Modified Sale Area) - Visual Simulation from KOP5

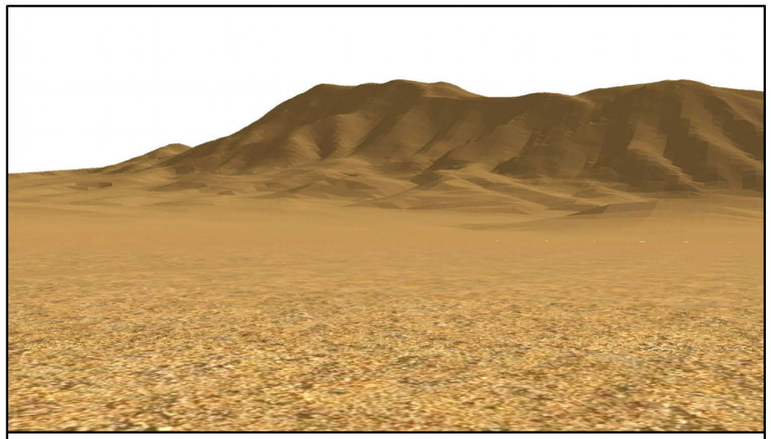
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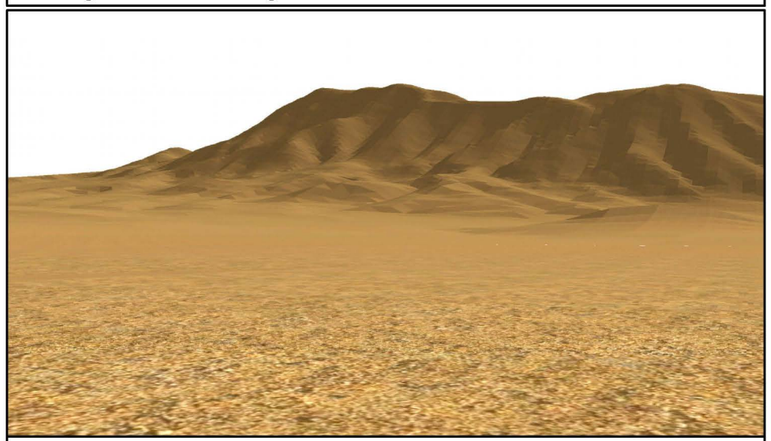
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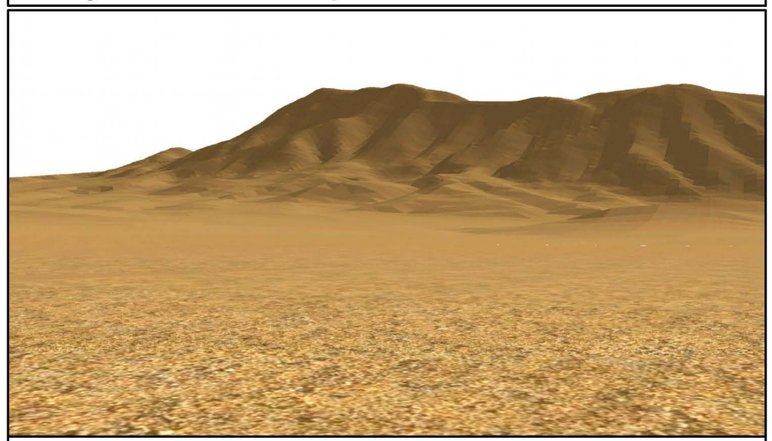
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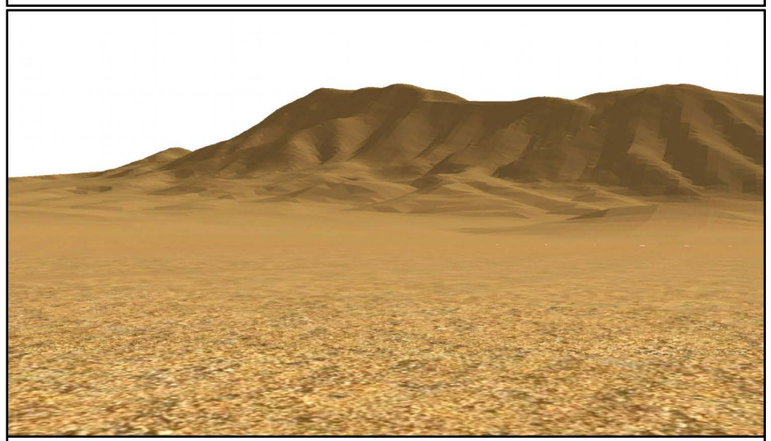
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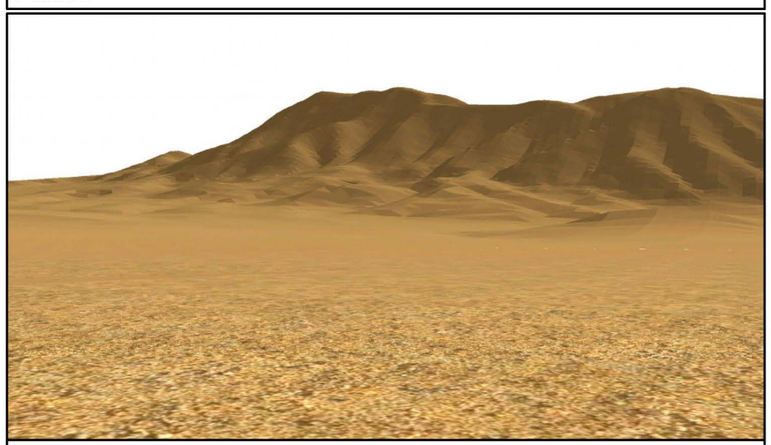
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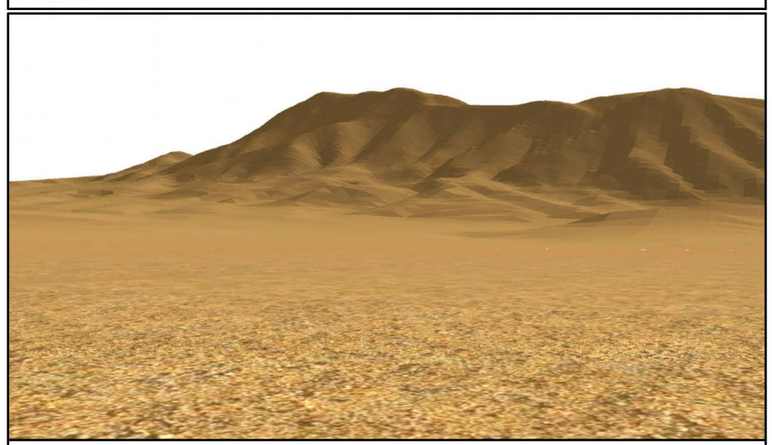
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Phase 4



Phase 5



Phase 6

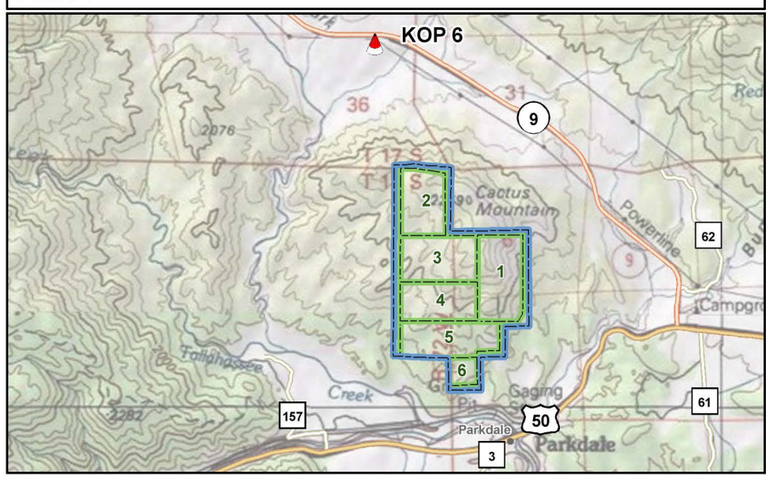
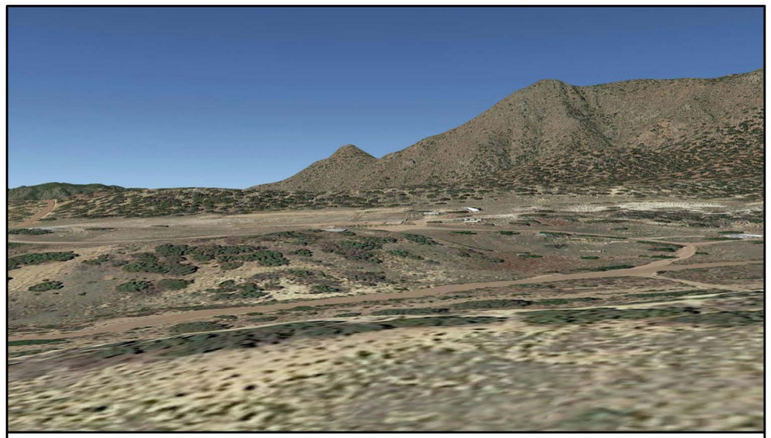
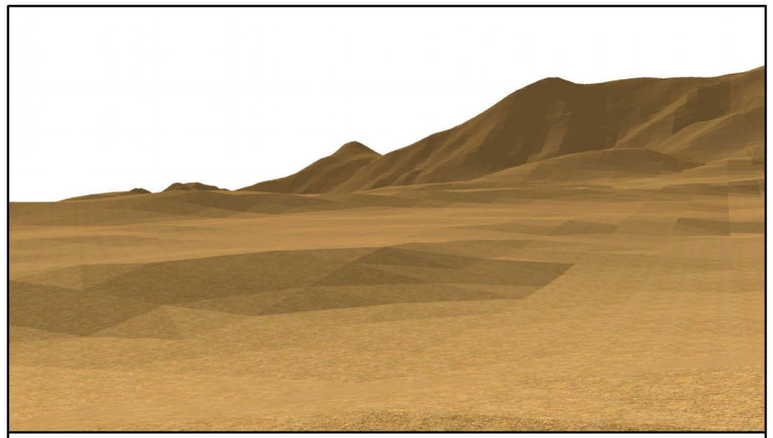


Figure H-11
Alternative C (Modified Sale Area) - Visual Simulation from KOP6

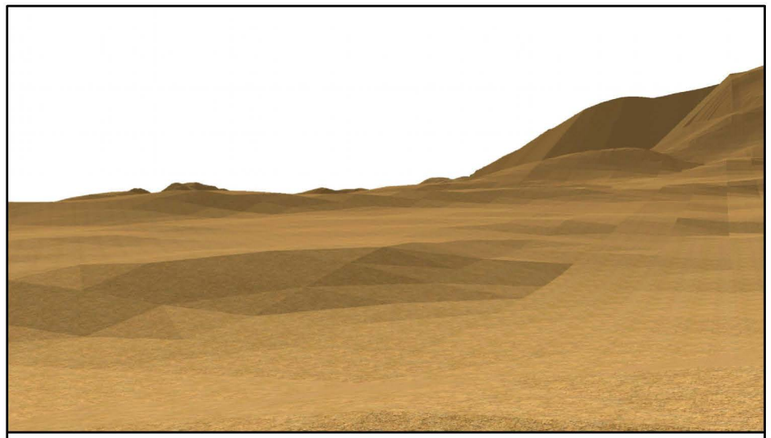
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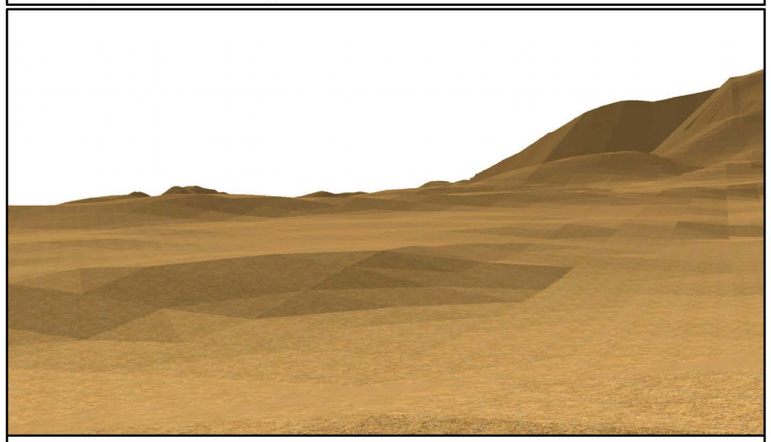
Existing Conditions - Google Earth



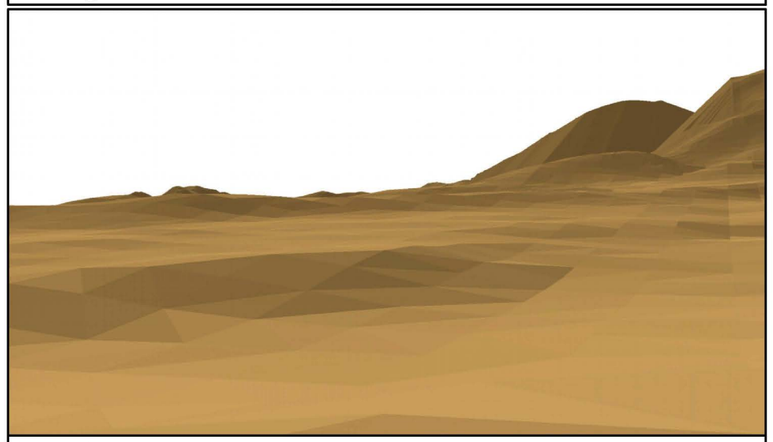
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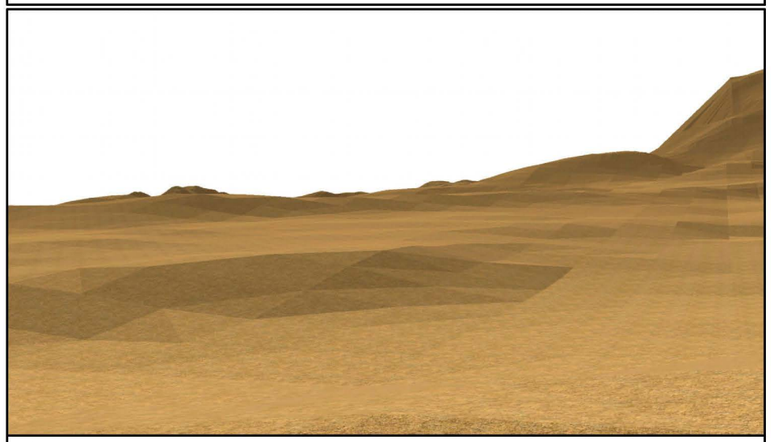
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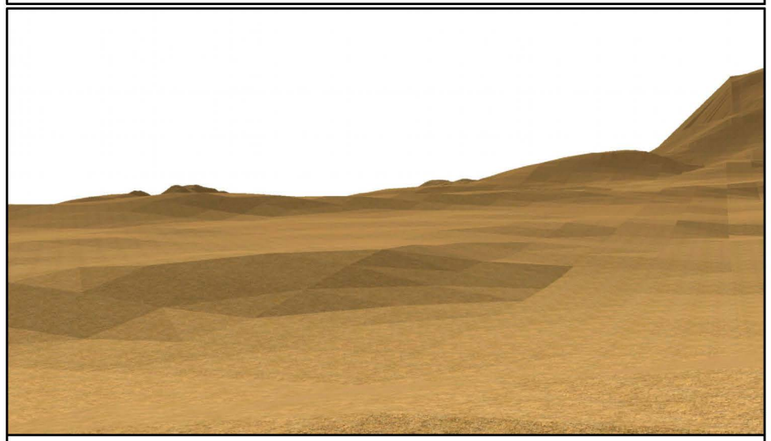
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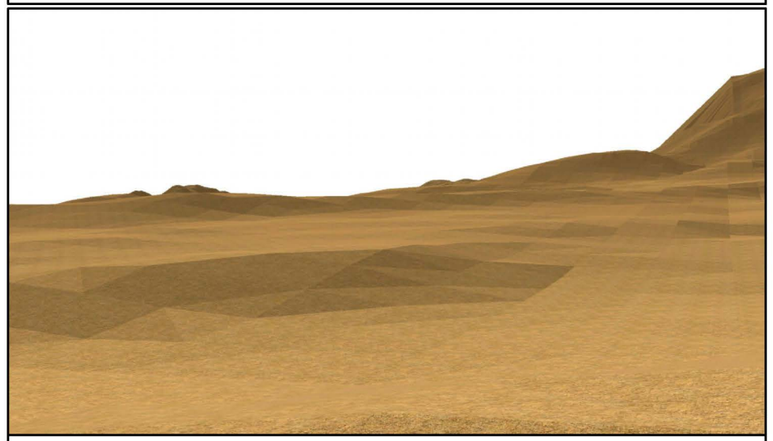
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Phase 4



Phase 5



Phase 6

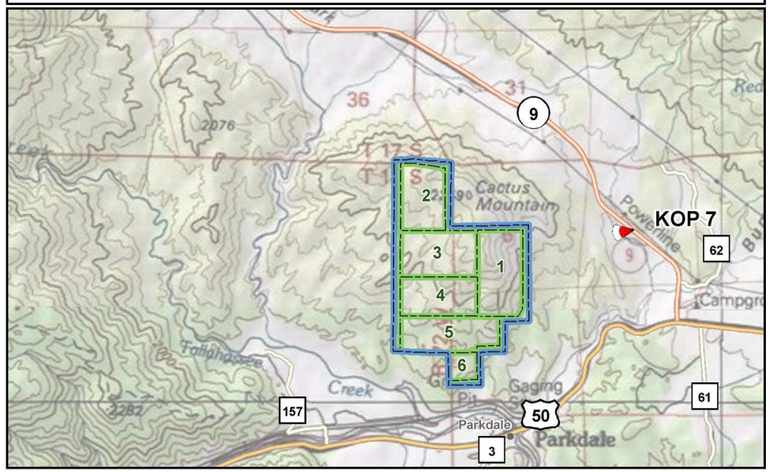


Figure H-12
Alternative C (Modified Sale Area) - Visual Simulation from KOP7

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Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix I

Socioeconomics Impact Analysis

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APPENDIX I. SOCIOECONOMICS IMPACT ANALYSIS

I.1 ECONOMIC IMPACT ANALYSIS

The analysis of economic impacts from the Parkdale Quarry's Mineral Materials Sale quantified the effects of the proposed quarry expansion on key socioeconomic indicators, including employment, output (production of goods and services), among others. The employment and output supported by the proposed quarry expansion was modeled using IMPLAN (IMpact Analysis for PLANning).

This section describes the methods and results of the regional economic modeling for the Parkdale Quarry EIS. IMPLAN is one of the most widely used input-output modeling systems in the United States (IMPLAN, 2019), and it was used to estimate the economic impact for Alternative A (Proposed Action), that was analyzed in the Parkdale Quarry EIS. IMPLAN is a regional economic model that provides a mathematical accounting of the flow of money, goods, and services through a region's economy—for this analysis, the region is Fremont County, Colorado.

I.1.1 Key Concepts and Terminology

A variety of tools are available to estimate regional economic impacts, but by far the most widely used today are input-output models. These models are generally static input-output models used to analyze the effects of an economic stimulus (in the form of a specific policy or project) on an economic region. Regional economic models are called input-output models because the inputs (purchases) of one industry represent the outputs (sales) of other industries. Input-output models such as the IMPLAN model provide a quantitative representation of the production relationships between individual economic sectors and provide estimates of how a specific economic activity translates into jobs and income for the region.

Expansion of quarry operations onto BLM lands north of the existing Parkdale Quarry would represent a new source of demand for local materials and generate local employment and income. Supply linkages between different sectors of the economy allow some local businesses to meet some of the needs associated with the facilities as well as the consumer needs associated with workers directly employed by Martin Marietta and with workers employed by vendors in the supply chain. These supply linkages and local worker expenditures represent a secondary source of local employment and income. The various rounds of local expenditures and earnings followed by additional expenditures and earnings affect many sectors of the local economy and result in total generated employment and income that is a "multiple" of the original direct increase in demand for labor and materials. Public sector revenues are also affected in the form of increased tax collections. Economists use economic modelling to describe the supply and demand linkages between the economic sectors that can be used to estimate the total effects of a

direct increase in demand. These impacts are known as "multiplier effects." The three primary categories of multiplier effects are the following:

- **Direct**—Direct effects represent the impacts due to the investments that result in final demand changes.
- **Indirect**—Indirect effects represent the impacts due to the inter-industry linkages caused by the iteration of industries purchasing from other industries, brought about by the changes in final demands.
- **Induced**—Induced effects represent the impacts on all local industries due to consumers' consumption expenditures arising from the new household incomes that are generated by the direct and indirect effects of the final demand changes.

I.1.2 IMPLAN Description

The IMPLAN model is created and maintained by the Minnesota IMPLAN Group and was developed in the 1970s through a collaboration with the U.S. Department of Agriculture, Forest Service and the University of Minnesota (IMPLAN, 2019). The IMPLAN model is constructed with data from the U.S. National Income and Product Accounts and the Bureau of Economic Analysis (BEA), among a variety of other data sources. The model includes 536 industry sectors based on the North American Industry Classification System (NAICS). The IMPLAN support team annually updates county-level databases that report such attributes as:

- Industries present in the regional economy;
- Output, employment, and income levels accounted for by each industry;
- Main sources of residents' incomes;
- Inter-industry commodity purchases;
- Shares of inter-industry inputs purchased locally; and
- Industries that produce commodities exported from the region (i.e., that compose the region's economic base).

The model uses region-specific multipliers to trace and calculate the flow of dollars from the industries that originate the impact to supplier industries. The results of this analysis are reported using the following metrics:

- **Employment:**[1] Represents the jobs created by industry, based on the output per worker and output impacts for each industry.

[1] Due to the static nature of the IMPLAN model, the employment impacts are presented in terms of annual job-years as the model calculates the annual impact of annual activity. It is likely that once the job is created, it will be sustained; however to ensure that the impact is not overstated, it is conservatively assumed that the job impact is annual.

- **Labor Income**: Includes all forms of employment income, including employee compensation (wages and benefits) and proprietor income.
- **Value Added or Gross State Product**: The difference between an industry's total output and the cost of its intermediate inputs; is the state-level counterpart to gross domestic product.
- **Industry Activity**: Represents the total economic output generated by the direct spending.

This analysis used IMPLAN data for Fremont County, Colorado from 2017, the most recent year for which data were available when the analysis was conducted. Data were processed using IMPLAN Version 3.1 software (IMPLAN, 2019).

I.1.3 Methodology/IMPLAN Inputs

IMPLAN provides a systematic methodology for analyzing scenarios that represent the direct economic output or employment effects associated with specific management actions. The direct impacts, or the initial economic drivers that produce an overall change in economic activity that can be quantified to produce estimates of the indirect, induced, and total economic effects of the alternative being analyzed.

The economic impact analysis evaluates Alternative A, the Proposed Action. The gross regional product or value-added for the Fremont County economy was approximately $1.4 billion according to the IMPLAN model year 2017 data.

The economic impact analysis evaluates Alternative A, i.e., if the mine plan and competitive contract for the sale of mineral materials is approved by BLM. The analysis used the input of the proposed increase in operational employment and its effects in 2024 dollars. Results over the life of Alternative A have been deflated and are presented in 2019 dollars. Martin Marietta provided direct employment estimates for Alternative A, as described in Section 3.9, *Socioeconomic Conditions*.

The model inputs for Alternative A are exclusively the expected additional employment to both the Parkdale Quarry Mine and the Rock and Rail Railroad. Monetary spending on capital equipment is not modeled due to the additional spending on Alternative A from Alternative B, $30 million, is to be spent on equipment alone which is manufactured outside of the study area. Table I.1 shows the direct employment low and high scenario under Alternative A.

Table I.1. Direct Employment Activity Under Alternative A

Activity	IMPLAN Field	Proposed Action – Low	Proposed Action – High
Operational Expenditures			
Parkdale Quarry Mine – Additional Employment	Stone Mining and Quarrying	10	20
Rock and Rail Railroad – Additional Employment	Rail Transportation	6	10
Total Additional Employment		**16**	**30**

Source: Martin Marietta, Parkdale Quarry Coordination Meeting, 2019

I.1.4 IMPLAN Results

For Alternative A, an increase in direct operational employment would increase, as depicted in Table I.1. Under the "low estimate" for direct additional employment, the alternative would support over 26 jobs, $1.9 million of labor income, and $6.2 million of regional output. Results of the IMPLAN analysis for the "low estimate" are shown in Table I.2.

Table I.2. Annual Economic Effects for Alternative A's Operational Phase – Low Estimate

Impact Type	Employment[1]	Labor Income[2]	Total Value Added[2]	Output[2]
Direct Effect	16	$1,585	$3,619	$4,964
Indirect Effect	4	$139	$213	$502
Induced Effect	6	$203	$421	$780
Total Effect	**26**	**$1,927**	**$4,253**	**$6,247**
Multiplier	1.6	1.2	1.2	1.3

[1] Rounded to the nearest whole job.
[2] In thousands of 2019 dollars per year.

Under the "high estimate" for direct additional employment, the proposed action would support over 49 jobs, $3.45 million of labor income, and $11.5 million of regional output. Results of the IMPLAN analysis for the "high estimate" are depicted in Table I.3.

Table I.3. Annual Regional Economic Effects for Alternative A's Operational Phase – High Estimate

Impact Type	Employment[1]	Labor Income[2]	Total Value Added[2]	Output[2]
Direct Effect	30	$2,827	$6,692	$9,164
Indirect Effect	7	$260	$400	$945
Induced Effect	11	$363	$754	$1,397
Total Effect	**49**	**$3,450**	**$7,846**	**$11,506**
Multiplier	1.6	1.2	1.2	1.3

[1] Rounded to the nearest whole job.
[2] In thousand of 2019 dollars per year.

IMPLAN also produces tax estimates. Under the "high estimate" for direct additional employment, the proposed action would raise over $1 million in taxes. Tax results of the IMPLAN analysis are depicted in Table I.4.

Table I.4. Annual Regional Economic Effects for Alternative A's Operational Phase – High Estimate

Tax Type	Alternative A – Low Estimate	Alternative A – High Estimate
State and Local Taxes	$181,275	$333,309
Federal Taxes	$465,073	$842,846
Total Taxes	**$646,348**	**$1,176,155**

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Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix J

Wildlife and Special Status Species

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APPENDIX J. WILDLIFE AND SPECIAL STATUS SPECIES TABLES

Table J.1. Migratory Birds of Conservation Concern Potentially Occurring in the Study Area

Species Common Name (Scientific Name)	Life History/Habitat
Piñon jays *(Gymnorhinus cyanocephalus)*	Range the semiarid lands of the West. Piñon jays are pinyon-juniper obligates in Colorado and nest commonly at the lower elevations of pinyon-juniper woodlands, often where junipers dominate. They prefer extensive stands far from high human activity.
Rufous Hummingbird *(selasphorus rufus)*	Habitat includes forest edges, stream sides, mountain meadows. Breeding habitat includes forest edges and clearings, and brushy second growth within the region of northern coast and mountains. Winters mostly in pine-oak woods in Mexico. Migrants occur at all elevations but more commonly in lowlands during spring, in mountain meadows during late summer and fall.
Golden eagle *(Aquila chrysaetos)*	Bird of grasslands, shrublands, pinyon-juniper woodlands, and ponderosa pine forests, but may occur in most other habitats occasionally, especially in winter. Nests are placed on cliffs and sometimes in trees in rugged areas, and breeding birds range widely over surrounding habitats.
Peregrine Falcon *(Falco peregrinus)*	In Colorado breed on cliffs and rock outcrops from 4,500-9,000 ft. in elevation. They most commonly choose cliffs located within pinyon-juniper and ponderosa pine zones. These falcons feed on smaller birds almost exclusively, with White-throated swifts and rock doves being among their favored prey.
Prairie falcons *(Falco mexicanus)*	Nest in scattered locations throughout the state where they inhabit the grassland and cliff/rock habitat types. These falcons breed on cliffs and rock outcrops, and their diet during the breeding season is a mix of passerines and small mammals.
Gray Vireos *(Vireo vicinior)*	Are a pinyon-juniper woodland obligate. Gray Vireos usually inhabit stands dominated by juniper or thin stands of pure juniper. They construct nests of dry grasses, plant fibers, stems, and hair, often camouflaging them with sagebrush leaves.
Black-throated gray warblers *(Setophaga nigrescens)*	Fairly common summer residents in pinyon-juniper woodlands across the southwestern half of Colorado. Some surveys show these warblers to be the most frequently encountered birds in the piñon-juniper woodland. Black-throated gray warblers, in Colorado, are pinyon-juniper obligates, preferring tall, dense piñon-juniper woodlands. Virginia's warblers in Colorado nest between 5,000-9,000 ft. in elevation. They breed most abundantly in the western quarter of the state, along the eastern slope foothills, and in the upper Arkansas River drainage.
Virginia's warblers *(Leiothlypis virginiae)*	Virginia's warblers nest in dense shrublands and on slopes of mesas, foothills, open ravines, and mountain valleys in semiarid country. They use scrubby brush, pinyon-juniper woodland with a well-developed shrubby understory, ravines covered with scrub oak and dense shrublands, especially Gambel oak. They also breed in open ponderosa pine savannahs that have a dense understory of tall shrubs.

Sources: USFWS 2019; BLM 2017

Table J.2. Federally Listed Species Potentially Occurring in the Study Area

Common Name (Scientific Name)	Listing Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
Mammals				
Canada Lynx *(Lynx Canadensis)*	FT	Boreal forests with large woody debris.	No	No habitat present within study area.
North American Wolverine *(Gulo gulo luscus)*	PFT	Boreal forests, tundra, and montane conifer forests.	No	No habitat present within study area.
Birds				
Mexican Spotted Owl *(Strix occidentalis lucida)*	FT	Steep Canyons with old growth forest in mixed conifer, pine-oak woodlands.	No	No habitat present within study area. Study area is located within species range.

Source: USFWS 2019

FT = Federally Threatened; PFT = Proposed Federally Threatened

Table J.3. BLM Sensitive Wildlife and Plant Species Potentially Occurring in the Study Area

Common Name (Scientific Name)	Management Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
Mammals				
Townsend's big-eared bat *(Corynorhinus townsendii pallescens)*	BLM, SC	The species breeds and forages in a variety of habitats, including lowland riparian, desert shrub, forest, grassland, and towns, from 1,770 to 6,980 ft. in elevation and roosts primarily in mines, caves, and structures in woodlands.	Yes	Potential habitat present within study area.
Gunnison's prairie dog *(Cynomys gunnisoni)*	BLM	Grasslands, semi-desert, and montane shrublands.	No	No habitat present within study area.
Black-tailed prairie dog *(Cynomys ludovicianus)*	BLM, SC	Grasslands.	No	No habitat present within study area.
Fringed myotis *(Myotis thysanodes)*	BLM	The species breeds and forages in a wide variety of habitats, including lowland riparian, grassland, desert shrub, pinyon-juniper forests, and meadows, between 1,380 and 7,080 ft. in elevation. It roosts in rock crevices, mines, caves, trees, and buildings.	Yes	Potential habitat present within study area.

Common Name (Scientific Name)	Management Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
Rocky mountain bighorn sheep *(Ovis canadensis)*	BLM	The species inhabits steep, high mountain terrain. Summer habitat is primarily alpine tundra. Winter habitat is lower elevation open, grass areas and slopes, with low shrubs.	Yes	Potential habitat present within study area.
Swift fox *(Vulpes velox)*	BLM, SC	The species inhabits short grass and mixed-grass prairies. It is closely associated with prairie dog colonies.	No	No habitat present within study area.
Birds				
Northern goshawk *(Accipter gentilis)*	BLM	Mixed coniferous forest and mature aspen stands with tall trees, intermediate canopy coverage for nesting, and small open areas for foraging.	No	No habitat present within study area.
Golden eagle *(Aquila chrysaetos)*	BLM	The species breeds and forages in a variety of habitats, including large expanses of grasslands, sagebrush, agricultural lands, and tundra. It constructs a large stick nest on cliffs and in large trees and exhibits high nest fidelity.	Yes	Potential habitat present within study area.
Burrowing owl *(Athene cunicularia)*	BLM, ST	The species breeds and forages in a wide variety of arid and semiarid environments, including grassland, desert, and shrub-steppe habitats, and agricultural areas. It generally nests in burrows excavated by small mammals, particularly prairie dogs and ground squirrels.	Yes	Potential habitat present within study area.
Ferruginous hawk *(Buteo regalis)*	BLM, SC	The species breeds in semiarid open country, primarily grasslands, basin prairie shrublands, and badlands, typically near prairie dog colonies. It requires large tracts of relatively undisturbed rangeland for foraging habitat.	Yes	Potential habitat present within study area.
Western snowy plover *(Charadrius alexandrinus nivosus)*	BLM, SC	The subspecies breeds and forages on alkali playas near large standing pools of shallow water.	No	No habitat present within study area.
Mountain plover *(Charadrius montanus)*	BLM, SC	The species breeds and forages in flat, short-grass prairie habitat and fallow agricultural fields with sparse vegetation.	No	No habitat present within study area.

Common Name (Scientific Name)	Management Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
American peregrine falcon *(Falco peregrinus anatum)*	BLM, SC	The species breeds and forages in a variety of open habitats, including woodlands, forests, shrub-steppe, grasslands, marshes, and riparian habitats. It nests on cliffs and rarely on tall buildings near habitats with abundant prey.	Yes	Potential habitat present within study area.
Bald eagle *(Haliaeetus leucocephalus)*	BLM, SC	The species breeds near large lakes and rivers, in forested habitat where adequate prey and large, old cottonwood or conifer trees are available for nesting.	No	No habitat present within study area.
Long-billed curlew *(Numenius americanus)*	BLM, SC	The species breeds and forages in a variety of grassland habitats, including moist meadow grasslands, agricultural areas, and dry prairie uplands, usually near water.	No	No habitat present within study area.
White-faced ibis *(Plegadis chihi)*	BLM	The species breeds in tall emergent vegetation growing as "islands", surrounded by water (at least 18 inches deep). It forages in wet hay meadows and flooded agricultural croplands, marshes, shallow ponds, lakes, and reservoirs.	No	No habitat present within study area.
American white pelican *(Pelecanus erythrorhynchos)*	BLM, SC	The species breeds on islands in large bodies of water. It forages in marshes, lakes, and rivers.	No	No habitat present within study area.
Brewer's sparrow *(Spizella breweri)*	BLM	The species is a sagebrush obligate. It breeds and forages in sagebrush shrublands with abundant, scattered shrubs and short grasses.	No	No suitable habitat is present within study area.
Fish				
Arkansas darter *(Etheostoma cragini)*	BLM, ST	Spring-fed headwaters and creeks with cool, clear, shallow water, slow current, and herbaceous aquatic vegetation such as growths of watercress or other aquatic plants; often in pools with sand, fine gravel, or organic detritus substrate; sometimes in turbid water away from springs.	No	Localized populations occur in the Arkansas River drainage in southeastern Colorado from El Paso County eat to the Kansas border (Miller 1984).

Common Name (Scientific Name)	Management Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
Reptiles				
Common kingsnake *(Lampropeltis getula)*	BLM, SC	Generally associated with lowland river valleys and irrigated fields on the floodplain of the Arkansas River, in rural residential areas in plains grassland, near stream courses, and in other areas dominated by shortgrass prairie.	No	Colorado distribution includes southeastern Colorado east of Pueblo.
Massasauga *(Sistrurus catenatus)*	BLM, SC	Dry plains grassland and sandhill areas; attracted to sandy soils supporting abundant rodent and lizard populations.	No	Colorado distribution includes southeastern Colorado east of Pueblo at elevations below about 5,500 ft.
Amphibians				
Northern cricket frog *(Acris crepitans)*	BLM, SC	This species inhabits the edges of sunny marshes, marshy ponds, and small slow-moving streams in open country.	No	Possibly extirpated, not seen in the state since 1979 (CPW 2019e).
Boreal toad *(Anaxyrus boreas boreas)*	BLM, SE	Species non-breeding habitat consists of spruce-fir forests and upland vegetation. Breeding habitat includes low-gradient streams, marshes, beaver ponds, small lakes and reservoirs, stock ponds, wet meadows, and seeps.	No	Study area is below the documented elevation range of the species (CPW 2019e).
Plain's leopard frog *(Rana blairi)*	BLM, SC	Streams, ponds, creek pools, reservoirs, irrigation ditches, and marshes in areas of prairie and desert grassland, farmland, and prairie canyons.	Yes	Colorado distribution includes the great plains portion of the Arkansas River drainage in southeastern Colorado (CPW 2019e).
Northern leopard frog *(Rana pipiens)*	BLM, SC	Species occurs in marshes, beaver ponds, streams, rivers, and lakes up to 9,000 ft. in elevation.	No	Colorado distribution is nearly statewide in mountains and lowlands, but scarce or absent in most of southeastern Colorado (CPW 2019).
Plants				
Rydberg's golden columbine *(Aquilegia chrysantha var. rydbergii)*	BLM	Riparian areas or rocky ravines, often associated with cottonwoods or willows, often found at the base of boulders. 5,000-8,200 ft.	Yes	Potential habitat present within study area.
Crandall's rockcress *(Arabis crandallii)*	BLM	Grows among limestone rocky areas between 8,000-10,000 ft., often associated with sagebrush shrublands or Ponderosa pine.	No	The study area is below the documented elevation range of the species.

Common Name (Scientific Name)	Management Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
Dwarf milkweed *(Asclepias uncialis)*	BLM	Generally flat areas between 3,800-7,700 ft., often associated with shortgrass prairie, growing between bunchgrasses.	No	No suitable habitat is present within study area.
Brandegee's buckwheat *(Eriogonum brandegeei)*	BLM	Barren outcrops of white to grayish soils within open sagebrush and pinyon-juniper communities. 5,700-8,600 ft.	Yes	Potential habitat present within study area.
Colorado buckwheat *(Eriogonum coloradense)*	BLM	Found in an extremely wide range of habitats however all are of a higher elevation than the Parkdale project area. 8,700-14,000 ft.	No	The study area is below the documented elevation range of the species.
Gold blazingstar *(Mentzelia chrysantha)*	BLM	Often associated with barren shale or limestone hills in pinyon-juniper woodlands from 4,750-6,800 ft. Highly associated with Fremont county and the Arkansas river. Typically found on barren slopes and road cuts of limestone, shale, or alkaline clay.	Yes	Potential habitat present within study area.
Royal Gorge blazingstar *(Mentzelia densa)*	BLM	Occurs in open areas such as sandy washes and steep rocky slopes in pinyon-juniper woodlands and montane shrublands. Occurs almost exclusively in Fremont county between 5,400-7,700 ft.	Yes	Potential habitat present within study area.
Rock-loving neoparrya *(Neoparrya lithophila)*	BLM	Grows on volcanic substrates, in cracks or shelves usually with minimal talus. It is seen in moderate to steep rock outcrops, or outcrops of volcanic soils. It also occurs on sedimentary rock derived from extrusive volcanics (Dry Union Formation at Salida). The surrounding habitat is typically grasslands or pinon-juniper woodlands.	Yes	Documented occurrences are from extreme western Fremont County.
Few-flower ragwort *(Packera pauciflora)*	BLM	Wet meadows from 8,800-10,000 ft. Known populations in Colorado occur only in Park County.	No	The study area is below the documented elevation range of the species.
Degener's beardtongue *(Penstemon degeneri)*	BLM	This species is found in open pinyon-juniper woodlands between 5,900-9,500 ft. in elevation. Often found near canyon rims.	Yes	Potentially suitable habitat located within study area.
Pale blue-eyed grass *(Sisyrinchium pallidum)*	BLM	Species occurs in wet meadows usually where standing water is present until early July. Grows on alkaline soils between 6,300-9,700 ft.	No	No suitable habitat is present within study area. Documented occurrences are from extreme western Fremont County.

Common Name (Scientific Name)	Management Status	Associated Habitat Types	Potential to Occur (Yes/No)	Notes
Rolland's bulrush *(Trichophorum pumilum)*	BLM	Moss hummocks in rich fens, 9,300-11,000 ft., only known populations in Colorado are in Park county.	No	No suitable habitat is present within study area.

Source: BLM 2019a

BLM = Bureau of Land Management designated sensitive species; SC = State Species of Special Concern (not a statutory category); ST = State Threatened; SE = State Endangered

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Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix K

Interim Hydrologic Assessment

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Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix L

Parkdale Quarry Stormwater Management Plan

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Final Environmental Impact Statement

Parkdale Quarry Expansion Project

Appendix M

Emissions Inventory Summary Response to Comments on Draft EIS

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Parkdale Quarry EIS Emissions Inventory Summary
Assumptions

Data were provided by Martin Marietta (MM) and are given in tab "Data from MM 08-07-2019" unless noted otherwise.
MM data is used as provided; there may be some unresolved inconsistencies but these are not expected to affect emissions materially.
Where MM provided a range, upper end of range was used for conservatism.
Emissions scenarios
Phase 1: year 2020, production 2,000,000 tons/yr
Phase 2: year 2033, production 4,000,000 tons/yr
Emissions scenarios are defined conservatively: year is 1st year of phase but production is assumed maximum for phase.
Current air permit allows production of up to 2,250,000 tons/yr. Current permit limits used for No Action and Proposed Action Phase 1. Permitted emissions were scaled by production rates for Phase 2. This assumes that Quarry would amend its permit, and any devices added would be in proportion such that emissions would scale with production.
Offroad equipment/trucks in 2020 are assumed to be 50% Tier 3 (or Tier 2 where no Tier 3 standard) and 50% Tier 4.
Offroad equipment/trucks in 2033 are assumed to be 100% Tier 4.
Onsite water truck treated as nonroad vehicle -- conservative.
Onroad vehicle emission factors are from a Wyoming dataset, years 2020 and 2030, considered not materially different values from Colorado in 2020 and 2033.
GHG emissions data not available for nonroad and permitted sources. These GHGs calculated by subtracting onroad sources from total GHGs calculated from MM data on diesel fuel usage.
Fugitive emissions from material piles are included in permitted emissions.
No emissions reduction assumed for MM's plans to halve diesel fuel usage in Phase 2 in favor of electric/alternative fuel equipment.
No emissions reduction assumed for MM's projection that regional rail and truck travel would decrease with the Proposed Action.

Parkdale Quarry EIS Emissions Inventory Summary

Alternative, Year, and Source Type	Emissions (criteria pollutants in U.S. tons per year, GHGs in metric tons per year CO_2e)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	GHGs
No Action 2020							
Stationary permitted - combustion	3.2	17.9	8.6	1.5	1.0	1.2	715
Stationary permitted - fugitive	–	–	41.0	5.7	–	–	–
Mobile - combustion	14.7	19.1	0.7	0.6	0.01	1.2	1,498
Mobile - fugitive	–	–	16.2	4.4	–	–	–
Rail - combustion	32.3	120.1	2.8	2.7	NA	4.6	11,277
Blasting - combustion & fugitive	26.1	6.6	0.6	0.04	0.8	NA	201
Electricity - offsite power plants	NA	3.12	NA	NA	1.96	NA	3,829
Total	76	167	70	15	3.7	7.0	17,520
Proposed Action, Phase 1, 2020							
Stationary permitted - combustion	3.2	17.9	8.6	1.5	1.0	1.2	715
Stationary permitted - fugitive	–	–	41.0	5.7	–	–	–
Mobile - combustion	17.0	21.6	0.7	0.7	0.01	1.3	1,498
Mobile - fugitive	–	–	16.2	4.5	–	–	–
Rail - combustion	84.5	314.2	7.3	7.1	NA	12.0	29,492
Blasting - combustion & fugitive	52.3	13.3	1.2	0.07	1.6	NA	402
Electricity - offsite power plants	NA	7.57	NA	NA	4.75	NA	9,300
Total	157	374	75	20	7.3	14.5	41,407
No Action 2033							
Stationary permitted - combustion	3.2	17.9	8.6	1.5	1.0	1.2	715
Stationary permitted - fugitive	–	–	41.0	5.7	–	–	–
Mobile - combustion	14.2	15.8	0.2	0.2	0.01	1	1,484
Mobile - fugitive	–	–	15.8	4.0	–	–	–
Rail - combustion	32.3	52.2	1.0	0.9	NA	1.9	11,277
Blasting - combustion & fugitive	26.1	6.6	0.6	0.04	0.8	NA	201
Electricity - offsite power plants	NA	3.12	NA	NA	1.96	NA	3,829
Total	76	96	67	12	3.7	4.2	17,506

Parkdale Quarry EIS Emissions Inventory Summary

Alternative, Year, and Source Type	Emissions (criteria pollutants in U.S. tons per year, GHGs in metric tons per year CO_2e)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	GHGs
Proposed Action, Phase 2, 2033							
Stationary permitted - combustion	5.6	31.8	15.4	2.7	1.7	2.1	1,430
Stationary permitted - fugitive	–	–	72.9	10.1	–	–	–
Mobile - combustion	37.0	39.3	0.9	0.9	0.02	3.9	2,520
Mobile - fugitive	–	–	27.6	7.4	–	–	–
Rail - combustion	169.0	272.9	5.1	4.9	NA	10.0	58,985
Blasting - combustion & fugitive	104.5	26.5	3.4	0.19	3.1	NA	804
Electricity - offsite power plants	NA	7.57	NA	NA	4.75	NA	9,300
Total	316	378	125	26	9.6	16.1	73,038
Emissions Change with Proposed Action Compared to No Action Alternative							
Phase 1 2020	81	208	5	5	4	8	23,887
Phase 2 2033	240	282	58	14	6	12	55,532

Source/pollutant combinations labeled "NA" (not available) in Summary will be refined in future version.

FURTHER-SUMMARIZED VERSION FOR EIS CHAPTER (combines combustion & fugitive, all rounded to whole tons, EIS-style labeling)

Alternative, Year, and Source Type	Emissions (criteria pollutants in U.S. tons per year, GHGs in metric tons per year CO_2e)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	GHGs
Alternative B (No Action), 2020							
Stationary permitted	3	18	50	7	1	1	715
Mobile (except rail)	15	19	17	5	0	1	1,498
Rail	32	120	3	3	NA	5	11,277
Blasting	26	7	1	0	1	NA	201
Electricity (offsite power plants)	NA	3	NA	NA	2	NA	3,829
Total	76	167	70	15	4	7	17,520
Alternative A (Proposed Action), Phase 1, 2020							
Stationary permitted	3	18	50	7	1	1	715
Mobile (except rail)	17	22	17	5	0	1	1,498
Rail	84	314	7	7	NA	12	29,492
Blasting	52	13	1	0	2	NA	402
Electricity (offsite power plants)	NA	8	NA	NA	5	NA	9,300
Total	157	374	75	20	7	15	41,407
Alternative B (No Action), 2033							
Stationary permitted	3	18	50	7	1	1	715
Mobile (except rail)	14	16	16	4	0	1	1,484
Rail	32	52	1	1	NA	2	11,277
Blasting	26	7	1	0	1	NA	201
Electricity (offsite power plants)	NA	3	NA	NA	2	NA	3,829
Total	76	96	67	12	4	4	17,506
Alternative A (Proposed Action), Phase 2, 2033							
Stationary permitted	6	32	88	13	2	2	1,430
Mobile (except rail)	37	39	29	8	0	4	2,520
Rail	169	273	5	5	NA	10	58,985
Blasting	105	27	3	0	3	NA	804
Electricity (offsite power plants)	NA	8	NA	NA	5	NA	9,300
Total	316	378	125	26	10	16	73,038
Emissions Change with Alternative A Compared to Alternative B							

FURTHER-SUMMARIZED VERSION FOR EIS CHAPTER (combines combustion & fugitive, all rounded to whole tons, EIS-style labeling)

Alternative, Year, and Source Type	Emissions (criteria pollutants in U.S. tons per year, GHGs in metric tons per year CO_2e)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	GHGs
Phase 1 2020	81	208	5	5	4	8	23,887
Phase 2 2033	240	282	58	14	6	12	55,532

Parkdale Quarry EIS Emissions Inventory
Subtotals for Mobile Sources Except Rail

Alternative, Year, and Source Type	Emissions (criteria pollutants in U.S. tons per year, GHGs in metric tons per year CO_2e)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	GHGs
No Action 2020							
Offroad - combustion	13.5	15.7	0.5	0.5	No data	1.0	No data
Onroad Trucks - combustion	0.8	3.3	0.2	0.1	0.01	0.2	1,416
Onroad commuting - combustion	0.4	0.1	0.01	0.005	0.001	0.02	82
Subtotal mobile combustion	14.7	19.1	0.7	0.6	0.01	1.2	1,498
Offroad - fugitive	–	–	0.7	0.2	–	–	–
Onroad Trucks - fugitive	–	–	14.6	3.6	–	–	–
Onroad commuting - fugitive	–	–	0.2	0.1	–	–	–
Subtotal mobile fugitive	–	–	16.2	4.4	–	–	–
Total mobile	29	38	16.8	5.0	0.02	2	2,996
Proposed Action, Phase 1, 2020							
Offroad - combustion	15.8	18.2	0.5	0.5	No data	1.1	No data
Onroad Trucks - combustion	0.8	3.3	0.2	0.1	0.01	0.2	1,416
Onroad commuting - combustion	0.4	0.1	0.01	0.005	0.001	0.02	82
Subtotal mobile combustion	17.0	21.6	0.7	0.7	0.01	1.3	1,498
Offroad - fugitive	–	–	0.7	0.2	–	–	–
Onroad Trucks - fugitive			14.6	3.6			
Onroad commuting - fugitive	–	–	0.2	0.1	–	–	–
Subtotal mobile fugitive	–	–	16.2	4.5	–	–	–
Total mobile	34	43	17.0	5.2	0.02	3	2,996
2020 change vs. No Action	4	5	0	0	0	0	0
No Action 2033							
Offroad - combustion	13.5	14.4	0.2	0.2	No data	1.1	No data
Onroad Trucks - combustion	0.3	1.4	0.1	0.0	0.01	0.1	1,416
Onroad commuting - combustion	0.4	0.1	0.01	0.003	0.001	0.01	69
Subtotal mobile combustion	14.2	15.8	0.2	0.2	0.01	1.1	1,484
Offroad - fugitive	–	–	0.7	0.2	–	–	–
Onroad Trucks - fugitive			14.6	3.6			
Onroad commuting - fugitive	–	–	0.2	0.1	–	–	–

Parkdale Quarry EIS Emissions Inventory
Subtotals for Mobile Sources Except Rail

Alternative, Year, and Source Type	Emissions (criteria pollutants in U.S. tons per year, GHGs in metric tons per year CO_2e)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	GHGs
Subtotal mobile fugitive	–	–	15.8	4.0	–	–	–
Total mobile	28	32	16.0	4.2	0.02	2	2,969
No Action change 2033 vs. 2020	-1.1	-6.7	-0.8	-0.8	-0.001	-0.1	-27.0
Proposed Action, Phase 2, 2033							
Offroad - combustion	36.0	36.9	0.8	0.8	No data	3.8	No data
Onroad Trucks - combustion	0.5	2.4	0.1	0.1	0.02	0.1	2,427
Onroad commuting - combustion	0.5	0.1	0.01	0.004	0.001	0.01	92
Subtotal mobile combustion	37.0	39.3	0.9	0.9	0.02	3.9	2,520
Offroad - fugitive	–	–	1.3	0.4	–	–	–
Onroad Trucks - fugitive			25.0	6.1			
Onroad commuting - fugitive	–	–	0.3	0.1	–	–	–
Subtotal mobile fugitive	–	–	27.6	7.4	–	–	–
Total mobile	74	79	28.5	8.3	0.04	8	5,039

Maps/Images		Current Operations	Proposed Operations
	Existing/No Action site, to scale, showing active quarrying areas, locations of process equipment, conveyors, engines, materials stockpiles, roads, railroads		
	Proposed Action site, to scale, showing expansion area pits, proposed haul road, roads from haul road to pits, conveyors (if built) along haul road, any new/relocated process equipment, any new/relocated material stockpiles. Where locations are not known or could change, show typical/representative locations.		
II.	**Project Schedule/Phasing**		
In addition to supporting the emissions calculations, schedule information below will be used to help define a single maximum-impact year if possible, to minimize the need to analyze emissions in multiple years.			
	One-time construction projects (e.g., building haul road, additional process equipment/structures): construction schedule showing starting and ending calendar dates, by phase of work.	Construct new aggregate processing plant and rail loadout facility (in process). These activities are primarily being performed by operations personnel on the site.	Construct approximately 7,500 linear feet of 60-foot wide haul road prior to Phase 1. This activitiy will be primarily performed by operations personnel on the site.
	Continuing quarry operations (e.g., working pits): start date of development, end date of product removal, by phase as applicable	On-going for the life of mine (25 to 25 years for the currently permitted reserves).	Phase 1: 2020 to 2033 (Estimated 1,000,000 to 2,000,000 tons per year) Phase 2 to 5: (Estimated 2,000,000 to 4,000,000 tons per year) Phase 2: 2033 to 2055 Phase 3: 2055 to 2080 Phase 4: 2080 to 2105 Phase 5: 2105 to 2120
	Reclamation activity: start and end dates, by phase as applicable	Reclamation is concurrent with mining, and on-going for the life of mine (25 to 25 years for the currently permitted reserves).	Reclamation is concurrent with mining, and on-going for the life of mine. Phase 1: 2020 to 2033 Phase 2: 2033 to 2055 Phase 3: 2055 to 2080 Phase 4: 2080 to 2105 Phase 5: 2105 to 2120
	Typical operating schedules (list separately for each activity/phase as applicable)		
	1. Number of work weeks per year	52 weeks/year	52 weeks/year
	2. Number of work days per week	Average 5 days/week, up to 7	Average 5 days/week, up to 7
	3. Number of shifts per day	1 production and 1 maintenance shift per day.	1 maintenance shift per day. Average of one production shift per day for Phase 1, with average 2 shifts per day for Phases 2 through 5.
	4. Number of hours per shift	Average 10 hours	Average 10 hours
	5. Number of hours of engine-on time per shift (maximum time after accounting for engine-off periods such as lunch, breaks, downtime, etc.)	8-1/2 hours per shift. New equipment added or used to replace currently owned equipment meets Tier IV emissions standards.	8-1/2 hours per shift. New equipment added or used to replace currently owned equipment meets Tier IV emissions standards.
III.	**Equipment and Vehicle Use**		
Provide all data separately for one-time construction projects and for continuing quarry operations.			
	Construction/excavation/material handling equipment and off-road trucks		

	1. Roster of types of equipment deployed on-site, by phase	New equipment added or used to replace currently owned equipment meets Tier IV emissions standards. (1) D6 Dozer (1) D10 Dozer (3) 40 ton haul truck (raw material to stockpiles) (2) 70 ton haul truck (raw material to stockpiles) (1) 988 Wheel Loader (1) 986 Wheel Loader (1) JD450 Excavator (1) 6,000 gallon on-road water truck	Phase 1: New equipment added or used to replace currently owned equipment meets Tier IV emissions standards. (1) D10 Dozer (3) 70 ton haul truck (raw material to stockpiles) (1) 988 Wheel Loader (1) 986 Wheel Loader (1) JD450 Excavator (1) 6,000 gallon on-road water truck Phase 2: Based on current projections, we believe that approximately half this vehicle fleet will transition to electric or other "clean" fuel. (1) D10 Dozer (3) 100 ton haul truck (raw material to stockpiles) (1) 988 Wheel Loader (1) 993 Wheel Loader (1) JD450 Excavator (1) 12,000-gallon water truck Phase 3 through 5: Based on current projections, we believe that this vehicle fleet will transition to electric or other "clean" fuel. (1) D10 Dozer (3) 100 ton haul truck (raw material to stockpiles) (1) 988 Wheel Loader (1) 993 Wheel Loader (1) JD450 Excavator (1) 12,000-gallon water truck
	2. Average number deployed for each type of equipment, by phase	See Above	See Above
	3. Fuel type (diesel, gasoline, electric, etc.) for each piece of equipment	Diesel	Diesel in Phase 1, Transition to 50% diesel and 50% electric or other "clean" fuel in Phase 2, Transition to 100% electric or other "clean" fuel in Phase 3 through 5.
	4. Typical rated horsepower for each piece of equipment	D6 Dozer - 215 HP D10 Dozer - 700 HP 40 ton haul truck - 512 HP 70 ton haul truck - 740 HP 988 Wheel Loader - 555 HP 993 Wheel Loader - 1,041 HP JD450 Excavator - 348 HP 6,000 gallon on-road water truck - 250 HP	Phase 1: D6 Dozer - 215 HP D10 Dozer - 700 HP 40 ton haul truck - 512 HP 70 ton haul truck - 740 HP 988 Wheel Loader - 555 HP 993 Wheel Loader - 1,041HP JD450 Excavator - 348 HP 6,000 gallon on-road water truck - 250 HP Phase 2 to 5: D10 Dozer - 700 HP 100 ton haul truck = 870 HP 988 Wheel Loader - 555 HP 993 Wheel Loader - 1,041HP JD450 Excavator - 348 HP 12,000-gallon water truck - 740 HP
	5. Typical number of hours/day or hours/shift each piece of equipment is used	Dozer/excavator/water truck - 4 hours/day Haul Trucks and other equipment: 8 hours/day, 5 days/week	Dozer/excavator/water truck - 4 hours/day Haul Trucks and other equipment: 8 hours/day, 5 days/week
	On-road trucks making trips to/from off-site locations		
	1. Roster of truck types expected to be used	12 ton haul truck (finished product transport)	12 ton haul truck (finished product transport)
	2. Average daily number of round trips for each truck type	28 trips/day	28 trips/day
	3. Fuel (diesel, gasoline, etc.) for each truck type.	Diesel	Diesel
	4. Vehicle gross weight (or typical weight class/range) for each truck type	45 tons (12 ton capacity, 33 ton empty weight)	45 tons (12 ton capacity, 33 ton empty weight)
	5. Trip travel distance (miles round trip) for each truck type	1/day. 240 trips/year. 100 miles RT	1/day. 240 trips/year. 100 miles RT
	6. Average trip speed (mph) or time (minutes round trip) for each truck type	25 mph	25 mph
	On-road trucks operating primarily on-site (e.g., water spray truck)		
	1. Roster of truck types expected to be used	Water spray truck (included in III A-1 above)	Water spray truck (included in III A-1 above) - Phase 1 only.
	2. Typical number of hours/day or hours/shift each truck type is used	4 hours	4 hours
	3. Fuel (diesel, gasoline, etc.) for each truck type	Diesel	Diesel

Anna Unruh:
The APEN for the current site has 38 ton haul trucks, but per our conversation trucks are: 40 ton & 70 ton trucks. Primarily using 70 ton trucks. Typically 2 trucks/shift. Face to plant is about 1 mile. 10 min./trip.

Anna Unruh:
The APEN for the current site has 38 ton haul trucks, but per our conversation trucks are: 40 ton & 70 ton trucks. Primarily using 70 ton trucks. Typically 2 trucks/shift. Face to plant is about 1 mile. 10 min./trip.

	4. Vehicle gross weight (or typical weight class/range) for each truck type	18 tons (15 ton empty weight)	18 tons (15 ton empty weight)
	5. Average speed (mph) when operating on-site for each truck type	10 mph	10 mph
	Worker commuting (Construction will be primarily be performed by operational employees, so will not substantially change vehicle counts.)		
	1. Number of worker vehicles per day or per shift, by phase	26/day	Phase 1 - 29/day, Phase 2 to 5 - 35 per day
	2. Average worker commute distance (miles round trip)	14 miles one way	14 miles one way
	3. Average speed (mph) or time (minutes) for commute	20 minutes	20 minutes
IV.	**Railroad Operations**		
	Name of railroad company operating the service	Rock and Rail or UPRR	Rock and Rail or UPRR
	Average number of trains per day	3 to 5-50 car trains/week	Phase 1: 3 to 5-100 car trains/week, Phase 2 to 5: to 10 -100 car trains/week
	Average number of locomotives per train	2 locomotives/train	4 locomotives/train
	Average number of cars per train	50 car trains	100 car trains
	Average weight of materials loaded (tons/train or tons/car)	114 tons material/car	114 tons material/car
	Typical train travel distance (miles per round trip) (may be subject to discussion to determine appropriate destination for purposes of analysis)	130 miles each way	170 miles each way
V.	**Blasting**		
	Average frequency of blasting	Weekly	Phase 1: 1 to 2 times weekly, Phase 2 to 5: 2 to 3 times weekly
	Average horizontal land area covered by blast (square feet per blast)	0.5 acres	Phase 1: 0.5 acres, Phase 2 to 5: 0.75 acres.
	Average quantity of blasting agent used (pounds per blast)	30,000 pounds per blast	Phase 1: 30,000 pounds per blast Phase 2 through 5: 40,000 pounds per blast
	Name of typical blasting agent used	ANFO/Emulsion blend	ANFO/Emulsion blend
VI.	**Fuels and Electricity**		
Provide data separately for one-time construction projects and for continuing quarry operations (except locomotives).			
	Estimated total usage (gallons/year) for each fuel (includes construction).	18,000 gal diesel/month	Phase 1 and 2: 18,000 gal diesel/month, Phase 3 to 5: <10,000 gallons of hydrocarbon fuel.
	Estimated total usage of grid electrical energy (kilowatt-hours/year)	Black hills ~ 0.6 – 0.7 MW/yr	Black hills ~ 1.3 – 1.7 MW/yr

Note: data not linked to original permit review files.

PARKDALE QUARRY EIS -- SUMMARY OF AIR QUALITY PERMIT DATA FOR EMISSIONS INVENTORY

Pdf File Name	Constr. Permit No.-Issuance No.	Issue Date	Document Description*	Quarry's Source ID	Device Description in Permit	Device Rating (tons/hr)	Throughput Limit (tons/yr)	Oper. Hours Limit
16452-812 - Parkdale Quarry - APEN Permit No. 00FR0687F - New Facility - Certified - 04-07-04.pdf	00FR0687F	04/07/04	APEN & Application for Construction Permit		Quarry		1,500,000	
16452-812 - Parkdale Quarry - APEN Permit No. 00FR0687F.pdf	00FR0687F	05/25/18	APEN & Application for Construction Permit		Quarry		2,250,000 (actual 2017 = 433,183)	12h/6d/52wk
16452-810 - Parkdale Quarry - Air Permit No. OOFR0687F - Issuance 6.pdf	00FR0687F-6	10/15/18	Construction Permit	Pit No.1, Pit No. 2	Pit #1: Rock drilling, blasting, material extraction, handling, stockpiling, hauling and the associated onsite conveyors and transfer points. Pit #2: Sand and gravel material extraction, handling, stockpiling, hauling and the associated onsite conveyors and transfer points.		2,250,000 t/yr, 11,600 t/d, ANFO 600 t/yr	
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0388 - Update Only - Certified - 03-25 - 15.pdf	04FR0388	03/25/15	APEN & Application for Construction Permit	Screen #1 Scalping Screen	APEN: JCI model 6203-32LP Permit: Cedarapids triple-deck vibrating screen	600	1,500,000	8h/5d/40wk
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0389 - Update Only - Certified - 09-09-14.pdf	04FR0389	09/09/14	APEN & Application for Construction Permit	Cedarapids 7x20 screen	Cedarapids 7x20 triple deck screen	400	1,000,000	8h/5d/48wk
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0391 - Update Only - Certified - 09-09-14.pdf	04FR0391	09/09/14	APEN & Application for Construction Permit	54 II Cone	Cedarapids Roller Cone II, "Cone Crusher #2"	400	1,000,000	8h/5d/48wk
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0392 - Update Only - Certified - 09-09-14.pdf	04FR0392	09/09/14	APEN & Application for Construction Permit	MVP 380 Cone	Cedarapids MVP 380 cone crusher	400	1,000,000	8h/5d/48wk
16452-812 - Parkdale Quarry - APEN Permit No. 11FR3251 - Mod. Cover Letter - Certified - 10-06-17.pdf	11FR3251	10/06/17	APEN & Application for Construction Permit		Perkins (CAT) RG40024 diesel engine, 108 hp, Tier 2, powers dewatering pump			
Permitted Emissions Totals (US tons/yr)							**2,250,000**	(per permit 00FR0687F-6)

* Some files contain both application and permit documents. These documents are not noted separately unless they contain different information.

PARKDALE QUARR

	Permitted Emissions (US tons/yr)										
Pdf File Name	**PM Point**	**PM Fugitive**	**PM10 Point**	**PM10 Fugitive**	**PM2.5 Point**	**PM2.5 Fugitive**	**NOx**	**SO2**	**VOC**	**CO**	**Notes**
16452-812 - Parkdale Quarry - APEN Permit No. 00FR0687F - New Facility - Certified - 04-07-04.pdf											Has oper. schedule, stockpile sizes, holes drilled/yr, blasts/yr, truck trips, etc.
16452-812 - Parkdale Quarry - APEN Permit No. 00FR0687F.pdf											Adds transfer points, acreage, has data for equipment (permits 04FR0387/0388/0389/0391/0392, 14FR0059) materials quantities, trucks, aerial images
16452-810 - Parkdale Quarry - Air Permit No. OOFR0687F - Issuance 6.pdf	5	140.5	1.9	40	0.5	5.7	3.2				
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0388 - Update Only - Certified - 03-25 - 15.pdf	2.0			1.0							Data per Permit p.2
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0389 - Update Only - Certified - 09-09-14.pdf	1.3		0.7								Data per Permit p.4
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0391 - Update Only - Certified - 09-09-14.pdf	5.0		2.5								Data per Permit p.4
16452-812 - Parkdale Quarry - APEN Permit No. 04FR0392 - Update Only - Certified - 09-09-14.pdf	5.0		2.5								Data per Permit p.4
16452-812 - Parkdale Quarry - APEN Permit No. 11FR3251 - Mod. Cover Letter - Certified - 10-06-17.pdf	1.04		1.04		1.04		14.66	0.97	1.19	3.16	Like kind replacement of engine block for CAT 3054C, emissions changes appear to be rounding only.
Permitted Emissions	**19.34**	**140.5**	**8.64**	**41**	**1.54**	**5.7**	**17.86**	**0.97**	**1.19**	**3.16**	

* Some files contain

Derivation of Potential Future Emissions by Scaling with Production					Potential Future Permitted Emissions (US tons/yr)									
Assumptions for All Scenarios	**Alternative/Phase**	**Analysis Year**	**Max. Production (tons/yr)**	**Scaling Ratio vs. Existing**	**PM Point**	**PM Fugitive**	**PM10 Point**	**PM10 Fugitive**	**PM2.5 Point**	**PM2.5 Fugitive**	**NOx**	**SO2**	**VOC**	**CO**
Assumes same permitted devices and emission controls, or multiples of same.	Existing/No Action	2020	2,250,000	1.00	19.34	140.5	8.64	41	1.54	5.7	17.86	0.97	1.19	3.16
Engine use assumed to scale same as production.	Proposed Action, Phase 1	2020	2,000,000	1.00	19.34	140.5	8.64	41	1.54	5.7	17.86	0.97	1.19	3.16
Assumes same permitted operating hours.	Proposed Action, Phase 2	2033	4,000,000	1.78	34.3822	249.778	15.36	72.8889	2.73778	10.1333	31.7511	1.72444	2.11556	5.61778
Assumes maximum production/earliest year by phase, data from Martin Marietta	Alternative A, Phase 1	2020	2,000,000	1.00	19.34	140.5	8.64	41	1.54	5.7	17.86	0.97	1.19	3.16
	Alternative A, Phase 2	2033	4,000,000	1.78	34.38	249.8	15.36	73	2.74	10.1	31.75	1.72	2.12	5.62

Parkdale Quarry EIS Emissions Inventory
Construction/excavation/material handling equipment and off-road trucks
Exhaust Emissions

Assumptions for Equipment/Vehicle Fleet Tiers, by Calendar Year			
Rated hp/model year/Tier	**2019**	**2020**	**2033**
hp<750, model year <2014: Tier 3 or Tier 2 (if no Tier 3 std.)	50%	50%	0%
All hp, model year 2014+: Tier 4	50%	50%	100%

Note: GHG emissions are included in Fuels&Electricity tab.

Source for load factors: Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, Assessment and Standards Division Office of Transportation and Air Quality U.S. Environmental Protection Agency, EPA-420-R-10-016 NR-005d, July 2010. Appendix A. On-road water truck treated as off-highway truck: very conservative load factor

No Action Alternative 2020

Equipment Type	No. of Equipment	Rated HP	Operating Hours hr/shift	shifts/day	days/wk	wk/yr	hr/yr	Load Factor
CAT D6 Dozer	1	215	4	1	5	52	1040	0.59
CAT D10 Dozer	1	700	4	1	5	52	1040	0.59
CAT 988 Wheel Loader	1	555	8	1	5	52	2080	0.59
CAT 986 Wheel Loader	1	1041	8	1	5	52	2080	0.59
CAT 993 Wheel Loader	0	1041	8	1	5	52	2080	0.59
John Deere JD450 Excavator	1	348	4	1	5	52	1040	0.59
40 ton haul truck (raw material to stockpiles)	0	512	8	1	5	52	2080	0.59
70 ton haul truck (raw material to stockpiles)	2	740	8	1	5	52	2080	0.59
100 ton haul truck (raw material to stockpiles)	0	870	8	1	5	52	2080	0.59
6,000 gallon on-road water truck	1	250	4	1	5	52	1040	0.59
12,000 gallon on-road water truck	0	740	4	1	5	52	1040	0.59
Total	**8**							

Column lookup

No Action Alternative 2020

Equipment Type	NONROAD Tier 2/3 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO	NONROAD Tier 4 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO
CAT D6 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT D10 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 988 Wheel Loader	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 986 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
CAT 993 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
John Deere JD450 Excavator	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
100 ton haul truck (raw material to stockpiles)	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
6,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
12,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
Total								
	12	13	14	15	12	13	14	15

No Action Alternative 2020

Equipment Type	NONROAD Emission Factors (g/hp-hr) (tier-wtd.)				Annual Emissions (tons/yr)				
	VOC	NOx	PM10	CO	VOC	NOx	PM10	CO	PM2.5
CAT D6 Dozer	0.16	2.83	0.08	2.61	0.0232	0.4121	0.0119	0.3795	0.0116
CAT D10 Dozer	0.16	2.83	0.08	2.61	0.0756	1.3416	0.0388	1.2357	0.0377
CAT 988 Wheel Loader	0.16	2.83	0.08	2.61	0.1198	2.1275	0.0616	1.9595	0.0597
CAT 986 Wheel Loader	0.29	3.57	0.11	2.61	0.4045	5.0300	0.1575	3.6754	0.1528
CAT 993 Wheel Loader	0.29	3.57	0.11	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
John Deere JD450 Excavator	0.16	2.83	0.08	2.61	0.0376	0.6670	0.0193	0.6143	0.0187
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.08	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.08	2.61	0.3195	5.6732	0.1642	5.2253	0.1593
100 ton haul truck (raw material to stockpiles)	0.29	3.57	0.11	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
6,000 gallon on-road water truck	0.16	2.83	0.08	2.61	0.0270	0.4792	0.0139	0.4413	0.0135
12,000 gallon on-road water truck	0.16	2.83	0.08	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**1.0072**	**15.7305**	**0.4673**	**13.5311**	**0.4533**

No Action Alternative 2020

	NONROAD EF Selection: HP/Tier/Model Year (per fleet assumptions below)				
Equipment Type	**Power Range (hp)**	**Tier 2/3**	**Tier 4**	**Tier 2/3 Model Yr**	**Tier 4 Model Yr**
CAT D6 Dozer	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
CAT D10 Dozer	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 988 Wheel Loader	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 986 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
CAT 993 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
John Deere JD450 Excavator	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
40 ton haul truck (raw material to stockpiles)	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
70 ton haul truck (raw material to stockpiles)	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
100 ton haul truck (raw material to stockpiles)	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
6,000 gallon on-road water truck	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
12,000 gallon on-road water truck	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h

Total

No Action Alternative 2020

Equipment Type	Lookup strings: Tier 2/3 Concatenated	Lookup strings: Tier 4 Concatenated	Lookup Check: Tier 2/3	Lookup Check: Tier 4
CAT D6 Dozer	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
CAT D10 Dozer	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	39	40
CAT 988 Wheel Loader	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
CAT 986 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
CAT 993 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
John Deere JD450 Excavator	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
40 ton haul truck (raw material to stockpiles)	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
70 ton haul truck (raw material to stockpiles)	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35
100 ton haul truck (raw material to stockpiles)	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
6,000 gallon on-road water truck	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
12,000 gallon on-road water truck	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35

Total

Proposed Action Phase 1, 2020

Equipment Type	No. of Equipment	Rated HP	Operating Hours hr/day	shifts/day	days/wk	wk/yr	hr/yr	Load Factor
CAT D6 Dozer	0	215	4	1	5	52	1040	0.59
CAT D10 Dozer	1	700	4	1	5	52	1040	0.59
CAT 988 Wheel Loader	1	555	8	1	5	52	2080	0.59
CAT 986 Wheel Loader	1	1041	8	1	5	52	2080	0.59
CAT 993 Wheel Loader	0	1041	8	1	5	52	2080	0.59
John Deere JD450 Excavator	1	348	4	1	5	52	1040	0.59
40 ton haul truck (raw material to stockpiles)	0	512	8	1	5	52	2080	0.59
70 ton haul truck (raw material to stockpiles)	3	740	8	1	5	52	2080	0.59
100 ton haul truck (raw material to stockpiles)	0	870	8	1	5	52	2080	0.59
6,000 gallon on-road water truck	1	250	4	1	5	52	1040	0.59
12,000 gallon on-road water truck	0	740	4	1	5	52	1040	0.59
Total	**8**							

Proposed Action Phase 1, 2020

Equipment Type	NONROAD Tier 2/3 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO	NONROAD Tier 4 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO
CAT D6 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT D10 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 988 Wheel Loader	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 986 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
CAT 993 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
John Deere JD450 Excavator	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
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70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
100 ton haul truck (raw material to stockpiles)	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
6,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
12,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
Total								
	12	13	14	15	12	13	14	15

Proposed Action Phase 1, 2020

Equipment Type	NONROAD Emission Factors (g/hp-hr) (tier-wtd.) VOC	NOx	PM10	CO	Annual Emissions (tons/yr) VOC	NOx	PM10	CO	PM2.5
CAT D6 Dozer	0.16	2.83	0.08	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
CAT D10 Dozer	0.16	2.83	0.08	2.61	0.0756	1.3416	0.0388	1.2357	0.0377
CAT 988 Wheel Loader	0.16	2.83	0.08	2.61	0.1198	2.1275	0.0616	1.9595	0.0597
CAT 986 Wheel Loader	0.29	3.57	0.11	2.61	0.4045	5.0300	0.1575	3.6754	0.1528
CAT 993 Wheel Loader	0.29	3.57	0.11	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
John Deere JD450 Excavator	0.16	2.83	0.08	2.61	0.0376	0.6670	0.0193	0.6143	0.0187
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.08	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.08	2.61	0.4793	8.5098	0.2463	7.8380	0.2389
100 ton haul truck (raw material to stockpiles)	0.29	3.57	0.11	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
6,000 gallon on-road water truck	0.16	2.83	0.08	2.61	0.0270	0.4792	0.0139	0.4413	0.0135
12,000 gallon on-road water truck	0.16	2.83	0.08	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**1.1438**	**18.1551**	**0.5375**	**15.7642**	**0.5213**
	Proposed Action 2020 change vs. No Action 2020				0.14	2.42	0.07	2.23	0.07

Proposed Action Phase 1, 2020

	NONROAD EF Selection: HP/Tier/Model Year (per fleet assumptions below)				
Equipment Type	**Power Range (hp)**	**Tier 2/3**	**Tier 4**	**Tier 2/3 Model Yr**	**Tier 4 Model Yr**
CAT D6 Dozer	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
CAT D10 Dozer	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 988 Wheel Loader	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 986 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
CAT 993 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
John Deere JD450 Excavator	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
40 ton haul truck (raw material to stockpiles)	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
70 ton haul truck (raw material to stockpiles)	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
100 ton haul truck (raw material to stockpiles)	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
6,000 gallon on-road water truck	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
12,000 gallon on-road water truck	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h

Total

Proposed Action Phase 1, 2020

	Lookup strings		Lookup Check	
Equipment Type	**Tier 2/3 Concatenated**	**Tier 4 Concatenated**	**Tier 2/3**	**Tier 4**
CAT D6 Dozer	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
CAT D10 Dozer	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	39	40
CAT 988 Wheel Loader	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
CAT 986 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
CAT 993 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
John Deere JD450 Excavator	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
40 ton haul truck (raw material to stockpiles)	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
70 ton haul truck (raw material to stockpiles)	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35
100 ton haul truck (raw material to stockpiles)	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
6,000 gallon on-road water truck	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
12,000 gallon on-road water truck	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35

Total

No Action Alternative, 2033

Equipment Type	No. of Equipment	Rated HP	Operating Hours hr/day	shifts/day	days/wk	wk/yr	hr/yr	Load Factor
CAT D6 Dozer	1	215	4	1	5	52	1040	0.59
CAT D10 Dozer	1	700	4	1	5	52	1040	0.59
CAT 988 Wheel Loader	1	555	8	1	5	52	2080	0.59
CAT 986 Wheel Loader	1	1041	8	1	5	52	2080	0.59
CAT 993 Wheel Loader	0	1041	8	1	5	52	2080	0.59
John Deere JD450 Excavator	1	348	4	1	5	52	1040	0.59
40 ton haul truck (raw material to stockpiles)	0	512	8	1	5	52	2080	0.59
70 ton haul truck (raw material to stockpiles)	2	740	8	1	5	52	2080	0.59
100 ton haul truck (raw material to stockpiles)	0	870	8	1	5	52	2080	0.59
6,000 gallon on-road water truck	1	250	4	1	5	52	1040	0.59
12,000 gallon on-road water truck	0	740	4	1	5	52	1040	0.59
Total	**8**							

No Action Alternative, 2033

Equipment Type	NONROAD Tier 2/3 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO	NONROAD Tier 4 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO
CAT D6 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT D10 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 988 Wheel Loader	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 986 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
CAT 993 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
John Deere JD450 Excavator	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
100 ton haul truck (raw material to stockpiles)	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
6,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
12,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
Total								
	12	13	14	15	12	13	14	15

No Action Alternative, 2033

Equipment Type	NONROAD Emission Factors (g/hp-hr) (tier-wtd.) VOC	NOx	PM10	CO	Annual Emissions (tons/yr) VOC	NOx	PM10	CO	PM2.5
CAT D6 Dozer	0.16	2.83	0.01	2.61	0.0232	0.4121	0.0022	0.3795	0.0021
CAT D10 Dozer	0.16	2.83	0.01	2.61	0.0756	1.3416	0.0071	1.2357	0.0068
CAT 988 Wheel Loader	0.16	2.83	0.01	2.61	0.1198	2.1275	0.0112	1.9595	0.0109
CAT 986 Wheel Loader	0.32	2.61	0.07	2.61	0.4495	3.6754	0.1050	3.6754	0.1019
CAT 993 Wheel Loader	0.32	2.61	0.07	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
John Deere JD450 Excavator	0.16	2.83	0.01	2.61	0.0376	0.6670	0.0035	0.6143	0.0034
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.01	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.01	2.61	0.3195	5.6732	0.0299	5.2253	0.0290
100 ton haul truck (raw material to stockpiles)	0.32	2.61	0.07	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
6,000 gallon on-road water truck	0.16	2.83	0.01	2.61	0.0270	0.4792	0.0025	0.4413	0.0024
12,000 gallon on-road water truck	0.16	2.83	0.01	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**1.0522**	**14.3759**	**0.1613**	**13.5311**	**0.1565**
			No Action 2033 change vs. No Action 2020		0.04	-1.35	-0.31	0.0000	-0.30

No Action Alternative, 2033

	NONROAD EF Selection: HP/Tier/Model Year (per fleet assumptions below)				
Equipment Type	**Power Range (hp)**	**Tier 2/3**	**Tier 4**	**Tier 2/3 Model Yr**	**Tier 4 Model Yr**
CAT D6 Dozer	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
CAT D10 Dozer	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 988 Wheel Loader	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 986 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
CAT 993 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
John Deere JD450 Excavator	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
40 ton haul truck (raw material to stockpiles)	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
70 ton haul truck (raw material to stockpiles)	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
100 ton haul truck (raw material to stockpiles)	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
6,000 gallon on-road water truck	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
12,000 gallon on-road water truck	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
Total					

No Action Alternative, 2033

	Lookup strings		Lookup Check	
Equipment Type	**Tier 2/3 Concatenated**	**Tier 4 Concatenated**	**Tier 2/3**	**Tier 4**
CAT D6 Dozer	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
CAT D10 Dozer	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	39	40
CAT 988 Wheel Loader	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
CAT 986 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
CAT 993 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
John Deere JD450 Excavator	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
40 ton haul truck (raw material to stockpiles)	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
70 ton haul truck (raw material to stockpiles)	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35
100 ton haul truck (raw material to stockpiles)	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
6,000 gallon on-road water truck	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
12,000 gallon on-road water truck	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35

Total

Proposed Action Phase 2, 2033

Equipment Type	No. of Equipment	Rated HP	Operating Hours hr/day	days/wk	wk/yr	hr/yr	Load Factor
CAT D6 Dozer	0	215	4	2	5	52	2080	0.59
CAT D10 Dozer	1	700	4	2	5	52	2080	0.59
CAT 988 Wheel Loader	1	555	8	2	5	52	4160	0.59
CAT 986 Wheel Loader	0	1041	8	2	5	52	4160	0.59
CAT 993 Wheel Loader	1	1041	8	2	5	52	4160	0.59
John Deere JD450 Excavator	1	348	4	2	5	52	2080	0.59
40 ton haul truck (raw material to stockpiles)	0	512	8	2	5	52	4160	0.59
70 ton haul truck (raw material to stockpiles)	0	740	8	2	5	52	4160	0.59
100 ton haul truck (raw material to stockpiles)	3	870	8	2	5	52	4160	0.59
6,000 gallon on-road water truck	0	250	4	2	5	52	2080	0.59
12,000 gallon on-road water truck	1	740	4	2	5	52	2080	0.59
Total	**8**						

grams_per_ton	907,185
PM2.5/PM10 ratio	0.97

Proposed Action Phase 2, 2033

Equipment Type	NONROAD Tier 2/3 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO	NONROAD Tier 4 Em.Fac. (g/hp-hr) VOC	NOx	PM10	CO
CAT D6 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT D10 Dozer	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 988 Wheel Loader	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
CAT 986 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
CAT 993 Wheel Loader	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
John Deere JD450 Excavator	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
100 ton haul truck (raw material to stockpiles)	0.26	4.53	0.15	2.61	0.32	2.61	0.07	2.61
6,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
12,000 gallon on-road water truck	0.16	2.83	0.15	2.61	0.16	2.83	0.01	2.61
Total								
	12	13	14	15	12	13	14	15

grams_per_ton
PM2.5/PM10 ratio

Proposed Action Phase 2, 2033

Equipment Type	NONROAD Emission Factors (g/hp-hr) (tier-wtd.) VOC	NOx	PM10	CO	Annual Emissions (tons/yr) VOC	NOx	PM10	CO	PM2.5
CAT D6 Dozer	0.16	2.83	0.01	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
CAT D10 Dozer	0.16	2.83	0.01	2.61	0.1511	2.6833	0.0141	2.4714	0.0137
CAT 988 Wheel Loader	0.16	2.83	0.01	2.61	0.2396	4.2549	0.0224	3.9190	0.0217
CAT 986 Wheel Loader	0.32	2.61	0.07	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
CAT 993 Wheel Loader	0.32	2.61	0.07	2.61	0.8990	7.3508	0.2100	7.3508	0.2037
John Deere JD450 Excavator	0.16	2.83	0.01	2.61	0.0751	1.3340	0.0070	1.2287	0.0068
40 ton haul truck (raw material to stockpiles)	0.16	2.83	0.01	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
70 ton haul truck (raw material to stockpiles)	0.16	2.83	0.01	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
100 ton haul truck (raw material to stockpiles)	0.32	2.61	0.07	2.61	2.2540	18.4299	0.5266	18.4299	0.5108
6,000 gallon on-road water truck	0.16	2.83	0.01	2.61	0.0000	0.0000	0.0000	0.0000	0.0000
12,000 gallon on-road water truck	0.16	2.83	0.01	2.61	0.1598	2.8366	0.0149	2.6127	0.0145
Total					**3.7786**	**36.8894**	**0.7951**	**36.0124**	**0.7712**
	Proposed Action 2033 change vs. No Action 2033				3.73	38.24	1.10	36.01	1.07
	Proposed Action change 2033 ph.2 vs. 2020 ph.1				2.63	18.73	0.26	20.25	0.25

grams_per_ton
PM2.5/PM10 ratio

Proposed Action Phase 2, 2033

	NONROAD EF Selection: HP/Tier/Model Year (per fleet assumptions below)				
Equipment Type	**Power Range (hp)**	**Tier 2/3**	**Tier 4**	**Tier 2/3 Model Yr**	**Tier 4 Model Yr**
CAT D6 Dozer	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
CAT D10 Dozer	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 988 Wheel Loader	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
CAT 986 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
CAT 993 Wheel Loader	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
John Deere JD450 Excavator	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
40 ton haul truck (raw material to stockpiles)	300 ≤ HP < 600	Tier 3	Tier 4	2006-2010	2011-2013h
70 ton haul truck (raw material to stockpiles)	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h
100 ton haul truck (raw material to stockpiles)	750 ≤ HP < 1200	Tier 2	Tier 4	2006-2010	2011-2014
6,000 gallon on-road water truck	175 ≤ HP < 300	Tier 3	Tier 4	2006-2010	2011-2013h
12,000 gallon on-road water truck	600 ≤ HP < 750	Tier 3	Tier 4	2006-2010	2011-2013h

Total

grams_per_ton
PM2.5/PM10 ratio

Proposed Action Phase 2, 2033

Equipment Type	Lookup strings: Tier 2/3 Concatenated	Lookup strings: Tier 4 Concatenated	Lookup Check: Tier 2/3	Lookup Check: Tier 4
CAT D6 Dozer	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
CAT D10 Dozer	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	39	40
CAT 988 Wheel Loader	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
CAT 986 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
CAT 993 Wheel Loader	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
John Deere JD450 Excavator	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
40 ton haul truck (raw material to stockpiles)	Tier 3_300 ≤ HP < 600_2006-2010	Tier 4_300 ≤ HP < 600_2011-2013h	34	35
70 ton haul truck (raw material to stockpiles)	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35
100 ton haul truck (raw material to stockpiles)	Tier 2_750 ≤ HP < 1200_2006-2010	Tier 4_750 ≤ HP < 1200_2011-2014	43	44
6,000 gallon on-road water truck	Tier 3_175 ≤ HP < 300_2006-2010	Tier 4_175 ≤ HP < 300_2011-2013h	29	30
12,000 gallon on-road water truck	Tier 3_600 ≤ HP < 750_2006-2010	Tier 4_600 ≤ HP < 750_2011-2013h	34	35

Total

grams_per_ton
PM2.5/PM10 ratio

Parkdale Quarry EIS Emissions Inventory
Construction/excavation/material handling equipment and off-road trucks
Offroad Fugitive PM Emissions

Emission Factors Calculation

Equations
Source: AP-42 Ch.13.2.2
Emis. Fac. $E=k(s/12)^a(W/3)^b$
PM: k = 4.9 / a=0.7 / b=0.45
PM10: k = 1.5 / a=0.9 / b=0.45
PM 2.5: k = 0.15 / a=0.9 / b=0.45
Adjustment for precipitation: Emis. Fac. EF = (EF)((365-P)/365)), where precipitation factor P=number of days with greater than 0.01 inches of rain

Parameter	Value	Units
s = silt %*	8.4%	%
w = veh. wt.		
Haul truck	70	tons
Water truck	18	tons
P = precip. fac.	90	days/yr**
Control efficiency from watering	50%	%

Pollutant	Emis. Fac. (lb/VMT)	Emis. Fac. with precip. adj. (lb/VMT)
Haul truck		
PM	0.627	0.472
PM_{10}	0.071	0.054
$PM_{2.5}$	0.019	0.014
Water truck		
PM	0.340	0.256
PM_{10}	0.039	0.029
$PM_{2.5}$	0.010	0.008

* AP-42 Table 13.2.2-1 mean for Western surface coal mining
** AP-42 Figure 13.2.2-1

Haul Trucks on Unpaved Road -- headed to waste rock dumps -- Fugitive Dust Emissions

Alternative/Phase	No. of Trucks	1-way Distance* (mi)	Round trip distance (mi)	Min/round trip	Round trips/hr	hr/shift	shifts/day	days/wk	wk/yr	VMT/yr	Pollutant	Uncontrolled Emissions (lb/yr)	Uncontrolled Emissions (tons/yr)	Controlled Emissions (Tons/year)
Existing/No Action	2	1	2	10	6	8	1	5	52	49,920	PM10	2,677	1.338	0.669
											PM2.5	722	0.361	0.181
Proposed Action, Phase 1	2	1	2	10	6	8	1	5	52	49,920	PM10	2,677	1.338	0.669
											PM2.5	722	0.361	0.181
Proposed Action, Phase 2	2	1	2	10	6	8	2	5	52	99,840	PM10	5,353	2.677	1.338
											PM2.5	1,444	0.722	0.361
Alternative A, Phase 1	2	1	2	10	6	8	1	5	52	49,920	PM10	2,677	1.338	0.669
											PM2.5	722	0.361	0.181
Alternative A, Phase 2	2	1	2	10	6	8	2	5	52	99,840	PM10	5,353	2.677	1.338
											PM2.5	1,444	0.722	0.361

* Distance from working face to plant

Water Spray Trucks on Unpaved Road/Site -- Fugitive Dust Emissions

Alternative/Phase	No. of Trucks	Avg. Speed (mph)	Hours/ shift	VMT/shift	shifts/day	days/wk	wk/yr	VMT/yr	Pollutant	Uncontrolled Emissions (lb/yr)	Uncontrolled Emissions (tons/yr)	Controlled Emissions (Tons/year)
Existing/No Action	1	10	4	40	1	5	52	10,400	PM10	558	0.279	0.139
									PM2.5	150	0.075	0.038
Proposed Action, Phase 1	1	10	4	40	1	5	52	10,400	PM10	558	0.279	0.139
									PM2.5	150	0.075	0.038
Proposed Action, Phase 2	1	10	4	40	2	5	52	20,800	PM10	1,115	0.558	0.279
									PM2.5	301	0.150	0.075
Alternative A, Phase 1	1	10	4	40	1	5	52	10,400	PM10	558	0.279	0.139
									PM2.5	150	0.075	0.038
Alternative A, Phase 2	1	10	4	40	2	5	52	20,800	PM10	1,115	0.558	0.279
									PM2.5	301	0.150	0.075

Parkdale Quarry EIS Emissions Inventory
On-road trucks transporting product from quarry

Exhaust Emissions

Alternative/Phase/Year	Trips/day	Days/week	Weeks/year	Trips/Year	Round trip distance (mi)	VMT/yr
No Action Alternative, 2020	28	5	52	7,280	100	728,000
Proposed Action, Phase 1, 2020	28	5	52	7,280	100	728,000
No Action Alternative, 2033	28	5	52	7,280	100	728,000
Proposed Action, Phase 2, 2033	48	5	52	12,480	100	1,248,000
Alternative A: same as Proposed Action						

Metric tons per US ton: 0.907185 Assumed speed 25 mph

Parkdale Quarry EIS Emissions Inventor
On-road trucks transporting product fr

Exhaust Emissions

Alternative/Phase/Year	MOVES EF for Diesel Long-Haul Combination Trucks (g/VMT)						
	NOx	PM10	PM2.5	SO2	CO	VOC	CO2
No Action Alternative, 2020	4.1133	0.2235	0.1744	0.0138	0.9450	0.2042	1944.9458
Proposed Action, Phase 1, 2020	4.1133	0.2235	0.1744	0.0138	0.9450	0.2042	1944.9458
No Action Alternative, 2033	1.7134	0.1011	0.0556	0.0134	0.3787	0.1019	1944.9406
Proposed Action, Phase 2, 2033	1.7134	0.1011	0.0556	0.0134	0.3787	0.1019	1944.9406
Alternative A: same as Proposed Action							

Metric tons per US ton:

Parkdale Quarry EIS Emissions Inventor
On-road trucks transporting product fr

Exhaust Emissions

	Exhaust Emissions (tons/yr)							
Alternative/Phase/Year	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**CO2 (MT/yr)**
No Action Alternative, 2020	**3.3008**	**0.1794**	**0.1399**	**0.0111**	**0.7583**	**0.1639**	**1560.7848**	1,416
Proposed Action, Phase 1, 2020	**3.3008**	**0.1794**	**0.1399**	**0.0111**	**0.7583**	**0.1639**	**1560.7848**	1,416
No Action Alternative, 2033	**1.3750**	**0.0811**	**0.0446**	**0.0107**	**0.3039**	**0.0817**	**1560.7806**	1,416
Proposed Action, Phase 2, 2033	**2.3571**	**0.1391**	**0.0764**	**0.0184**	**0.5209**	**0.1401**	**2675.6238**	2,427
Alternative A: same as Proposed Action								

Metric tons per US ton:

Fugitive Dust Emissions- Paved Roads

Emission Factors Calculation

Equations
Source: AP-42 Ch.13.2.1
E=k(sL)^0.91x(W)^1.02

Parameter	Value	Units
Silt (sL)	0.4	g/m^2
Veh. Weight		
Loaded	45	tons
Empty	33	tons
Average	39	tons
k factors:		
PM	0.011	
PM10	0.0022	
PM2.5	0.00054	

Pollutant	Emis. Fac. (lb/VMT)
On-Road Truck	
PM	0.201
PM_{10}	0.040
$PM_{2.5}$	0.010

On-Road Trucks on Paved Roads -- Fugitive Dust Emissions

Alternative/Phase	VMT/yr	Pollutant	Emissions (lb/yr)	Emissions (tons/yr)
No Action Alternative (all years)	728,000	PM10	29,195	14.598
		PM2.5	7,166	3.583
Proposed Action, Phase 1	728,000	PM10	29,195	14.598
		PM2.5	7,166	3.583
Proposed Action, Phase 2	1,248,000	PM10	50,049	25.025
		PM2.5	12,285	6.142
Alternative A, Phase 1	728,000	PM10	29,195	14.598
		PM2.5	7,166	3.583
Alternative A, Phase 2	1,248,000	PM10	50,049	25.025
		PM2.5	12,285	6.142

Parkdale Quarry EIS Emissions Inventory

Worker commuting (Construction will be primarily be performed by operational employees, so will not substantially change vehicle counts.)

Exhaust Emissions

Alternative/Phase/Year	Vehicles/day	Days/week	Weeks/year	Trips/Year	Round trip distance (mi)	VMT/yr
No Action Alternative, 2020	26	5	52	6,760	28	211,120
Proposed Action, Phase 1, 2020	29	5	52	7,540	28	211,120
No Action Alternative, 2033	26	5	52	6,760	28	189,280
Proposed Action, Phase 2, 2033	35	5	52	9,100	28	254,800
Alternative A: same as Proposed Action						

* Assumed vehicle mix for worker commuting: 50% gasoline fueled passenger cars, 25% gasoline fueled passenger trucks, and 25% diesel fueled passenger trucks

Parkdale Quarry EIS Emissions Inventor
Worker commuting (Construction will b
change vehicle counts.)

Exhaust Emissions

Alternative/Phase/Year	MOVES EF for Commuter Fleet* (g/VMT)						
	NOx	PM10	PM2.5	SO2	CO	VOC	CO2
No Action Alternative, 2020	0.4711	0.0342	0.0219	0.0052	1.9177	0.0685	388.5287
Proposed Action, Phase 1, 2020	0.4711	0.0342	0.0219	0.0052	1.9177	0.0685	388.5287
No Action Alternative, 2033	0.2773	0.0256	0.0136	0.0048	1.6849	0.0351	362.1752
Proposed Action, Phase 2, 2033	0.2773	0.0256	0.0136	0.0048	1.6849	0.0351	362.1752
Alternative A: same as Proposed Action							

* Assumed vehicle mix for worker commutir
gasoline fueled passenger trucks, and 25% d

Parkdale Quarry EIS Emissions Inventor
Worker commuting (Construction will b
change vehicle counts.)

Exhaust Emissions

	Exhaust Emissions (tons/yr)							
Alternative/Phase/Year	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**CO2 (MT/yr)**
No Action Alternative, 2020	**0.1096**	**0.0079**	**0.0051**	**0.0012**	**0.4463**	**0.0159**	**90.4184**	82
Proposed Action, Phase 1, 2020	**0.1096**	**0.0079**	**0.0051**	**0.0012**	**0.4463**	**0.0159**	**90.4184**	82
No Action Alternative, 2033	**0.0579**	**0.0053**	**0.0028**	**0.0010**	**0.3516**	**0.0073**	**75.5662**	69
Proposed Action, Phase 2, 2033	**0.0779**	**0.0072**	**0.0038**	**0.0013**	**0.4732**	**0.0099**	**101.7237**	92
Alternative A: same as Proposed Action								

* Assumed vehicle mix for worker commutir
gasoline fueled passenger trucks, and 25% d

Fugitive Dust Emissions- Paved Roads

Emission Factors Calculation

Equations
Source: AP-42 Ch.13.2.1
E=k(sL)^0.91x(W)^1.02

Parameter	Value	Units
Silt (sL)	0.4	g/m^2
Veh. Weight	2.4	tons
k factors:		
PM	0.011	
PM10	0.0022	
PM2.5	0.00054	

Pollutant	Emis. Fac. (lb/VMT)
Commuting	
PM	0.0117
PM_{10}	0.0023
$PM_{2.5}$	0.0006

Worker Commuting on Paved Roads -- Fugitive Dust Emissions

Alternative/Phase	VMT/yr	Pollutant	Emissions (lb/yr)	Emissions (tons/yr)
Existing/No Action	211,120	PM10	493	0.246
		PM2.5	121	0.060
Proposed Action, Phase 1	211,120	PM10	493	0.246
		PM2.5	121	0.060
Proposed Action, Phase 2	254,800	PM10	595	0.297
		PM2.5	146	0.073
Alternative A, Phase 1	211,120	PM10	493	0.246
		PM2.5	121	0.060
Alternative A, Phase 2	254,800	PM10	595	0.297
		PM2.5	146	0.073

Worker Commute on Paved Road

Average on-road vehicle weight assumed to be 2.4 tons consistent with California Emissions Estimator Model (CalEEMod) default average vehicle weight for paved roads.

Parkdale Quarry EIS Emissions Inventory
Railroad Operations

Emission Factors

	Emission Factors by Calendar Year (g/gal)				
Pollutant	**2019**	**2020**	**2033**	**2040**	**Source**
HC	3.9	3.6	1.5	1.0	EPA 2009, Table 7, Large Line Haul
VOC	4.11	3.79	1.58	1.05	Calculated
NOx	103	99	43	28	EPA 2009,Table 5, Large Line Haul
CO	26.62	26.62	26.62	26.62	EPA 2009,Tables 1 and 3
PM10	2.5	2.3	0.8	0.4	EPA 2009,Table 6, Large Line Haul
PM2.5	2.43	2.23	0.78	0.39	Calculated

Ratios and Conversions		
VOC/HC ratio	1.053	EPA 2009, page 4
PM2.5/PM10 ratio	0.97	EPA 2009, page 4
bhp-hr/gal	20.8	EPA 2009, Table 3
grams/kg	1,000	
lb_gram	0.00220462	
MT_gram	0.000001	

EPA 2009: Emission Factors for Locomotives. EPA-420-F-09-025. April. http://www.epa.gov/otaq/regs/nonroad/locomotv/420f09025.pdf

Railroad Operations Exhaust Emissions

Alternative/Phase/Year	Max. No. Trains/Week	1-Way Distance (mi)	Round Trip Distance (mi)	Weeks/yr	Train-Miles/Year	No. of Locos/ Train	No. of Cars/Train	Weight per Loco (tons)
Existing/No Action, 2019	5	130	260	52	67,600	2	50	240
No Action, 2020	5	130	260	52	67,600	2	50	240
Proposed Action, Phase 1, 2020	5	170	340	52	88,400	4	100	240
No Action, 2033	5	130	260	52	67,600	2	50	240
Proposed Action, Phase 2, 2033	10	170	340	52	176,800	4	100	240
Alternative A: same as Proposed Action								

UPRR fuel efficiency factor 444 ton-mi/gal

Source: UPRR "2018 Building America Report"

Data for calculating weight of train:

Description	Value	Source
Weight per locomotive	480,000 lb	BNSF. 2019. Virtual tour. http://bnr.com/about-bnsf/include/virtual-train-tour/
Empty weight per car (assume gondolas)	42,000 lb	UPRR. 2019. Gondolas. https://www.up.com/customers/all/equipment/descriptions/gondolas/index.htm

Assume train has only Parkdale's cargo – no other cars, no caboose, etc. Use MM's data for # of locos, # of cars, cargo weight.

Formulas:

Train wt. = (loco wt. * # of locos) + [(tare weight/car + material weight/car) * (# of cars)]

Total distance/yr = (round trips/wk)*(miles/round trip)*(weeks/yr)

Railroad Operations Exhaust I

Alternative/Phase/Year	Unloaded Weight/Car (tons)	Material Weight/Car (tons)	Total Weight/Train (tons)	Ton-Miles/Year	Diesel Fuel Used (gal/yr)	Emission Factor (g/gallon)				
						CO	NOx	PM10	PM2.5	VOC
Existing/No Action, 2019	21	114	7,230	488,748,000	1,100,784	26.62	103.00	2.50	2.43	4.107
No Action, 2020	21	114	7,230	488,748,000	1,100,784	26.62	99.00	2.30	2.23	3.79
Proposed Action, Phase 1, 2020	21	114	14,460	1,278,264,000	2,878,973	26.62	99.00	2.30	2.23	3.79
No Action, 2033	21	114	7,230	488,748,000	1,100,784	26.62	43.00	0.80	0.78	1.58
Proposed Action, Phase 2, 2033	21	114	14,460	2,556,528,000	5,757,946	26.62	43.00	0.80	0.78	1.58
Alternative A: same as Proposed										

UPRR fuel efficiency factor

Source: UPRR "2018 Building Americ

Data for calculating weight of train:

- Description
- Weight per locomotive
- Empty weight per car (assume gondolas)
- Assume train has only Parkdale's

Formulas:

Train wt. = (loco wt. * # of locos) + [(

Total distance/yr = (round trips/wk)*

Railroad Operations Exhaust I

	Emissions (US tons/year, except CO2e MT/year)					
Alternative/Phase/Year	**CO**	**NOx**	**PM10**	**PM2.5**	**VOC**	**CO2e**
Existing/No Action, 2019	32.31	124.98	3.03	2.94	4.98	11,277
No Action, 2020	32.31	120.13	2.79	2.71	4.60	11,277
Proposed Action, Phase 1, 2020	84.49	314.18	7.30	7.08	12.03	29,492
No Action, 2033	32.31	52.18	0.97	0.94	1.92	11,277
Proposed Action, Phase 2, 2033	168.98	272.92	5.08	4.93	10.03	58,985
Alternative A: same as Proposed						

UPRR fuel efficiency factor

Source: UPRR "2018 Building Americ

Data for calculating weight of train:

- Description
- Weight per locomotive
- Empty weight per car (assume gondolas)
- Assume train has only Parkdale's

Formulas:

Train wt. = (loco wt. * # of locos) + [(

Total distance/yr = (round trips/wk)*

Parkdale Quarry EIS Emissions Inventory
Blasting

No Action Alternative

Process	Emission Factor Reference	Usage	Units
PM Emissions	AP-42 11.9-1: Western Surface Coal Mines	1	Blasts/wk
PM: E=(k)(1.4x10^-5)(A)^1.5	A=horizontal area (sq ft)/blast	52	Blasts/yr
	k = Scale PM10= PMx0.52		
	k = Scale PM2.5= PMx0.03	0.5	A = Horizontal Area (acres/blast)
		21,780	A = Horizontal Area (sf/blast)
Criteria Pollutants & GHGs	AP-42 13.3-1: Explosives Detonation		
	CO, NOx, SOx - Table 13.3-1	30,000	Blasting Agent Usage (lb/blast)
		1,560,000	Blasting Agent Usage (lb/yr)
		780	Blasting Agent Usage (tons/yr)
	CO2, CH4, N2O EF per 40 CFR 98 tables C-1, C-2		

Pollutant	EF	Units	Emission (Lb/Yr)	Emission (Ton/Yr)	Control %
PM	45.000	lb/blast	2,340	1.170	0.0
PM_{10}	23.400	lb/blast	1,217	0.608	0.0
$PM_{2.5}$	1.350	lb/blast	70	0.035	0.0
CO	67	lb/ton of ANFO	52,260	26.130	0.0
NOx	17	lb/ton of ANFO	13,260	6.630	0.0
SO2	2	lb/ton of ANFO	1,560	0.780	0.0
CO2	566	lb/ton of ANFO	441,480	220.740	0.0
CH4	0.02	lb/ton of ANFO	15.60	0.00780	0.0
N2O	0.005	lb/ton of ANFO	3.90	0.00195	0.0
					Total

Controlled Emissions (Tons/year)											
PM	PM_{10}	$PM_{2.5}$	NO2	SO_2	VOC	CO	CO2	CH4	N2O	CO2e	CO2e (MT/yr)
1.170											
	0.608										
		0.035									
						26.130					
			6.630								
				0.780							
							220.7				
								0.00780			
									0.00195		
	0.608	**0.035**	**6.630**	**0.780**	**0.000**	**26.130**	**220.740**	**0.00780**	**0.00195**	**221.51610**	**200.95608**

Proposed Action - Phase 1

Process	Emission Factor Reference	Usage	Units
PM Emissions	AP-42 11.9-1: Western Surface Coal Mines	2	Blasts/wk
PM: E=(k)(1.4x10^-5)(A)^1.5	A=horizontal area (sq ft)/blast	104	Blasts/yr
	k = Scale PM10= PMx0.52		
	k = Scale PM2.5= PMx0.03	0.5	A = Horizontal Area (acres/blast)
		21,780	A = Horizontal Area (sf/blast)
Criteria Pollutants & GHGs	AP-42 13.3-1: Explosives Detonation		
	CO, NOx, SOx - Table 13.3-1	30,000	Blasting Agent Usage (lb/blast)
		3,120,000	Blasting Agent Usage (lb/yr)
		1560	Blasting Agent Usage (tons/yr)
	CO2, CH4, N2O EF per 40 CFR 98 tables C-1, C-2		

Pollutant	EF	Units	Emission (Lb/Yr)	Emission (Ton/Yr)	Control %
PM	45.000	lb/blast	4,680	2.340	0.0
PM_{10}	23.400	lb/blast	2,434	1.217	0.0
$PM_{2.5}$	1.350	lb/blast	140	0.070	0.0
CO	67	lb/ton of ANFO	104,520	52.260	0.0
NOx	17	lb/ton of ANFO	26,520	13.260	0.0
SO2	2	lb/ton of ANFO	3,120	1.560	0.0
CO2	566	lb/ton of ANFO	882,960	441.480	0.0
CH4	0.02	lb/ton of ANFO	31.20	0.01560	0.0
N2O	0.005	lb/ton of ANFO	7.80	0.00390	0.0
					Total

Controlled Emissions (Tons/year)											
PM	PM_{10}	$PM_{2.5}$	NO2	SO_2	VOC	CO	CO2	CH4	N2O	CO2e	CO2e (MT/yr)
2.340											
	1.217										
		0.070									
						52.260					
			13.260								
				1.560							
							441.5				
								0.01560			
									0.00390		
	1.217	**0.070**	**13.260**	**1.560**	**0.000**	**52.260**	**441.480**	**0.01560**	**0.00390**	**443.03220**	**401.91217**

Proposed Action - Phase 2

Process	Emission Factor Reference	Usage	Units
PM Emissions	AP-42 11.9-1: Western Surface Coal Mines	3	Blasts/wk
PM: E=(k)(1.4x10^-5)(A)^1.5	A=horizontal area (sq ft)/blast	156	Blasts/yr
	k = Scale PM10= PMx0.52		
	k = Scale PM2.5= PMx0.03	0.75	A = Horizontal Area (acres/blast)
		32,670	A = Horizontal Area (sf/blast)
Criteria Pollutants & GHGs	AP-42 13.3-1: Explosives Detonation		
	CO, NOx, SOx - Table 13.3-1	40,000	Blasting Agent Usage (lb/blast)
		6,240,000	Blasting Agent Usage (lb/yr)
		3120	Blasting Agent Usage (tons/yr)
	CO2, CH4, N2O EF per 40 CFR 98 tables C-1, C-2		

Pollutant	EF	Units	Emission (Lb/Yr)	Emission (Ton/Yr)	Control %
PM	82.671	lb/blast	12,897	6.448	0.0
PM_{10}	42.989	lb/blast	6,706	3.353	0.0
$PM_{2.5}$	2.480	lb/blast	387	0.193	0.0
CO	67	lb/ton of ANFO	209,040	104.520	0.0
NOx	17	lb/ton of ANFO	53,040	26.520	0.0
SO2	2	lb/ton of ANFO	6,240	3.120	0.0
CO2	566	lb/ton of ANFO	1,765,920	882.960	0.0
CH4	0.02	lb/ton of ANFO	62.40	0.03120	0.0
N2O	0.005	lb/ton of ANFO	15.60	0.00780	0.0
					Total

Controlled Emissions (Tons/year)											
PM	PM_{10}	$PM_{2.5}$	NO2	SO_2	VOC	CO	CO2	CH4	N2O	CO2e	CO2e (MT/yr)
6.448											
	3.353										
		0.193									
						104.520					
			26.520								
				3.120							
							883.0				
								0.03120			
									0.00780		
	3.353	**0.193**	**26.520**	**3.120**	**0.000**	**104.520**	**882.960**	**0.03120**	**0.00780**	**886.06440**	**803.82433**

Parkdale Quarry EIS Emissions Inventory
Diesel Fuel and Electricity

Grid Electricity Usage

Emission Factors (lb/Mwh)						
CO2	**CH4**	**N2O**	**CO2e**	**NOx**	**SO2**	No eGRID data for CO, PM, VOC
1,368	0.137	0.020	1,377	1.016	0.638	

Source: EPA, eGRID2016 model, emissions tool: power_profiler_zipcode_tool_2016_6_14_18_v8.xlsx. Factors for RMPA subregion. No assumptions for future emission factors.
https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid-questions-and-answers

									Emissions						
Alternative	**Avg. Load (Mw)**	**Total Usage (MWh/yr)**	**CO2 (lb/yr)**	**CH4 (lb/yr)**	**N2O (lb/yr)**	**CO2e (lb/yr)**	**NOX (lb/yr)**	**SO2 (lb/yr)**	**CO2 (tons/yr)**	**CH4 (tons/yr)**	**N2O (tons/yr)**	**CO2e (tons/yr)**	**NOX (tons/yr)**	**SO2 (tons/yr)**	**CO2e (MT/yr)**
No Action	0.7	6,132	8,387,153	840	123	8,442,384	6,230	3,912	4,194	0.42	0.06	4221.19	3.12	1.96	3,829
Proposed Action Phases 1&2	1.7	14,892	20,368,801	2,040	298	20,502,933	15,130	9,501	10,184	1.02	0.15	10251.47	7.57	4.75	9,300

Diesel Fuel Usage (Site-Wide) -- for GHG Emissions

Emission Factors

GHG	**CO2**	**CH4**	**N2O**
Factor (g/gal)	10,210	0.41	0.08

Source: EPA, Emission Factors for Greenhouse Gas Inventories, https://www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf

Global Warming Potentials

GHG	**CO2**	**CH4**	**N2O**
100-yr GWP	1	25	298

Source: IPCC (2007) (AR4) as given in EPA, Inventory of U.S. Greenhouse Gases Emisisons and Sinks 1990-2017, EPA 430-R-19-001, Table ES-1
https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf

Diesel Fuel GHG Emissions

	Usage	**Total Usage**	**GHG Emissions (MT/yr)**			
Alternative	**(gal/mo)**	**(gal/yr)**	**CO2**	**CH4**	**N2O**	**CO2e**
Existing/No Action	18,000	216,000	2,205	0.089	0.017	2,213
Proposed Action Phases 1&2	18,000	216,000	2,205	0.089	0.017	2,213

Note: no reduction assumed for potential electric/clean fueled equipment in Phase 2.

Implied emission factor for other calculations -- CO2e (MT/gal diesel): 0.01024409

Parkdale Quarry EIS General Conformity Analysis

For trains and trucks passing through the Canon City PM10 maintenance area and Colorado Springs CO maintenance area.
Data source: MM 8/7/19 unless noted otherwise.

Canon City PM10 Maintenance Area

Trucks

Alternative/Phase/Year	1-Way Trips/Day	Operating Days/yr	% of Trips Thru PM10 Area	1-Way Trips/Yr Thru PM10 Area	Distance to Traverse PM10 Area (mi)	VMT/yr	PM10 Emis. Fac. (g/VMT)	PM10 Emissions (tons/yr)
No Action, 2020	28	260	100%	7,280	3.49	25,407	0.2235	0.0063
Proposed Action, Phase 1, 2020	28	260	100%	7,280	3.49	25,407	0.2235	0.0063
No Action, 2033	28	260	100%	7,280	3.49	25,407	0.1011	0.0028
Proposed Action, Phase 2, 2033	48	260	100%	12,480	3.49	43,555	0.1011	0.0049

Trains

Alternative/Phase/Year	Departing Trains/week	Total Trips/wk Thru PM10 Area	Operating Weeks/yr	% of Trips Thru PM10 Area	Trips/yr Thru PM10 Area	Distance to Traverse PM10 Area (mi)	Train-mi/yr in PM10 Area	Train Weight (tons/train)	Total ton-mi/yr in PM10 Area	Fuel Used in PM10 Area (gal/yr)	PM10 Emis. Fac. (g/gal)	PM10 Emissions (tons/yr)
No Action, 2020	3	6	52	100%	312	3.69	1,151	7,230	8,323,754	18,747	2.30	0.0475
Proposed Action, Phase 1, 2020	5	10	52	100%	520	3.69	1,919	14,460	27,745,848	62,491	2.30	0.1584
No Action, 2033	3	6	52	100%	312	3.69	1,151	7,230	8,323,754	18,747	0.80	0.0165
Proposed Action, Phase 2, 2033	10	20	52	100%	1,040	3.69	3,838	14,460	55,491,696	124,981	0.80	0.1102

Colorado Springs CO Maintenance Area

Trucks

Alternative/Phase/Year	1-Way Trips/Day	Operating Days/yr	% of Trips Thru CO Area	1-Way Trips/Yr Thru CO Area	Distance to Traverse CO Area (mi)	VMT/yr	CO Emis. Fac. (g/VMT)	CO Emissions (tons/yr)
No Action, 2020	28	260	50%	3,640	46.9	170,716	0.9450	0.1778
Proposed Action, Phase 1, 2020	28	260	50%	3,640	46.9	170,716	0.9450	0.1778
No Action, 2033	28	260	50%	3,640	46.9	170,716	0.3787	0.0713
Proposed Action, Phase 2, 2033	48	260	50%	6,240	46.9	292,656	0.3787	0.1222

Trains

Alternative/Phase/Year	Trains/week Departing Quarry	Total trips/week	Operating Weeks/yr	% of Trips Thru CO Area	Trips/yr Thru CO Area	Distance to Traverse CO Area (mi)	Train-mi/yr in CO Area	Train Weight (tons/train)	Total ton-mi/yr in CO Area	Fuel Used in CO Area (gal/yr)	CO Emis. Fac. (g/gal)	CO Emissions (tons/yr)
No Action, 2020	3	6	52	95%	296	48.6	14,405	7,230	104,148,439	234,569	26.62	6.8841
Proposed Action, Phase 1, 2020	5	10	52	95%	494	48.6	24,008	14,460	347,161,464	781,895	26.62	22.9470
No Action, 2033	3	6	52	95%	296	48.6	14,405	7,230	104,148,439	234,569	26.62	6.8841
Proposed Action, Phase 2, 2033	10	20	52	95%	988	48.6	48,017	14,460	694,322,928	1,563,790	26.62	45.8940

Total Trucks + Trains Emissions in Maintenance Areas, for Comparison to Thresholds

Area	Canon City PM10 Area	Colorado Springs CO Area
Alternative/Phase/Year	**PM10 Emissions (tons/yr)**	**CO Emissions (tons/yr)**
No Action, 2020	0.05	7.06
Proposed Action, Phase 1, 2020	0.16	23.12
Increase with Proposed Action, 2020	0.11	16.06
Increase exceeds threshold?	No	No
No Action, 2033	0.02	6.96
Proposed Action, Phase 2, 2033	0.12	46.02
Increase with Proposed Action, 2033	0.10	39.06
Increase exceeds threshold?	No	No
General Conformity threshold (tons/yr)	100	100

Phase 2 truck trips/day per Fremont County Conditional Use Permit limit
Operating days: 5 d/wk x 52 wk/yr = 260 d/yr
Locomotive fuel efficiency (ton-mi/gal): 444 Source: UPRR, "2018 Building America Report"
Source for locomotive emission factors: EPA 2009: Emission Factors for Locomotives. EPA-420-F-09-025. April. http://www.epa.gov/otaq/regs/nonroad/locomotv/420f09025.pdf
Source for travel distances: CDPHE GIS data. 10/29/19. https://data-cdphe.opendata.arcgis.com/datasets/particulate-matter-pm-10-microns-attainment-maintenance-area-colorado?geometry=-105.856%2C38.322%2C-104.550%2C38.511

EPA Nonroad Diesel Engine Standards and Emission Rates

Standards

Source: http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

Rated Power (kW)	Rated Power (HP)	Tier	Model Year	NMHC (g/kWhr)	NMHC + NOx (g/kWhr)	NOx (g/kWhr)	PM (g/kWhr)	CO (g/kWhr)	Useful Life (hours/years)[b]	Warranty Period (hours/years)[b]	Lookup Check
kW < 8	HP < 11	1	2000-2004		10.5		1	8			1
		2	2005-2007		7.5		0.8	8			2
		4	2008+		7.5		0.40[c]	8	3,000 / 5	1,500 / 2	3
8 ≤ kW < 19	11 ≤ HP < 25	1	2000-2004		9.5		0.8	6.6			4
		2	2005-2007		7.5		0.8	6.6			5
		4	2008+		7.5		0.4	6.6	3,000 / 5	1,500 / 2	6
19 ≤ kW < 37	25 ≤ HP < 50	1	1999-2003		9.5		0.8	5.5			7
		2	2004-2007		7.5		0.6	5.5			8
		4	2008-2012		7.5		0.3	5.5			9
			2013+		4.7		0.03	5.5	5,000 / 7[d]	3,000 / 5[e]	10
37 ≤ kW < 56	50 ≤ HP < 75	1	1998-2003			9.2					11
		2	2004-2007		7.5		0.4	5			12
		3[f]	2008-2011		4.7		0.4	5			13
		4 (Option 1)[g]	2008-2012		4.7		0.3	5			14
		4 (Option 2)[g]	2012		4.7		0.03	5			15
		4	2013+		4.7		0.03	5			16
56 ≤ kW < 75	75 ≤ HP < 100	1	1998-2003			9.2					17
		2	2004-2007		7.5		0.4	5			18
		3	2008-2011		4.7		0.4	5			19
			2012-2013[h]		4.7		0.02	5			20
		4	2014+[i]	0.19		0.4	0.02	5			21
75 ≤ kW < 130	100 ≤ HP < 175	1	1997-2002			9.2					22
		2	2003-2006		6.6		0.3	5			23
		3	2007-2011		4		0.3	5			24
			2012-2013[h]		4		0.02	5			25
		4	2014+	0.19		0.4	0.02	5			26
130 ≤ kW < 225	175 ≤ HP < 300	1	1996-2002	1.3[j]		9.2	0.54	11.4			27
		2	2003-2005		6.6		0.2	3.5			28
		3	2006-2010		4		0.2	3.5			29
			2011-2013[h]		4		0.02	3.5			30
		4	2014+[i]	0.19		0.4	0.02	3.5	8,000 / 10	3,000 / 5	31
225 ≤ kW < 450	300 ≤ HP < 600	1	1996-2000	1.3[j]		9.2	0.54	11.4			32
		2	2001-2005		6.4		0.2	3.5			33
		3	2006-2010		4		0.2	3.5			34
			2011-2013[h]		4		0.02	3.5			35

Rated Power (kW)	Rated Power (HP)	Tier	Model Year	NMHC (g/kWhr)	NMHC + NOx (g/kWhr)	NOx (g/kWhr)	PM (g/kWhr)	CO (g/kWhr)	Useful Life (hours/years)[b]	Warranty Period (hours/years)[b]	Lookup Check
		4	2014+[i]	0.19		0.4	0.02	3.5			36
450 ≤ kW < 560	600 ≤ HP < 750	1	1996-2001	1.3[j]		9.2	0.54	11.4			37
		2	2002-2005		6.4		0.2	3.5			38
		3	2006-2010		4		0.2	3.5			39
			2011-2013[h]		4		0.02	3.5			40
		4	2014+[i]	0.19		0.4	0.02	3.5			41
560 ≤ kW < 900	750 ≤ HP < 1200	1	2000-2005	1.3[j]		9.2	0.54	11.4			42
		2	2006-2010		6.4		0.2	3.5			43
			2011-2014	0.4		3.5	0.1	3.5			44
		4	2015+[i]	0.19		3.5[k]	0.04[l]	3.5			45
kW > 900	HP > 1200	1	2000-2005	1.3[j]		9.2	0.54	11.4			46
		2	2006-2010		6.4		0.2	3.5			47
			2011-2014	0.4		3.5[k]	0.1	3.5			48
		4	2015+[i]	0.19		3.5[k]	0.04[l]	3.5			49

Emission Rates [Shading = All equipment for Parkdale is >175 hp]

Units: g/hp-hr

Lookup String	Rated Power (HP)	HP Range	Tier	Model Year	NMHC	NMHC + NOx	NOx	PM10	CO	VOC	NOx	PM10	CO
Tier 1_HP < 11_2000-2004	HP < 11	0-11	Tier 1	2000-2004	-	7.83	-	0.75	5.97	0.42	7.44	0.75	5.97
Tier 2_HP < 11_2005-2007	HP < 11	0-11	Tier 2	2005-2007	-	5.59	-	0.60	5.97	0.30	5.31	0.60	5.97
Tier 4_HP < 11_2008+	HP < 11	0-11	Tier 4	2008+	-	5.59	-	0.30	5.97	0.30	5.31	0.30	5.97
Tier 1_11 ≤ HP < 25_2000-2004	11 ≤ HP < 25	11-25	Tier 1	2000-2004	-	7.08	-	0.60	4.92	0.38	6.73	0.60	4.92
Tier 2_11 ≤ HP < 25_2005-2007	11 ≤ HP < 25	11-25	Tier 2	2005-2007	-	5.59	-	0.60	4.92	0.30	5.31	0.60	4.92
Tier 4_11 ≤ HP < 25_2008+	11 ≤ HP < 25	11-25	Tier 4	2008+	-	5.59	-	0.30	4.92	0.30	5.31	0.30	4.92
Tier 1_25 ≤ HP < 50_1999-2003	25 ≤ HP < 50	25-50	Tier 1	1999-2003	-	7.08	-	0.60	4.10	0.38	6.73	0.60	4.10
Tier 2_25 ≤ HP < 50_2004-2007	25 ≤ HP < 50	25-50	Tier 2	2004-2007	-	5.59	-	0.45	4.10	0.30	5.31	0.45	4.10
Tier 4_25 ≤ HP < 50_2008-2012	25 ≤ HP < 50	25-50	Tier 4	2008-2012	-	5.59	-	0.22	4.10	0.30	5.31	0.22	4.10
Tier 4_25 ≤ HP < 50_2013+	25 ≤ HP < 50	25-50	Tier 4	2013+	-	3.50	-	0.02	4.10	0.19	3.33	0.02	4.10
Tier 1_50 ≤ HP < 75_1998-2003	50 ≤ HP < 75	50-75	Tier 1	1998-2003	-	-	6.86	-	-	-	6.86	-	-
Tier 2_50 ≤ HP < 75_2004-2007	**50 ≤ HP < 75**	**50-75**	**Tier 2**	**2004-2007**	**-**	**5.59**	**-**	**0.30**	**3.73**	**0.30**	**5.31**	**0.30**	**3.73**
Tier 3f_50 ≤ HP < 75_2008-2011	50 ≤ HP < 75	50-75	Tier 3f	2008-2011	-	3.50	-	0.30	3.73	0.19	3.33	0.30	3.73
Tier 4 (Option 1)g_50 ≤ HP < 75_2008	50 ≤ HP < 75	50-75	Tier 4 (Option 1)g	2008-2012	-	3.50	-	0.22	3.73	0.19	3.33	0.22	3.73
Tier 4 (Option 2)g_50 ≤ HP < 75_2012	50 ≤ HP < 75	50-75	Tier 4 (Option 2)g	2012	-	3.50	-	0.02	3.73	0.19	3.33	0.02	3.73
Tier 4_50 ≤ HP < 75_2013+	50 ≤ HP < 75	50-75	Tier 4	2013+	-	3.50	-	0.02	3.73	0.19	3.33	0.02	3.73
Tier 1_75 ≤ HP < 100_1998-2003	75 ≤ HP < 100	75-100	Tier 1	1998-2003	-	-	6.86	-	-	-	6.86	-	-
Tier 2_75 ≤ HP < 100_2004-2007	**75 ≤ HP < 100**	**75-100**	**Tier 2**	**2004-2007**	**-**	**5.59**	**-**	**0.30**	**3.73**	**0.30**	**5.31**	**0.30**	**3.73**
Tier 3_75 ≤ HP < 100_2008-2011	75 ≤ HP < 100	75-100	Tier 3	2008-2011	-	3.50	-	0.30	3.73	0.19	3.33	0.30	3.73
Tier 4_75 ≤ HP < 100_2012-2013h	75 ≤ HP < 100	75-100	Tier 4	2012-2013h	-	3.50	-	0.01	3.73	0.19	3.33	0.01	3.73
Tier 4_75 ≤ HP < 100_2014+i	75 ≤ HP < 100	75-100	Tier 4	2014+i	0.14	-	0.30	0.01	3.73	0.15	0.30	0.01	3.73
Tier 1_100 ≤ HP < 175_1997-2002	100 ≤ HP < 175	100-175	Tier 1	1997-2002	-	-	6.86	-	-	-	6.86	-	-
Tier 2_100 ≤ HP < 175_2003-2006	100 ≤ HP < 175	100-175	Tier 2	2003-2006	-	4.92	-	0.22	3.73	0.26	4.68	0.22	3.73
Tier 3_100 ≤ HP < 175_2007-2011	100 ≤ HP < 175	100-175	Tier 3	2007-2011	-	2.98	-	0.22	3.73	0.16	2.83	0.22	3.73
Tier 4_100 ≤ HP < 175_2012-2013h	100 ≤ HP < 175	100-175	Tier 4	2012-2013h	-	2.98	-	0.01	3.73	0.16	2.83	0.01	3.73
Tier 4_100 ≤ HP < 175_2014+	100 ≤ HP < 175	100-175	Tier 4	2014+	0.14	-	0.30	0.01	3.73	0.15	0.30	0.01	3.73
Tier 1_175 ≤ HP < 300_1996-2002	175 ≤ HP < 300	175-300	Tier 1	1996-2002	0.97	-	6.86	0.40	8.50	1.02	6.86	0.40	8.50
Tier 2_175 ≤ HP < 300_2003-2005	175 ≤ HP < 300	175-300	Tier 2	2003-2005	-	4.92	-	0.15	2.61	0.26	4.68	0.15	2.61
Tier 3_175 ≤ HP < 300_2006-2010	175 ≤ HP < 300	175-300	Tier 3	2006-2010	-	2.98	-	0.15	2.61	0.16	2.83	0.15	2.61
Tier 4_175 ≤ HP < 300_2011-2013h	175 ≤ HP < 300	175-300	Tier 4	2011-2013h	-	2.98	-	0.01	2.61	0.16	2.83	0.01	2.61
Tier 4_175 ≤ HP < 300_2014+i	175 ≤ HP < 300	175-300	Tier 4	2014+i	0.14	-	0.30	0.01	2.61	0.15	0.30	0.01	2.61
Tier 1_300 ≤ HP < 600_1996-2000	300 ≤ HP < 600	300-600	Tier 1	1996-2000	0.97	-	6.86	0.40	8.50	1.02	6.86	0.40	8.50
Tier 2_300 ≤ HP < 600_2001-2005	300 ≤ HP < 600	300-600	Tier 2	2001-2005	-	4.77	-	0.15	2.61	0.26	4.53	0.15	2.61
Tier 3_300 ≤ HP < 600_2006-2010	300 ≤ HP < 600	300-600	Tier 3	2006-2010	-	2.98	-	0.15	2.61	0.16	2.83	0.15	2.61
Tier 4_300 ≤ HP < 600_2011-2013h	300 ≤ HP < 600	300-600	Tier 4	2011-2013h	-	2.98	-	0.01	2.61	0.16	2.83	0.01	2.61
Tier Tier 4_300 ≤ HP < 600_2014+i	300 ≤ HP < 600	300-600	Tier Tier 4	2014+i	0.14	-	0.30	0.01	2.61	0.15	0.30	0.01	2.61
Tier 1_600 ≤ HP < 750_1996-2001	600 ≤ HP < 750	600-750	Tier 1	1996-2001	0.97	-	6.86	0.40	8.50	1.02	6.86	0.40	8.50
Tier 2_600 ≤ HP < 750_2002-2005	600 ≤ HP < 750	600-750	Tier 2	2002-2005	-	4.77	-	0.15	2.61	0.26	4.53	0.15	2.61
Tier 3_600 ≤ HP < 750_2006-2010	600 ≤ HP < 750	600-750	Tier 3	2006-2010	-	2.98	-	0.15	2.61	0.16	2.83	0.15	2.61
Tier 4_600 ≤ HP < 750_2011-2013h	600 ≤ HP < 750	600-750	Tier 4	2011-2013h	-	2.98	-	0.01	2.61	0.16	2.83	0.01	2.61
Tier 4_600 ≤ HP < 750_2014+i	600 ≤ HP < 750	600-750	Tier 4	2014+i	0.14	-	0.30	0.01	2.61	0.15	0.30	0.01	2.61
Tier 1_750 ≤ HP < 1200_2000-2005	750 ≤ HP < 1200	750-1200	Tier 1	2000-2005	0.97	-	6.86	0.40	8.50	1.04	6.86	0.40	8.50
Tier 2_750 ≤ HP < 1200_2006-2010	750 ≤ HP < 1200	750-1200	Tier 2	2006-2010	-	4.77	-	0.15	2.61	0.26	4.53	0.15	2.61

Lookup String	Rated Power (HP)	HP Range	Tier	Model Year	NMHC	NMHC + NOx	NOx	PM10	CO	VOC	NOx	PM10	CO
Tier 4_750 ≤ HP < 1200_2011-2014	750 ≤ HP < 1200	750-1200	Tier 4	2011-2014	0.30	-	2.61	0.07	2.61	0.32	2.61	0.07	2.61
Tier 4_750 ≤ HP < 1200_2015+i	750 ≤ HP < 1200	750-1200	Tier 4	2015+i	0.14	-	2.61	0.03	2.61	0.15	2.61	0.03	2.61
Tier 1_HP > 1200_2000-2005	HP > 1200	>1200	Tier 1	2000-2005	0.97	-	6.86	0.40	8.50	1.02	6.86	0.40	8.50
Tier 2_HP > 1200_2006-2010	HP > 1200	>1200	Tier 2	2006-2010	-	4.77	-	0.15	2.61	0.26	4.53	0.15	2.61
Tier 4_HP > 1200_2011-2014	HP > 1200	>1200	Tier 4	2011-2014	0.30	-	2.61	0.07	2.61	0.32	2.61	0.07	2.61
Tier 4_HP > 1200_2015+i	HP > 1200	>1200	Tier 4	2015+i	0.14	-	2.61	0.03	2.61	0.15	2.61	0.03	2.61

Notes:

For Tier 1, 2, and 3 standards, exhaust emissions of nitrogen oxides (NOx), carbon monoxide (CO), hydrocarbons (HC), and non-methane hydrocarbons (NMHC) are measured using the procedures in 40 Code of Federal Regulations (CFR) Part 89 Subpart E. For Tier 1, 2, and 3 standards, particulate matter (PM) exhaust emissions are measured using the California Regulations for New 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines.

For Tier 4 standards, engines are tested for transient and steady-state exhaust emissions using the procedures in 40 CFR Part 1039 Subpart F. Transient standards do not apply to engines below 37 kilowatts (kW) before the 2013 model year, constant-speed engine engines certified to Option 1, and engines above 560 kW.

Tier 2 and later model naturally aspirated nonroad engines shall not discharge crankcase emissions into the atmosphere unless these emissions are permanently routed into the exhaust. This prohibition does not apply to engines using turbochargers, pumps, blowers, or superchargers.

In lieu of the Tier 1, 2, and 3 standards for NOX, NMHC + NOX, and PM, manufacturers may elect to participate in the averaging, banking, and trading (ABT) program described in 40 CFR Part 89 Subpart C.

a Smoke emissions may not exceed 20 percent during the acceleration mode, 15 percent during the lugging mode, and 50 percent during the peaks in either mode. Smoke emission standards do not apply to single-cylinder engines, constant-speed engines, or engines certified to a PM emission standard of 0.07 grams per kilowatt-hour (g/kW-hr) or lower. Smoke emissions are measured using procedures in 40 CFR Part 86 Subpart I.

b Useful life and warranty period are expressed hours and years, whichever comes first.

c Hand-startable air-cooled direct injection engines may optionally meet a PM standard of 0.60 g/kW-hr. These engines may optionally meet Tier 2 standards through the 2009 model years. In 2010 these engines are required to meet a PM standard of 0.60 g/kW-hr.

d Useful life for constant speed engines with rated speed 3,000 revolutions per minute (rpm) or higher is 5 years or 3,000 hours, whichever comes first.

e Warranty period for constant speed engines with rated speed 3,000 rpm or higher is 2 years or 1,500 hours, whichever comes first.

f These Tier 3 standards apply only to manufacturers selecting Tier 4 Option 2. Manufacturers selecting Tier 4 Option 1 will be meeting those standards in lieu of Tier 3 standards.

g A manufacturer may certify all their engines to either Option 1 or Option 2 sets of standards starting in the indicated model year. Manufacturers selecting Option 2 must meet Tier 3 standards in the 2008-2011 model years.

h These standards are phase-out standards. Not more than 50 percent of a manufacturer's engine production is allowed to meet these standards in each model year of the phase out period. Engines not meeting these standards must meet the final Tier 4 standards.

i These standards are phased in during the indicated years. At least 50 percent of a manufacturer's engine production must meet these standards during each year of the phase in. Engines not meeting these standards must meet the applicable phase-out standards.

j For Tier 1 engines the standard is for total hydrocarbons.

k The NOx standard for generator sets is 0.67 g/kW-hr.

l The PM standard for generator sets is 0.03 g/kW-hr.

CFR Citations

40 CFR 89.112 = Exhaust emission standards
40 CFR 1039.101 = Exhaust emission standards for after 2014 model year
40 CFR 1039.102 = Exhaust emission standards for model year 2014 and earlier
40 CFR 1039 Subpart F = Exhaust emissions transient and steady state test procedures
40 CFR Part 86 Subpart I = Smoke emission test procedures
40 CFR Part 1065 = Test equipment and emissions measurement procedures

Constants

VOC/THC	1.053	NR model conversions
VOC/NMHC	1.070	NR model conversions
NOx/(NMHC+NOx)	95%	http://www.arb.ca.gov/msprog/moyer/guidelines/2005_Carl_Moyer_Guidelines_Part4.pdf
hp/kw	1.341	Units conversion

MOVES EMISSION FACTORS -- WYOMING

				Pollutant	PM2.5 Tirewear	PM2.5 Brakewear	PM10 Tirewear	PM10 Brakewear	PM10 Total Exh	VOC	SO2	NOx
RoadType	**yearID**	**FuelType**	**SourceType**	RateUnit	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck		4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck		1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck		2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck		1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck		1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.31E-01	3.14E-01	5.85E-03	2.68E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.31E-01	2.91E-01	6.22E-03	2.76E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	3.84E-01	4.64E-01	8.92E-03	7.76E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.04E-01	4.65E-01	6.59E-03	4.03E+00
			Refuse Truck		4.58E-03	1.26E-02	1.91E-02	4.83E-02	3.52E-01	3.95E-01	1.14E-02	7.58E+00
			Light Commercial Truck		1.65E-03	3.30E-03	6.88E-03	1.26E-02	1.46E-01	3.31E-01	4.73E-03	2.41E+00
		Gasoline	Combination Short-haul Truck		2.30E-03	6.49E-03	9.59E-03	2.48E-02	1.29E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.13E-01	6.50E-03	8.39E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	8.58E-03	6.07E-02	5.50E-03	3.11E-01
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.49E-02	1.93E-01	7.58E-03	8.58E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	2.90E-02	1.47E+00	1.35E-02	4.22E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.22E-03	6.38E-01	1.41E-02	3.29E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.22E-03	6.35E-01	1.50E-02	3.44E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.40E+00	1.97E-02	4.03E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.13E-02	1.11E+00	1.52E-02	4.33E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.50E-02	1.54E+00	2.49E-02	5.46E+00
			Light Commercial Truck		1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.46E-02	2.05E-01	7.50E-03	9.45E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.34E-03	0.00E+00		3.50E+00
	2015	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.40E-01	3.51E-01	1.44E-02	7.61E+00
			Combination Short-haul Truck		4.04E-03	9.92E-03	1.68E-02	3.79E-02	2.93E-01	3.32E-01	1.37E-02	6.87E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	4.53E-01	4.26E-01	1.22E-02	9.51E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.99E-03	2.18E-02	2.44E-03	4.30E-01
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.16E-02	9.56E-02	2.14E-01	4.62E-03	1.74E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.41E-01	3.74E-01	6.11E-03	4.61E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.12E-01	2.77E-01	5.79E-03	2.38E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.10E-01	2.52E-01	6.16E-03	2.41E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	3.37E-01	4.19E-01	8.83E-03	6.86E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	1.80E-01	4.24E-01	6.53E-03	3.64E+00
			Refuse Truck		4.60E-03	1.27E-02	1.92E-02	4.84E-02	3.02E-01	3.49E-01	1.12E-02	6.60E+00
			Light Commercial Truck		1.65E-03	3.30E-03	6.88E-03	1.26E-02	1.29E-01	2.96E-01	4.67E-03	2.21E+00
		Gasoline	Combination Short-haul Truck		2.33E-03	6.56E-03	9.73E-03	2.50E-02	1.19E-01	4.58E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.92E-01	6.50E-03	8.30E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	8.17E-03	5.12E-02	5.41E-03	2.61E-01
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.45E-02	1.74E-01	7.43E-03	7.86E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	2.17E-02	1.37E+00	1.35E-02	3.95E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.99E-03	6.27E-01	1.41E-02	3.25E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	8.63E-03	6.15E-01	1.50E-02	3.38E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.04E-02	1.39E+00	1.97E-02	3.97E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.86E-02	1.08E+00	1.52E-02	4.19E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.42E-02	1.49E+00	2.49E-02	5.32E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.43E-02	1.86E-01	7.37E-03	8.75E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.25E-03	0.00E+00		3.45E+00
	2016	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	2.96E-01	3.15E-01	1.42E-02	6.74E+00
			Combination Short-haul Truck		4.04E-03	9.92E-03	1.68E-02	3.79E-02	2.49E-01	2.93E-01	1.35E-02	5.99E+00

MOVES EMISSION FACTORS -- WYOMING

				Pollutant							
				RateUnit							
RoadType	**yearID**	**FuelType**	**SourceType**	**PM2.5 Tirewear g/mi**	**PM2.5 Brakewear g/mi**	**PM10 Tirewear g/mi**	**PM10 Brakewear g/mi**	**PM10 Total Exh g/mi**	**VOC g/mi**	**SO2 g/mi**	**NOx g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck	2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck	2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck	4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck	1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck	2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck	1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck	1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	3.95E-01	3.89E-01	1.20E-02	8.51E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	8.17E-03	1.92E-02	2.35E-03	3.66E-01
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	8.30E-02	1.88E-01	4.55E-03	1.58E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.15E-01	3.42E-01	6.06E-03	4.18E+00
			Single Unit Long-haul Truck	2.89E-03	1.07E-02	1.21E-02	4.10E-02	9.63E-02	2.45E-01	5.74E-03	2.12E+00
			Single Unit Short-haul Truck	2.89E-03	1.08E-02	1.21E-02	4.11E-02	9.25E-02	2.19E-01	6.10E-03	2.12E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	2.94E-01	3.77E-01	8.75E-03	6.06E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	1.58E-01	3.87E-01	6.48E-03	3.30E+00
			Refuse Truck	4.61E-03	1.27E-02	1.92E-02	4.85E-02	2.56E-01	3.06E-01	1.11E-02	5.73E+00
			Light Commercial Truck	1.65E-03	3.29E-03	6.87E-03	1.26E-02	1.14E-01	2.64E-01	4.61E-03	2.02E+00
		Gasoline	Combination Short-haul Truck	2.65E-03	7.18E-03	1.10E-02	2.74E-02	1.16E-01	4.58E+00	3.02E-02	1.67E+01
			Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.75E-01	6.51E-03	8.23E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.88E-03	4.34E-02	5.30E-03	2.18E-01
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.42E-02	1.54E-01	7.28E-03	7.16E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	1.73E-02	1.26E+00	1.35E-02	3.67E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.82E-03	6.18E-01	1.41E-02	3.22E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	8.20E-03	5.98E-01	1.50E-02	3.33E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.02E-02	1.37E+00	1.97E-02	3.92E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.67E-02	1.04E+00	1.52E-02	4.05E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.35E-02	1.45E+00	2.49E-02	5.19E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.39E-02	1.67E-01	7.23E-03	8.09E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.13E-03	0.00E+00		3.40E+00
	2017	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	2.57E-01	2.82E-01	1.41E-02	5.96E+00
			Combination Short-haul Truck	4.03E-03	9.91E-03	1.68E-02	3.79E-02	2.11E-01	2.60E-01	1.34E-02	5.21E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	3.41E-01	3.54E-01	1.19E-02	7.58E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	6.91E-03	1.71E-02	2.26E-03	3.06E-01
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	7.14E-02	1.65E-01	4.49E-03	1.44E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	1.89E-01	3.11E-01	6.01E-03	3.77E+00
			Single Unit Long-haul Truck	2.89E-03	1.07E-02	1.21E-02	4.10E-02	8.26E-02	2.16E-01	5.70E-03	1.90E+00
			Single Unit Short-haul Truck	2.89E-03	1.08E-02	1.21E-02	4.11E-02	7.73E-02	1.90E-01	6.06E-03	1.87E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	2.53E-01	3.36E-01	8.67E-03	5.33E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	1.40E-01	3.52E-01	6.43E-03	2.99E+00
			Refuse Truck	4.62E-03	1.27E-02	1.93E-02	4.86E-02	2.15E-01	2.69E-01	1.10E-02	4.95E+00
			Light Commercial Truck	1.65E-03	3.29E-03	6.87E-03	1.26E-02	1.01E-01	2.35E-01	4.55E-03	1.85E+00
		Gasoline	Combination Short-haul Truck	2.65E-03	7.18E-03	1.10E-02	2.74E-02	1.17E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.62E-01	6.51E-03	8.17E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.62E-03	3.75E-02	5.19E-03	1.84E-01
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.40E-02	1.39E-01	7.13E-03	6.57E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	1.51E-02	1.18E+00	1.35E-02	3.44E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.70E-03	6.11E-01	1.41E-02	3.20E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.87E-03	5.85E-01	1.50E-02	3.30E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.01E-02	1.36E+00	1.97E-02	3.87E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.56E-02	1.01E+00	1.52E-02	3.94E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.28E-02	1.42E+00	2.49E-02	5.08E+00

MOVES EMISSION FACTORS -- WYOMING

				Pollutant	PM2.5 Tirewear	PM2.5 Brakewear	PM10 Tirewear	PM10 Brakewear	PM10 Total Exh	VOC	SO2	NOx
RoadType	**yearID**	**FuelType**	**SourceType**	RateUnit	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck		4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck		1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck		2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck		1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck		1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.37E-02	1.51E-01	7.09E-03	7.52E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.09E-03	0.00E+00		3.36E+00
	2018	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	2.22E-01	2.52E-01	1.40E-02	5.26E+00
			Combination Short-haul Truck		4.03E-03	9.91E-03	1.68E-02	3.79E-02	1.76E-01	2.29E-01	1.33E-02	4.53E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	2.87E-01	3.22E-01	1.18E-02	6.73E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	5.91E-03	1.54E-02	2.19E-03	2.53E-01
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	6.20E-02	1.45E-01	4.44E-03	1.32E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	1.64E-01	2.80E-01	5.96E-03	3.39E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	7.09E-02	1.87E-01	5.67E-03	1.71E+00
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.11E-02	6.47E-02	1.64E-01	6.03E-03	1.67E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	2.15E-01	2.98E-01	8.60E-03	4.69E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	1.23E-01	3.14E-01	6.39E-03	2.72E+00
			Refuse Truck		4.63E-03	1.27E-02	1.93E-02	4.87E-02	1.78E-01	2.35E-01	1.09E-02	4.27E+00
			Light Commercial Truck		1.65E-03	3.28E-03	6.87E-03	1.25E-02	8.88E-02	2.09E-01	4.49E-03	1.69E+00
		Gasoline	Combination Short-haul Truck		2.65E-03	7.18E-03	1.10E-02	2.74E-02	1.17E-01	4.58E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.50E-01	6.51E-03	8.12E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.42E-03	3.32E-02	5.09E-03	1.58E-01
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.38E-02	1.26E-01	6.99E-03	6.06E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	1.34E-02	1.11E+00	1.35E-02	3.24E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.58E-03	6.06E-01	1.41E-02	3.18E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.62E-03	5.76E-01	1.50E-02	3.27E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.99E-03	1.35E+00	1.97E-02	3.83E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.45E-02	9.87E-01	1.52E-02	3.83E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.22E-02	1.39E+00	2.49E-02	4.99E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.35E-02	1.38E-01	6.96E-03	7.04E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.00E-03	0.00E+00		3.32E+00
	2019	**Diesel Fuel**	**Combination Long-haul Truck**		4.44E-03	1.07E-02	1.85E-02	4.09E-02	1.91E-01	2.27E-01	1.39E-02	4.65E+00
			Combination Short-haul Truck		4.03E-03	9.90E-03	1.68E-02	3.78E-02	1.49E-01	2.03E-01	1.32E-02	3.95E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	2.55E-01	2.94E-01	1.18E-02	5.98E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	5.19E-03	1.42E-02	2.12E-03	2.10E-01
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	5.44E-02	1.28E-01	4.39E-03	1.21E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	1.46E-01	2.51E-01	5.92E-03	3.04E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	6.10E-02	1.63E-01	5.64E-03	1.55E+00
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.11E-02	5.47E-02	1.41E-01	5.99E-03	1.49E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	1.87E-01	2.65E-01	8.54E-03	4.12E+00
			Motor Home		2.29E-03	8.51E-03	9.53E-03	3.25E-02	1.08E-01	2.79E-01	6.35E-03	2.48E+00
			Refuse Truck		4.63E-03	1.28E-02	1.93E-02	4.87E-02	1.50E-01	2.06E-01	1.08E-02	3.68E+00
			Light Commercial Truck		1.65E-03	3.28E-03	6.87E-03	1.25E-02	7.82E-02	1.85E-01	4.43E-03	1.55E+00
		Gasoline	Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.40E-01	6.51E-03	8.07E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.29E-03	3.00E-02	5.01E-03	1.37E-01
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.36E-02	1.15E-01	6.86E-03	5.60E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	1.13E-02	1.05E+00	1.35E-02	3.07E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.46E-03	6.02E-01	1.41E-02	3.17E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.40E-03	5.69E-01	1.50E-02	3.25E+00

MOVES EMISSION FACTORS -- WYOMING

				Pollutant	RateUnit						
RoadType	**yearID**	**FuelType**	**SourceType**	**PM2.5 Tirewear**	**PM2.5 Brakewear**	**PM10 Tirewear**	**PM10 Brakewear**	**PM10 Total Exh**	**VOC**	**SO2**	**NOx**
				g/mi	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck	2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck	2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck	4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck	1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck	2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck	1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck	1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.86E-03	1.35E+00	1.97E-02	3.80E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.32E-02	9.64E-01	1.52E-02	3.74E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.17E-02	1.37E+00	2.49E-02	4.91E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.33E-02	1.27E-01	6.84E-03	6.60E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.87E-03	0.00E+00		3.29E+00
	2020	**Diesel Fuel**	**Combination Long-haul Truck**	4.44E-03	1.07E-02	1.85E-02	4.09E-02	1.64E-01	2.04E-01	1.38E-02	4.11E+00
			Combination Short-haul Truck	4.03E-03	9.90E-03	1.68E-02	3.78E-02	1.26E-01	1.81E-01	1.31E-02	3.46E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	2.25E-01	2.68E-01	1.17E-02	5.30E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	4.66E-03	1.34E-02	2.06E-03	1.76E-01
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	4.77E-02	1.14E-01	4.35E-03	1.12E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	1.29E-01	2.26E-01	5.88E-03	2.74E+00
			Single Unit Long-haul Truck	2.90E-03	1.07E-02	1.21E-02	4.10E-02	5.24E-02	1.42E-01	5.61E-03	1.41E+00
			Single Unit Short-haul Truck	2.90E-03	1.08E-02	1.21E-02	4.11E-02	4.64E-02	1.23E-01	5.97E-03	1.35E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	1.63E-01	2.35E-01	8.49E-03	3.61E+00
			Motor Home	2.29E-03	8.51E-03	9.53E-03	3.25E-02	9.53E-02	2.47E-01	6.32E-03	2.26E+00
			Refuse Truck	4.64E-03	1.28E-02	1.94E-02	4.88E-02	1.26E-01	1.82E-01	1.08E-02	3.19E+00
			Light Commercial Truck	1.65E-03	3.28E-03	6.87E-03	1.25E-02	6.84E-02	1.64E-01	4.38E-03	1.42E+00
		Gasoline	Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.31E-01	6.51E-03	8.03E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.20E-03	2.77E-02	4.92E-03	1.22E-01
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.35E-02	1.05E-01	6.74E-03	5.20E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	9.39E-03	9.95E-01	1.35E-02	2.92E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.34E-03	5.98E-01	1.41E-02	3.15E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.22E-03	5.63E-01	1.50E-02	3.23E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.75E-03	1.34E+00	1.97E-02	3.77E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.20E-02	9.41E-01	1.52E-02	3.64E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.13E-02	1.35E+00	2.49E-02	4.84E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.32E-02	1.17E-01	6.73E-03	6.23E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.74E-03	0.00E+00		3.26E+00
	2021	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	1.41E-01	1.85E-01	1.37E-02	3.66E+00
			Combination Short-haul Truck	4.03E-03	9.90E-03	1.68E-02	3.78E-02	1.06E-01	1.63E-01	1.31E-02	3.06E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	1.99E-01	2.44E-01	1.16E-02	4.74E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	4.27E-03	1.29E-02	2.00E-03	1.50E-01
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	4.17E-02	1.01E-01	4.31E-03	1.04E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	1.14E-01	2.02E-01	5.84E-03	2.46E+00
			Single Unit Long-haul Truck	2.90E-03	1.07E-02	1.21E-02	4.10E-02	4.52E-02	1.25E-01	5.59E-03	1.29E+00
			Single Unit Short-haul Truck	2.90E-03	1.08E-02	1.21E-02	4.11E-02	3.95E-02	1.08E-01	5.95E-03	1.23E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	1.41E-01	2.08E-01	8.44E-03	3.19E+00
			Motor Home	2.29E-03	8.51E-03	9.53E-03	3.25E-02	8.40E-02	2.20E-01	6.29E-03	2.08E+00
			Refuse Truck	4.64E-03	1.28E-02	1.94E-02	4.88E-02	1.06E-01	1.62E-01	1.07E-02	2.80E+00
			Light Commercial Truck	1.65E-03	3.27E-03	6.87E-03	1.25E-02	5.97E-02	1.45E-01	4.33E-03	1.30E+00
		Gasoline	Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.24E-01	6.51E-03	8.00E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.16E-03	2.62E-02	4.85E-03	1.11E-01
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.33E-02	9.60E-02	6.63E-03	4.84E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	8.84E-03	9.75E-01	1.35E-02	2.86E+00

MOVES EMISSION FACTORS -- WYOMING

				Pollutant	PM2.5 Tirewear	PM2.5 Brakewear	PM10 Tirewear	PM10 Brakewear	PM10 Total Exh	VOC	SO2	NOx
RoadType	**yearID**	**FuelType**	**SourceType**	RateUnit	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck		4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck		1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck		2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck		1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck		1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.31E-03	5.96E-01	1.41E-02	3.14E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.17E-03	5.60E-01	1.50E-02	3.22E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.67E-03	1.34E+00	1.97E-02	3.74E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.15E-02	9.28E-01	1.52E-02	3.60E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.10E-02	1.33E+00	2.49E-02	4.80E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.31E-02	1.09E-01	6.62E-03	5.90E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.62E-03	0.00E+00		3.24E+00
	2022	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	1.21E-01	1.68E-01	1.36E-02	3.27E+00
			Combination Short-haul Truck		4.03E-03	9.90E-03	1.68E-02	3.78E-02	9.05E-02	1.47E-01	1.30E-02	2.73E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	1.76E-01	2.23E-01	1.15E-02	4.28E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	4.00E-03	1.26E-02	1.96E-03	1.31E-01
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	3.67E-02	9.04E-02	4.27E-03	9.66E-01
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	1.00E-01	1.81E-01	5.81E-03	2.22E+00
			Single Unit Long-haul Truck		2.90E-03	1.07E-02	1.21E-02	4.10E-02	3.94E-02	1.11E-01	5.57E-03	1.19E+00
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.12E-02	3.42E-02	9.59E-02	5.93E-03	1.14E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	1.21E-01	1.85E-01	8.39E-03	2.84E+00
			Motor Home		2.29E-03	8.51E-03	9.53E-03	3.25E-02	7.50E-02	1.96E-01	6.26E-03	1.93E+00
			Refuse Truck		4.65E-03	1.28E-02	1.94E-02	4.89E-02	8.95E-02	1.45E-01	1.07E-02	2.47E+00
			Light Commercial Truck		1.65E-03	3.27E-03	6.87E-03	1.25E-02	5.26E-02	1.29E-01	4.29E-03	1.20E+00
		Gasoline	Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.17E-01	6.51E-03	7.97E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.15E-03	2.51E-02	4.79E-03	1.03E-01
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.33E-02	8.86E-02	6.53E-03	4.53E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	8.29E-03	9.59E-01	1.35E-02	2.81E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.29E-03	5.94E-01	1.41E-02	3.14E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.12E-03	5.57E-01	1.50E-02	3.21E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.62E-03	1.33E+00	1.97E-02	3.73E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.11E-02	9.19E-01	1.52E-02	3.57E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.07E-02	1.32E+00	2.49E-02	4.76E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.30E-02	1.01E-01	6.53E-03	5.61E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.52E-03	0.00E+00		3.22E+00
	2023	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	1.05E-01	1.54E-01	1.36E-02	2.95E+00
			Combination Short-haul Truck		4.03E-03	9.90E-03	1.68E-02	3.78E-02	7.73E-02	1.35E-01	1.30E-02	2.46E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	1.56E-01	2.05E-01	1.15E-02	3.87E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.80E-03	1.24E-02	1.92E-03	1.16E-01
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	3.23E-02	8.07E-02	4.24E-03	9.02E-01
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	8.84E-02	1.64E-01	5.78E-03	2.01E+00
			Single Unit Long-haul Truck		2.90E-03	1.07E-02	1.21E-02	4.10E-02	3.45E-02	1.01E-01	5.56E-03	1.11E+00
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.12E-02	2.98E-02	8.71E-02	5.92E-03	1.06E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	1.05E-01	1.66E-01	8.36E-03	2.55E+00
			Motor Home		2.29E-03	8.51E-03	9.53E-03	3.25E-02	6.69E-02	1.79E-01	6.23E-03	1.79E+00
			Refuse Truck		4.65E-03	1.28E-02	1.94E-02	4.89E-02	7.62E-02	1.31E-01	1.06E-02	2.21E+00
			Light Commercial Truck		1.65E-03	3.27E-03	6.87E-03	1.25E-02	4.65E-02	1.15E-01	4.25E-03	1.11E+00
		Gasoline	Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.11E-01	6.52E-03	7.95E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.15E-03	2.43E-02	4.73E-03	9.67E-02

MOVES EMISSION FACTORS -- WYOMING

				Pollutant	PM2.5 Tirewear	PM2.5 Brakewear	PM10 Tirewear	PM10 Brakewear	PM10 Total Exh	VOC	SO2	NOx
RoadType	**yearID**	**FuelType**	**SourceType**	RateUnit	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck		4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck		1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck		2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck		1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck		1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.32E-02	8.21E-02	6.43E-03	4.25E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	8.21E-03	9.57E-01	1.35E-02	2.80E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.27E-03	5.94E-01	1.41E-02	3.13E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.08E-03	5.56E-01	1.50E-02	3.21E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.48E-03	1.33E+00	1.97E-02	3.70E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.07E-02	9.10E-01	1.52E-02	3.53E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.05E-02	1.31E+00	2.49E-02	4.73E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.30E-02	9.49E-02	6.44E-03	5.35E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.42E-03	0.00E+00		3.20E+00
	2024	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	9.03E-02	1.42E-01	1.35E-02	2.67E+00
			Combination Short-haul Truck		4.02E-03	9.89E-03	1.68E-02	3.78E-02	6.64E-02	1.25E-01	1.29E-02	2.24E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	1.37E-01	1.88E-01	1.14E-02	3.50E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.67E-03	1.23E-02	1.88E-03	1.06E-01
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	2.85E-02	7.22E-02	4.21E-03	8.46E-01
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	7.81E-02	1.48E-01	5.75E-03	1.83E+00
			Single Unit Long-haul Truck		2.90E-03	1.07E-02	1.21E-02	4.10E-02	3.04E-02	9.18E-02	5.54E-03	1.04E+00
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.12E-02	2.62E-02	7.98E-02	5.91E-03	1.00E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	9.10E-02	1.49E-01	8.32E-03	2.29E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	6.00E-02	1.64E-01	6.21E-03	1.67E+00
			Refuse Truck		4.65E-03	1.28E-02	1.94E-02	4.89E-02	6.50E-02	1.20E-01	1.06E-02	1.99E+00
			Light Commercial Truck		1.65E-03	3.27E-03	6.86E-03	1.25E-02	4.10E-02	1.03E-01	4.22E-03	1.03E+00
		Gasoline	Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.06E-01	6.52E-03	7.92E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.15E-03	2.38E-02	4.68E-03	9.24E-02
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.32E-02	7.60E-02	6.35E-03	3.98E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	8.11E-03	9.48E-01	1.35E-02	2.76E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.28E-03	5.93E-01	1.41E-02	3.13E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.08E-03	5.55E-01	1.50E-02	3.20E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.41E-03	1.33E+00	1.97E-02	3.68E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	1.06E-02	9.03E-01	1.52E-02	3.51E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.04E-02	1.30E+00	2.49E-02	4.71E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.29E-02	8.89E-02	6.37E-03	5.10E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.33E-03	0.00E+00		3.18E+00
	2025	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	7.80E-02	1.32E-01	1.35E-02	2.43E+00
			Combination Short-haul Truck		4.02E-03	9.89E-03	1.68E-02	3.78E-02	5.73E-02	1.17E-01	1.29E-02	2.06E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	1.21E-01	1.73E-01	1.14E-02	3.17E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.58E-03	1.23E-02	1.85E-03	9.87E-02
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	2.49E-02	6.50E-02	4.18E-03	7.97E-01
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	6.89E-02	1.35E-01	5.73E-03	1.68E+00
			Single Unit Long-haul Truck		2.90E-03	1.07E-02	1.21E-02	4.10E-02	2.68E-02	8.42E-02	5.53E-03	9.82E-01
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.12E-02	2.32E-02	7.38E-02	5.90E-03	9.47E-01
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	7.84E-02	1.35E-01	8.29E-03	2.07E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	5.30E-02	1.50E-01	6.19E-03	1.56E+00
			Refuse Truck		4.66E-03	1.28E-02	1.94E-02	4.89E-02	5.57E-02	1.11E-01	1.06E-02	1.81E+00
			Light Commercial Truck		1.65E-03	3.27E-03	6.86E-03	1.25E-02	3.58E-02	9.14E-02	4.19E-03	9.56E-01

MOVES EMISSION FACTORS -- WYOMING

				Pollutant							
				RateUnit							
RoadType	**yearID**	**FuelType**	**SourceType**	**PM2.5 Tirewear g/mi**	**PM2.5 Brakewear g/mi**	**PM10 Tirewear g/mi**	**PM10 Brakewear g/mi**	**PM10 Total Exh g/mi**	**VOC g/mi**	**SO2 g/mi**	**NOx g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck	2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck	2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck	4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck	1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck	2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck	1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck	1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
		Gasoline	Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	8.01E-01	6.52E-03	7.90E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.17E-03	2.35E-02	4.64E-03	8.94E-02
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.30E-02	7.05E-02	6.27E-03	3.74E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	7.15E-03	9.38E-01	1.35E-02	2.73E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.20E-03	5.92E-01	1.41E-02	3.13E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.00E-03	5.54E-01	1.50E-02	3.20E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.22E-03	1.32E+00	1.97E-02	3.66E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	9.56E-03	8.96E-01	1.52E-02	3.48E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.02E-02	1.30E+00	2.49E-02	4.69E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.28E-02	8.34E-02	6.30E-03	4.88E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.19E-03	0.00E+00		3.16E+00
	2026	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	6.77E-02	1.24E-01	1.35E-02	2.23E+00
			Combination Short-haul Truck	4.02E-03	9.89E-03	1.68E-02	3.78E-02	4.99E-02	1.10E-01	1.29E-02	1.91E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	1.06E-01	1.60E-01	1.13E-02	2.86E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.53E-03	1.23E-02	1.83E-03	9.36E-02
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	2.22E-02	5.93E-02	4.16E-03	7.56E-01
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	6.00E-02	1.23E-01	5.71E-03	1.52E+00
			Single Unit Long-haul Truck	2.90E-03	1.07E-02	1.21E-02	4.10E-02	2.39E-02	7.82E-02	5.52E-03	9.33E-01
			Single Unit Short-haul Truck	2.90E-03	1.08E-02	1.21E-02	4.12E-02	2.07E-02	6.89E-02	5.89E-03	9.04E-01
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	6.78E-02	1.22E-01	8.27E-03	1.88E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	4.67E-02	1.37E-01	6.17E-03	1.45E+00
			Refuse Truck	4.66E-03	1.28E-02	1.94E-02	4.89E-02	4.78E-02	1.03E-01	1.05E-02	1.66E+00
			Light Commercial Truck	1.65E-03	3.26E-03	6.86E-03	1.25E-02	3.10E-02	8.13E-02	4.16E-03	8.90E-01
		Gasoline	Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	7.97E-01	6.52E-03	7.88E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.20E-03	2.29E-02	4.60E-03	8.73E-02
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.29E-02	6.44E-02	6.20E-03	3.50E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	6.97E-03	9.25E-01	1.35E-02	2.70E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.21E-03	5.91E-01	1.41E-02	3.12E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	7.00E-03	5.53E-01	1.50E-02	3.20E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.19E-03	1.32E+00	1.97E-02	3.65E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	9.42E-03	8.89E-01	1.52E-02	3.46E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.01E-02	1.29E+00	2.49E-02	4.67E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.27E-02	7.76E-02	6.23E-03	4.66E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.10E-03	0.00E+00		3.14E+00
	2027	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	5.90E-02	1.17E-01	1.34E-02	2.06E+00
			Combination Short-haul Truck	4.02E-03	9.89E-03	1.68E-02	3.78E-02	4.40E-02	1.04E-01	1.29E-02	1.79E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	9.27E-02	1.48E-01	1.13E-02	2.61E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.49E-03	1.23E-02	1.81E-03	9.00E-02
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	1.95E-02	5.39E-02	4.14E-03	7.19E-01
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	5.22E-02	1.12E-01	5.69E-03	1.39E+00
			Single Unit Long-haul Truck	2.90E-03	1.07E-02	1.21E-02	4.10E-02	2.15E-02	7.32E-02	5.51E-03	8.93E-01
			Single Unit Short-haul Truck	2.90E-03	1.08E-02	1.21E-02	4.12E-02	1.87E-02	6.51E-02	5.88E-03	8.70E-01
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	5.81E-02	1.11E-01	8.25E-03	1.71E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	4.13E-02	1.26E-01	6.16E-03	1.36E+00

MOVES EMISSION FACTORS -- WYOMING

				Pollutant	PM2.5 Tirewear	PM2.5 Brakewear	PM10 Tirewear	PM10 Brakewear	PM10 Total Exh	VOC	SO2	NOx
RoadType	**yearID**	**FuelType**	**SourceType**	RateUnit	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**	**g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck		2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck		2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck		4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck		1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck		2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck		1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck		1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck		4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck		1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Refuse Truck		4.66E-03	1.28E-02	1.94E-02	4.89E-02	4.15E-02	9.65E-02	1.05E-02	1.53E+00
			Light Commercial Truck		1.65E-03	3.26E-03	6.86E-03	1.25E-02	2.73E-02	7.32E-02	4.14E-03	8.38E-01
		Gasoline	Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	7.93E-01	6.52E-03	7.86E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.22E-03	2.28E-02	4.57E-03	8.60E-02
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.29E-02	6.14E-02	6.14E-03	3.36E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	7.01E-03	9.22E-01	1.35E-02	2.69E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.23E-03	5.91E-01	1.41E-02	3.12E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.59E-03	3.53E-02	7.01E-03	5.52E-01	1.50E-02	3.19E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.18E-03	1.31E+00	1.97E-02	3.63E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	9.46E-03	8.84E-01	1.52E-02	3.44E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.01E-02	1.29E+00	2.49E-02	4.66E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.27E-02	7.44E-02	6.18E-03	4.52E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	4.08E-03	0.00E+00		3.13E+00
	2028	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	5.16E-02	1.11E-01	1.34E-02	1.92E+00
			Combination Short-haul Truck		4.02E-03	9.89E-03	1.68E-02	3.78E-02	3.91E-02	9.98E-02	1.28E-02	1.69E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	8.10E-02	1.37E-01	1.13E-02	2.38E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.47E-03	1.23E-02	1.80E-03	8.75E-02
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	1.69E-02	4.90E-02	4.13E-03	6.86E-01
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	4.48E-02	1.02E-01	5.67E-03	1.27E+00
			Single Unit Long-haul Truck		2.90E-03	1.07E-02	1.21E-02	4.10E-02	1.94E-02	6.89E-02	5.51E-03	8.58E-01
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.12E-02	1.71E-02	6.19E-02	5.88E-03	8.42E-01
			Transit Bus		2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.98E-02	1.02E-01	8.23E-03	1.57E+00
			Motor Home		2.28E-03	8.51E-03	9.53E-03	3.25E-02	3.55E-02	1.16E-01	6.14E-03	1.27E+00
			Refuse Truck		4.66E-03	1.28E-02	1.94E-02	4.90E-02	3.67E-02	9.18E-02	1.05E-02	1.45E+00
			Light Commercial Truck		1.65E-03	3.26E-03	6.86E-03	1.25E-02	2.33E-02	6.53E-02	4.12E-03	7.87E-01
		Gasoline	Motorcycle		6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	7.89E-01	6.52E-03	7.85E-01
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.25E-03	2.27E-02	4.54E-03	8.51E-02
			Passenger Truck		1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.28E-02	5.81E-02	6.09E-03	3.23E-01
			School Bus		2.27E-03	8.84E-03	9.46E-03	3.38E-02	6.98E-03	9.19E-01	1.35E-02	2.67E+00
			Single Unit Long-haul Truck		2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.23E-03	5.90E-01	1.41E-02	3.12E+00
			Single Unit Short-haul Truck		2.30E-03	9.23E-03	9.59E-03	3.53E-02	7.02E-03	5.52E-01	1.50E-02	3.19E+00
			Transit Bus		2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.13E-03	1.31E+00	1.97E-02	3.62E+00
			Motor Home		2.21E-03	8.33E-03	9.22E-03	3.18E-02	9.27E-03	8.77E-01	1.52E-02	3.42E+00
			Refuse Truck		2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.00E-02	1.29E+00	2.49E-02	4.65E+00
			Light Commercial Truck		1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.26E-02	7.12E-02	6.13E-03	4.41E-01
		Compressed Natural Gas (CNG)	Transit Bus		2.27E-03	8.41E-03	9.47E-03	3.21E-02	3.98E-03	0.00E+00		3.10E+00
	2029	Diesel Fuel	Combination Long-haul Truck		4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.62E-02	1.06E-01	1.34E-02	1.80E+00
			Combination Short-haul Truck		4.02E-03	9.89E-03	1.68E-02	3.78E-02	3.55E-02	9.62E-02	1.28E-02	1.61E+00
			Intercity Bus		4.86E-03	1.62E-02	2.03E-02	6.17E-02	7.17E-02	1.28E-01	1.12E-02	2.17E+00
			Passenger Car		1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.45E-03	1.23E-02	1.79E-03	8.58E-02
			Passenger Truck		1.62E-03	3.02E-03	6.75E-03	1.15E-02	1.56E-02	4.60E-02	4.11E-03	6.65E-01
			School Bus		3.93E-03	1.37E-02	1.64E-02	5.25E-02	3.95E-02	9.31E-02	5.66E-03	1.16E+00
			Single Unit Long-haul Truck		2.90E-03	1.07E-02	1.21E-02	4.10E-02	1.77E-02	6.53E-02	5.50E-03	8.27E-01
			Single Unit Short-haul Truck		2.90E-03	1.08E-02	1.21E-02	4.12E-02	1.60E-02	5.94E-02	5.87E-03	8.19E-01

MOVES EMISSION FACTORS -- WYOMING

				Pollutant							
				RateUnit							
RoadType	**yearID**	**FuelType**	**SourceType**	**PM2.5 Tirewear g/mi**	**PM2.5 Brakewear g/mi**	**PM10 Tirewear g/mi**	**PM10 Brakewear g/mi**	**PM10 Total Exh g/mi**	**VOC g/mi**	**SO2 g/mi**	**NOx g/mi**
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.42E-01	4.36E-01	1.47E-02	9.64E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.96E-01	4.21E-01	1.40E-02	8.98E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.77E-01	5.05E-01	1.24E-02	1.17E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.47E-02	2.81E-02	2.62E-03	5.73E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.27E-01	2.79E-01	4.76E-03	2.14E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.97E-01	4.42E-01	6.23E-03	5.56E+00
			Single Unit Long-haul Truck	2.89E-03	1.07E-02	1.21E-02	4.10E-02	1.53E-01	3.56E-01	5.91E-03	3.03E+00
			Single Unit Short-haul Truck	2.89E-03	1.08E-02	1.21E-02	4.11E-02	1.56E-01	3.37E-01	6.29E-03	3.18E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.34E-01	5.08E-01	9.02E-03	8.75E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.31E-01	5.09E-01	6.66E-03	4.46E+00
			Refuse Truck	4.57E-03	1.26E-02	1.90E-02	4.81E-02	4.07E-01	4.46E-01	1.15E-02	8.64E+00
			Light Commercial Truck	1.65E-03	3.31E-03	6.88E-03	1.27E-02	1.65E-01	3.69E-01	4.80E-03	2.63E+00
		Gasoline	Combination Short-haul Truck	2.29E-03	6.47E-03	9.55E-03	2.47E-02	1.31E-01	4.57E+00	3.02E-02	1.67E+01
			Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	9.39E-01	6.50E-03	8.50E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	9.03E-03	7.25E-02	5.57E-03	3.69E-01
			Passenger Truck	1.30E-03	3.16E-03	5.42E-03	1.21E-02	1.52E-02	2.14E-01	7.71E-03	9.37E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	3.30E-02	1.54E+00	1.35E-02	4.42E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	8.29E-03	6.47E-01	1.41E-02	3.32E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.60E-03	3.53E-02	9.81E-03	6.57E-01	1.50E-02	3.51E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	1.05E-02	1.42E+00	1.97E-02	4.09E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	2.30E-02	1.15E+00	1.52E-02	4.47E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	1.56E-02	1.58E+00	2.49E-02	5.61E+00
			Light Commercial Truck	1.33E-03	3.17E-03	5.53E-03	1.21E-02	1.49E-02	2.27E-01	7.63E-03	1.02E+00
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	5.37E-03	0.00E+00		3.55E+00
	2014	Diesel Fuel	Combination Long-haul Truck	4.44E-03	1.07E-02	1.85E-02	4.09E-02	3.89E-01	3.92E-01	1.45E-02	8.58E+00
			Combination Short-haul Truck	4.04E-03	9.93E-03	1.69E-02	3.79E-02	3.41E-01	3.74E-01	1.38E-02	7.87E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	5.15E-01	4.65E-01	1.23E-02	1.06E+01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	1.22E-02	2.48E-02	2.53E-03	5.00E-01
			Passenger Truck	1.62E-03	3.03E-03	6.75E-03	1.16E-02	1.10E-01	2.44E-01	4.69E-03	1.93E+00
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	2.68E-01	4.08E-01	6.17E-03	5.07E+00
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	4.36E-02	9.35E-02	8.21E-03	1.45E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	3.19E-02	1.07E-01	6.13E-03	1.20E+00
			Refuse Truck	4.66E-03	1.28E-02	1.94E-02	4.90E-02	3.34E-02	8.82E-02	1.05E-02	1.38E+00
			Light Commercial Truck	1.65E-03	3.26E-03	6.86E-03	1.25E-02	2.15E-02	6.09E-02	4.10E-03	7.57E-01
		Gasoline	Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	7.86E-01	6.52E-03	7.83E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.27E-03	2.28E-02	4.52E-03	8.45E-02
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.27E-02	5.53E-02	6.04E-03	3.11E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	6.97E-03	9.20E-01	1.35E-02	2.67E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.60E-03	3.52E-02	7.23E-03	5.90E-01	1.41E-02	3.12E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.59E-03	3.53E-02	7.02E-03	5.52E-01	1.50E-02	3.19E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.11E-03	1.31E+00	1.97E-02	3.61E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	9.23E-03	8.77E-01	1.52E-02	3.41E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	9.97E-03	1.29E+00	2.49E-02	4.65E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.25E-02	6.83E-02	6.08E-03	4.29E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	3.93E-03	0.00E+00		3.10E+00
	2030	**Diesel Fuel**	**Combination Long-haul Truck**	4.44E-03	1.07E-02	1.85E-02	4.09E-02	4.17E-02	1.02E-01	1.34E-02	1.71E+00
			Combination Short-haul Truck	4.02E-03	9.89E-03	1.68E-02	3.78E-02	3.26E-02	9.32E-02	1.28E-02	1.55E+00
			Intercity Bus	4.86E-03	1.62E-02	2.03E-02	6.17E-02	6.31E-02	1.19E-01	1.12E-02	2.00E+00
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	3.45E-03	1.23E-02	1.78E-03	8.47E-02
			Passenger Truck	1.62E-03	3.02E-03	6.75E-03	1.15E-02	1.40E-02	4.19E-02	4.10E-03	6.40E-01
			School Bus	3.93E-03	1.37E-02	1.64E-02	5.25E-02	3.47E-02	8.52E-02	5.64E-03	1.09E+00
			Single Unit Long-haul Truck	2.90E-03	1.07E-02	1.21E-02	4.10E-02	1.64E-02	6.22E-02	5.50E-03	8.05E-01
			Single Unit Short-haul Truck	2.90E-03	1.08E-02	1.21E-02	4.12E-02	1.50E-02	5.74E-02	5.87E-03	8.02E-01
			Transit Bus	2.61E-03	8.11E-03	1.09E-02	3.10E-02	3.84E-02	8.69E-02	8.20E-03	1.37E+00
			Motor Home	2.28E-03	8.51E-03	9.53E-03	3.25E-02	2.84E-02	9.89E-02	6.12E-03	1.14E+00
			Refuse Truck	4.66E-03	1.28E-02	1.94E-02	4.90E-02	3.07E-02	8.53E-02	1.05E-02	1.33E+00
			Light Commercial Truck	1.65E-03	3.26E-03	6.86E-03	1.25E-02	1.87E-02	5.37E-02	4.09E-03	7.16E-01
		Gasoline	Motorcycle	6.37E-04	1.66E-04	2.66E-03	6.33E-04	4.70E-02	7.82E-01	6.52E-03	7.82E-01
			Passenger Car	1.27E-03	1.92E-03	5.30E-03	7.33E-03	7.30E-03	2.29E-02	4.51E-03	8.41E-02
			Passenger Truck	1.30E-03	3.16E-03	5.41E-03	1.21E-02	1.27E-02	5.27E-02	6.00E-03	3.01E-01
			School Bus	2.27E-03	8.84E-03	9.46E-03	3.38E-02	7.02E-03	9.21E-01	1.35E-02	2.67E+00
			Single Unit Long-haul Truck	2.30E-03	9.22E-03	9.59E-03	3.52E-02	7.25E-03	5.91E-01	1.41E-02	3.12E+00
			Single Unit Short-haul Truck	2.30E-03	9.23E-03	9.59E-03	3.53E-02	7.03E-03	5.52E-01	1.50E-02	3.19E+00
			Transit Bus	2.27E-03	8.40E-03	9.46E-03	3.21E-02	9.12E-03	1.31E+00	1.97E-02	3.61E+00
			Motor Home	2.21E-03	8.33E-03	9.22E-03	3.18E-02	9.29E-03	8.78E-01	1.52E-02	3.41E+00
			Refuse Truck	2.21E-03	7.31E-03	9.22E-03	2.79E-02	9.96E-03	1.29E+00	2.49E-02	4.64E+00
			Light Commercial Truck	1.32E-03	3.17E-03	5.52E-03	1.21E-02	1.25E-02	6.59E-02	6.05E-03	4.20E-01
		Compressed Natural Gas (CNG)	Transit Bus	2.27E-03	8.41E-03	9.47E-03	3.21E-02	3.92E-03	0.00E+00		3.10E+00

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Single Unit Long-haul Truck	1.15E+00	3.86E-02	1.88E-03	2.44E-03	2.69E-02	8.01E+02	1.27E-01
			Single Unit Short-haul Truck	1.10E+00	3.91E-02	1.88E-03	2.28E-03	2.52E-02	8.56E+02	1.27E-01
			Transit Bus	2.52E+00	2.35E-02	1.96E-03	3.43E-03	3.57E-02	1.19E+03	3.73E-01
			Motor Home	1.51E+00	3.49E-02	1.88E-03	3.55E-03	3.77E-02	8.84E+02	1.98E-01
			Refuse Truck	1.90E+00	2.99E-02	1.88E-03	2.84E-03	3.03E-02	1.53E+03	3.41E-01
			Light Commercial Truck	1.54E+00	1.37E-02	1.54E-03	2.56E-03	2.64E-02	6.23E+02	1.42E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.18E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.19E-01
			Motorcycle	1.53E+01	2.89E-02	1.95E-03	2.55E-02	9.93E-03	3.71E+02	4.33E-02
			Passenger Car	2.15E+00	4.58E-03	1.37E-03	1.54E-03	5.50E-04	3.14E+02	7.90E-03
			Passenger Truck	4.74E+00	6.80E-03	3.91E-03	4.88E-03	1.74E-03	4.33E+02	1.37E-02
			School Bus	2.96E+01	4.99E-02	1.38E-02	3.87E-02	1.38E-02	7.73E+02	2.67E-02
			Single Unit Long-haul Truck	1.41E+01	8.04E-03	9.38E-03	1.39E-02	5.11E-03	8.04E+02	7.57E-03
			Single Unit Short-haul Truck	1.53E+01	9.50E-03	8.98E-03	1.50E-02	5.58E-03	8.56E+02	8.49E-03
			Transit Bus	2.75E+01	1.45E-02	1.22E-02	3.12E-02	1.14E-02	1.13E+03	9.68E-03
			Motor Home	2.43E+01	2.25E-02	1.37E-02	2.52E-02	8.95E-03	8.71E+02	1.96E-02
			Refuse Truck	3.52E+01	1.34E-02	1.08E-02	3.15E-02	1.12E-02	1.42E+03	1.39E-02
			Light Commercial Truck	4.96E+00	7.11E-03	4.36E-03	5.22E-03	1.88E-03	4.29E+02	1.34E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.49E+01	2.04E-02	3.98E-02			9.37E+02	5.34E-03
	2015	Diesel Fuel	Combination Long-haul Truck	1.77E+00	3.05E-02	1.76E-03	2.39E-03	2.58E-02	1.95E+03	3.30E-01
			Combination Short-haul Truck	1.59E+00	3.19E-02	1.76E-03	2.28E-03	2.48E-02	1.87E+03	2.84E-01
			Intercity Bus	2.32E+00	2.98E-02	1.96E-03	3.05E-03	3.23E-02	1.62E+03	4.40E-01
			Passenger Car	5.37E-01	3.35E-03	3.82E-04	1.42E-04	1.63E-03	3.34E+02	9.69E-03
			Passenger Truck	1.11E+00	1.79E-02	1.51E-03	1.66E-03	1.77E-02	6.25E+02	9.27E-02
			School Bus	1.45E+00	2.56E-02	1.96E-03	2.82E-03	2.98E-02	8.15E+02	2.34E-01
			Single Unit Long-haul Truck	1.04E+00	4.01E-02	1.88E-03	2.16E-03	2.42E-02	8.01E+02	1.09E-01
			Single Unit Short-haul Truck	9.69E-01	4.06E-02	1.88E-03	1.98E-03	2.23E-02	8.56E+02	1.07E-01
			Transit Bus	2.25E+00	2.62E-02	1.96E-03	3.09E-03	3.25E-02	1.19E+03	3.27E-01
			Motor Home	1.39E+00	3.70E-02	1.88E-03	3.24E-03	3.47E-02	8.84E+02	1.75E-01
			Refuse Truck	1.67E+00	3.20E-02	1.88E-03	2.49E-03	2.69E-02	1.53E+03	2.93E-01
			Light Commercial Truck	1.42E+00	1.49E-02	1.54E-03	2.29E-03	2.38E-02	6.21E+02	1.26E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	8.91E-02	1.16E-02	1.30E-01	4.60E-02	1.72E+03	1.09E-01
			Motorcycle	1.49E+01	2.89E-02	1.95E-03	2.48E-02	9.65E-03	3.71E+02	4.33E-02
			Passenger Car	2.01E+00	4.39E-03	1.22E-03	1.29E-03	4.63E-04	3.08E+02	7.52E-03
			Passenger Truck	4.48E+00	6.33E-03	3.53E-03	4.40E-03	1.58E-03	4.24E+02	1.34E-02
			School Bus	2.75E+01	4.25E-02	1.32E-02	3.52E-02	1.26E-02	7.72E+02	2.00E-02
			Single Unit Long-haul Truck	1.38E+01	7.61E-03	8.44E-03	1.36E-02	5.02E-03	8.04E+02	7.36E-03
			Single Unit Short-haul Truck	1.48E+01	8.67E-03	8.00E-03	1.45E-02	5.40E-03	8.56E+02	7.95E-03
			Transit Bus	2.61E+01	1.35E-02	1.12E-02	3.06E-02	1.12E-02	1.13E+03	9.55E-03
			Motor Home	2.33E+01	1.99E-02	1.29E-02	2.39E-02	8.49E-03	8.71E+02	1.71E-02
			Refuse Truck	3.26E+01	1.20E-02	9.71E-03	3.00E-02	1.07E-02	1.42E+03	1.31E-02
			Light Commercial Truck	4.71E+00	6.61E-03	3.93E-03	4.74E-03	1.71E-03	4.21E+02	1.31E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.25E+01	1.88E-02	3.98E-02			9.36E+02	5.25E-03
	2016	Diesel Fuel	Combination Long-haul Truck	1.56E+00	3.21E-02	1.76E-03	2.11E-03	2.31E-02	1.95E+03	2.87E-01
			Combination Short-haul Truck	1.39E+00	3.35E-02	1.76E-03	1.98E-03	2.19E-02	1.87E+03	2.42E-01

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Intercity Bus	2.10E+00	3.17E-02	1.96E-03	2.77E-03	2.96E-02	1.62E+03	3.83E-01
			Passenger Car	6.30E-01	4.04E-03	3.82E-04	1.26E-04	1.52E-03	3.24E+02	7.92E-03
			Passenger Truck	1.04E+00	1.89E-02	1.51E-03	1.46E-03	1.58E-02	6.22E+02	8.05E-02
			School Bus	1.33E+00	2.71E-02	1.96E-03	2.58E-03	2.75E-02	8.15E+02	2.08E-01
			Single Unit Long-haul Truck	9.29E-01	4.12E-02	1.88E-03	1.92E-03	2.18E-02	8.01E+02	9.34E-02
			Single Unit Short-haul Truck	8.59E-01	4.16E-02	1.88E-03	1.72E-03	1.99E-02	8.56E+02	8.97E-02
			Transit Bus	2.00E+00	2.82E-02	1.96E-03	2.77E-03	2.94E-02	1.19E+03	2.85E-01
			Motor Home	1.29E+00	3.85E-02	1.88E-03	2.96E-03	3.20E-02	8.85E+02	1.54E-01
			Refuse Truck	1.46E+00	3.39E-02	1.88E-03	2.16E-03	2.38E-02	1.53E+03	2.49E-01
			Light Commercial Truck	1.31E+00	1.61E-02	1.54E-03	2.05E-03	2.14E-02	6.18E+02	1.11E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	8.72E-02	1.23E-02	1.30E-01	4.60E-02	1.72E+03	1.07E-01
			Motorcycle	1.46E+01	2.89E-02	1.95E-03	2.42E-02	9.42E-03	3.72E+02	4.33E-02
			Passenger Car	1.89E+00	4.22E-03	1.11E-03	1.08E-03	3.90E-04	3.02E+02	7.26E-03
			Passenger Truck	4.23E+00	5.74E-03	3.19E-03	3.90E-03	1.40E-03	4.15E+02	1.31E-02
			School Bus	2.54E+01	3.55E-02	1.24E-02	3.16E-02	1.14E-02	7.72E+02	1.59E-02
			Single Unit Long-haul Truck	1.36E+01	7.25E-03	7.62E-03	1.34E-02	4.95E-03	8.03E+02	7.21E-03
			Single Unit Short-haul Truck	1.44E+01	8.00E-03	7.17E-03	1.40E-02	5.25E-03	8.55E+02	7.55E-03
			Transit Bus	2.48E+01	1.27E-02	1.02E-02	3.00E-02	1.10E-02	1.13E+03	9.43E-03
			Motor Home	2.24E+01	1.77E-02	1.21E-02	2.27E-02	8.07E-03	8.71E+02	1.54E-02
			Refuse Truck	3.03E+01	1.08E-02	8.72E-03	2.86E-02	1.02E-02	1.42E+03	1.25E-02
			Light Commercial Truck	4.46E+00	5.98E-03	3.56E-03	4.25E-03	1.54E-03	4.13E+02	1.28E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.03E+01	1.74E-02	3.98E-02			9.36E+02	5.13E-03
	2017	Diesel Fuel	Combination Long-haul Truck	1.38E+00	3.34E-02	1.76E-03	1.86E-03	2.07E-02	1.95E+03	2.49E-01
			Combination Short-haul Truck	1.21E+00	3.47E-02	1.76E-03	1.73E-03	1.95E-02	1.87E+03	2.04E-01
			Intercity Bus	1.89E+00	3.34E-02	1.96E-03	2.50E-03	2.71E-02	1.62E+03	3.31E-01
			Passenger Car	7.17E-01	4.68E-03	3.82E-04	1.13E-04	1.43E-03	3.15E+02	6.71E-03
			Passenger Truck	9.72E-01	1.98E-02	1.51E-03	1.29E-03	1.41E-02	6.19E+02	6.93E-02
			School Bus	1.21E+00	2.84E-02	1.96E-03	2.34E-03	2.52E-02	8.15E+02	1.84E-01
			Single Unit Long-haul Truck	8.33E-01	4.18E-02	1.88E-03	1.69E-03	1.96E-02	8.01E+02	8.01E-02
			Single Unit Short-haul Truck	7.63E-01	4.21E-02	1.88E-03	1.50E-03	1.77E-02	8.56E+02	7.50E-02
			Transit Bus	1.77E+00	3.01E-02	1.96E-03	2.45E-03	2.64E-02	1.19E+03	2.46E-01
			Motor Home	1.18E+00	3.96E-02	1.88E-03	2.68E-03	2.93E-02	8.85E+02	1.35E-01
			Refuse Truck	1.27E+00	3.54E-02	1.88E-03	1.87E-03	2.10E-02	1.53E+03	2.08E-01
			Light Commercial Truck	1.22E+00	1.73E-02	1.54E-03	1.83E-03	1.93E-02	6.15E+02	9.80E-02
		Gasoline	Combination Short-haul Truck	1.34E+02	8.16E-02	1.41E-02	1.30E-01	4.60E-02	1.72E+03	1.08E-01
			Motorcycle	1.44E+01	2.89E-02	1.95E-03	2.37E-02	9.23E-03	3.72E+02	4.33E-02
			Passenger Car	1.79E+00	4.11E-03	1.04E-03	9.19E-04	3.35E-04	2.96E+02	7.01E-03
			Passenger Truck	4.03E+00	5.30E-03	2.90E-03	3.52E-03	1.27E-03	4.07E+02	1.29E-02
			School Bus	2.35E+01	2.99E-02	1.17E-02	2.87E-02	1.03E-02	7.72E+02	1.39E-02
			Single Unit Long-haul Truck	1.34E+01	7.14E-03	6.91E-03	1.32E-02	4.89E-03	8.03E+02	7.09E-03
			Single Unit Short-haul Truck	1.41E+01	7.60E-03	6.47E-03	1.37E-02	5.14E-03	8.55E+02	7.25E-03
			Transit Bus	2.37E+01	1.23E-02	9.36E-03	2.96E-02	1.08E-02	1.13E+03	9.32E-03
			Motor Home	2.16E+01	1.59E-02	1.12E-02	2.17E-02	7.71E-03	8.71E+02	1.44E-02
			Refuse Truck	2.83E+01	9.89E-03	7.84E-03	2.74E-02	9.74E-03	1.42E+03	1.18E-02

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Light Commercial Truck	4.28E+00	5.53E-03	3.23E-03	3.88E-03	1.41E-03	4.05E+02	1.26E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.84E+01	1.64E-02	3.98E-02			9.36E+02	5.09E-03
	2018	Diesel Fuel	Combination Long-haul Truck	1.21E+00	3.45E-02	1.76E-03	1.63E-03	1.85E-02	1.95E+03	2.15E-01
			Combination Short-haul Truck	1.06E+00	3.57E-02	1.76E-03	1.49E-03	1.72E-02	1.87E+03	1.71E-01
			Intercity Bus	1.70E+00	3.49E-02	1.96E-03	2.26E-03	2.48E-02	1.62E+03	2.78E-01
			Passenger Car	8.04E-01	5.45E-03	3.82E-04	1.04E-04	1.39E-03	3.07E+02	5.74E-03
			Passenger Truck	9.23E-01	2.06E-02	1.51E-03	1.14E-03	1.27E-02	6.16E+02	6.01E-02
			School Bus	1.10E+00	2.95E-02	1.96E-03	2.10E-03	2.29E-02	8.15E+02	1.59E-01
			Single Unit Long-haul Truck	7.43E-01	4.24E-02	1.88E-03	1.47E-03	1.74E-02	8.01E+02	6.88E-02
			Single Unit Short-haul Truck	6.76E-01	4.26E-02	1.88E-03	1.29E-03	1.57E-02	8.56E+02	6.28E-02
			Transit Bus	1.55E+00	3.14E-02	1.96E-03	2.16E-03	2.36E-02	1.19E+03	2.09E-01
			Motor Home	1.08E+00	4.05E-02	1.88E-03	2.39E-03	2.65E-02	8.85E+02	1.19E-01
			Refuse Truck	1.10E+00	3.67E-02	1.88E-03	1.62E-03	1.85E-02	1.53E+03	1.73E-01
			Light Commercial Truck	1.14E+00	1.83E-02	1.54E-03	1.63E-03	1.74E-02	6.13E+02	8.62E-02
		Gasoline	Combination Short-haul Truck	1.34E+02	7.69E-02	1.57E-02	1.30E-01	4.60E-02	1.72E+03	1.08E-01
			Motorcycle	1.42E+01	2.89E-02	1.95E-03	2.33E-02	9.07E-03	3.72E+02	4.33E-02
			Passenger Car	1.72E+00	4.03E-03	9.91E-04	8.02E-04	2.95E-04	2.90E+02	6.83E-03
			Passenger Truck	3.86E+00	4.92E-03	2.64E-03	3.20E-03	1.16E-03	3.99E+02	1.27E-02
			School Bus	2.18E+01	2.48E-02	1.09E-02	2.63E-02	9.51E-03	7.71E+02	1.23E-02
			Single Unit Long-haul Truck	1.33E+01	7.01E-03	6.31E-03	1.31E-02	4.86E-03	8.03E+02	6.98E-03
			Single Unit Short-haul Truck	1.39E+01	7.26E-03	5.87E-03	1.35E-02	5.07E-03	8.55E+02	7.01E-03
			Transit Bus	2.28E+01	1.19E-02	8.59E-03	2.92E-02	1.07E-02	1.13E+03	9.20E-03
			Motor Home	2.08E+01	1.41E-02	1.05E-02	2.07E-02	7.38E-03	8.70E+02	1.33E-02
			Refuse Truck	2.67E+01	9.08E-03	7.06E-03	2.64E-02	9.39E-03	1.42E+03	1.12E-02
			Light Commercial Truck	4.12E+00	5.14E-03	2.95E-03	3.56E-03	1.30E-03	3.97E+02	1.24E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.67E+01	1.55E-02	3.98E-02			9.36E+02	5.00E-03
	2019	**Diesel Fuel**	**Combination Long-haul Truck**	1.07E+00	3.55E-02	1.76E-03	1.43E-03	1.66E-02	1.95E+03	1.85E-01
			Combination Short-haul Truck	9.21E-01	3.66E-02	1.76E-03	1.29E-03	1.53E-02	1.87E+03	1.45E-01
			Intercity Bus	1.53E+00	3.62E-02	1.96E-03	2.04E-03	2.27E-02	1.62E+03	2.47E-01
			Passenger Car	8.88E-01	6.19E-03	3.82E-04	9.76E-05	1.38E-03	3.00E+02	5.04E-03
			Passenger Truck	8.83E-01	2.14E-02	1.51E-03	1.01E-03	1.14E-02	6.13E+02	5.27E-02
			School Bus	9.93E-01	3.06E-02	1.96E-03	1.88E-03	2.07E-02	8.15E+02	1.41E-01
			Single Unit Long-haul Truck	6.65E-01	4.28E-02	1.88E-03	1.28E-03	1.56E-02	8.01E+02	5.91E-02
			Single Unit Short-haul Truck	6.03E-01	4.30E-02	1.88E-03	1.12E-03	1.39E-02	8.56E+02	5.31E-02
			Transit Bus	1.36E+00	3.25E-02	1.96E-03	1.90E-03	2.11E-02	1.19E+03	1.82E-01
			Motor Home	9.77E-01	4.14E-02	1.88E-03	2.12E-03	2.38E-02	8.85E+02	1.05E-01
			Refuse Truck	9.60E-01	3.78E-02	1.88E-03	1.40E-03	1.64E-02	1.53E+03	1.46E-01
			Light Commercial Truck	1.07E+00	1.93E-02	1.54E-03	1.45E-03	1.57E-02	6.10E+02	7.58E-02
		Gasoline	Motorcycle	1.40E+01	2.88E-02	1.95E-03	2.29E-02	8.94E-03	3.72E+02	4.33E-02
			Passenger Car	1.66E+00	4.02E-03	9.57E-04	7.17E-04	2.65E-04	2.85E+02	6.71E-03
			Passenger Truck	3.70E+00	4.57E-03	2.41E-03	2.92E-03	1.06E-03	3.91E+02	1.25E-02
			School Bus	2.02E+01	2.07E-02	9.99E-03	2.42E-02	8.79E-03	7.71E+02	1.04E-02
			Single Unit Long-haul Truck	1.32E+01	6.62E-03	5.79E-03	1.30E-02	4.84E-03	8.03E+02	6.87E-03
			Single Unit Short-haul Truck	1.37E+01	6.78E-03	5.37E-03	1.33E-02	5.02E-03	8.55E+02	6.81E-03

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Transit Bus	2.21E+01	1.11E-02	7.90E-03	2.89E-02	1.06E-02	1.13E+03	9.08E-03
			Motor Home	2.02E+01	1.24E-02	9.70E-03	1.99E-02	7.10E-03	8.70E+02	1.22E-02
			Refuse Truck	2.53E+01	8.30E-03	6.37E-03	2.55E-02	9.10E-03	1.42E+03	1.08E-02
			Light Commercial Truck	3.97E+00	4.73E-03	2.69E-03	3.29E-03	1.21E-03	3.90E+02	1.22E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.51E+01	1.42E-02	3.98E-02			9.36E+02	4.87E-03
	2020	**Diesel Fuel**	**Combination Long-haul Truck**	9.45E-01	3.63E-02	1.76E-03	1.26E-03	1.49E-02	1.95E+03	1.59E-01
			Combination Short-haul Truck	8.08E-01	3.73E-02	1.76E-03	1.12E-03	1.36E-02	1.87E+03	1.22E-01
			Intercity Bus	1.37E+00	3.74E-02	1.96E-03	1.84E-03	2.08E-02	1.62E+03	2.19E-01
			Passenger Car	9.82E-01	7.07E-03	3.82E-04	9.56E-05	1.41E-03	2.93E+02	4.52E-03
			Passenger Truck	8.57E-01	2.20E-02	1.51E-03	8.98E-04	1.04E-02	6.11E+02	4.63E-02
			School Bus	8.99E-01	3.15E-02	1.96E-03	1.69E-03	1.88E-02	8.15E+02	1.26E-01
			Single Unit Long-haul Truck	5.98E-01	4.32E-02	1.88E-03	1.12E-03	1.40E-02	8.01E+02	5.09E-02
			Single Unit Short-haul Truck	5.43E-01	4.33E-02	1.88E-03	9.76E-04	1.25E-02	8.56E+02	4.50E-02
			Transit Bus	1.19E+00	3.32E-02	1.96E-03	1.67E-03	1.88E-02	1.19E+03	1.58E-01
			Motor Home	8.87E-01	4.21E-02	1.88E-03	1.88E-03	2.15E-02	8.85E+02	9.25E-02
			Refuse Truck	8.40E-01	3.87E-02	1.88E-03	1.21E-03	1.45E-02	1.53E+03	1.23E-01
			Light Commercial Truck	1.01E+00	2.03E-02	1.54E-03	1.28E-03	1.41E-02	6.07E+02	6.64E-02
		Gasoline	Motorcycle	1.38E+01	2.88E-02	1.95E-03	2.26E-02	8.82E-03	3.72E+02	4.33E-02
			Passenger Car	1.62E+00	4.01E-03	9.34E-04	6.58E-04	2.44E-04	2.81E+02	6.63E-03
			Passenger Truck	3.57E+00	4.26E-03	2.22E-03	2.67E-03	9.79E-04	3.84E+02	1.24E-02
			School Bus	1.90E+01	1.71E-02	9.11E-03	2.23E-02	8.13E-03	7.71E+02	8.65E-03
			Single Unit Long-haul Truck	1.32E+01	6.30E-03	5.34E-03	1.29E-02	4.82E-03	8.03E+02	6.76E-03
			Single Unit Short-haul Truck	1.36E+01	6.43E-03	4.94E-03	1.32E-02	4.97E-03	8.55E+02	6.65E-03
			Transit Bus	2.14E+01	1.04E-02	7.29E-03	2.87E-02	1.06E-02	1.13E+03	8.98E-03
			Motor Home	1.96E+01	1.09E-02	8.97E-03	1.91E-02	6.83E-03	8.70E+02	1.10E-02
			Refuse Truck	2.42E+01	7.69E-03	5.79E-03	2.49E-02	8.87E-03	1.42E+03	1.04E-02
			Light Commercial Truck	3.85E+00	4.39E-03	2.48E-03	3.05E-03	1.13E-03	3.84E+02	1.22E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.38E+01	1.32E-02	3.98E-02			9.36E+02	4.74E-03
	2021	Diesel Fuel	Combination Long-haul Truck	8.37E-01	3.71E-02	1.77E-03	1.11E-03	1.35E-02	1.95E+03	1.37E-01
			Combination Short-haul Truck	7.14E-01	3.79E-02	1.77E-03	9.81E-04	1.22E-02	1.87E+03	1.03E-01
			Intercity Bus	1.23E+00	3.85E-02	1.96E-03	1.66E-03	1.90E-02	1.62E+03	1.93E-01
			Passenger Car	1.07E+00	7.88E-03	3.82E-04	9.55E-05	1.46E-03	2.87E+02	4.14E-03
			Passenger Truck	8.35E-01	2.26E-02	1.51E-03	8.03E-04	9.47E-03	6.08E+02	4.04E-02
			School Bus	8.10E-01	3.24E-02	1.96E-03	1.50E-03	1.71E-02	8.15E+02	1.10E-01
			Single Unit Long-haul Truck	5.43E-01	4.35E-02	1.88E-03	9.86E-04	1.27E-02	8.01E+02	4.38E-02
			Single Unit Short-haul Truck	4.93E-01	4.35E-02	1.88E-03	8.59E-04	1.14E-02	8.56E+02	3.84E-02
			Transit Bus	1.04E+00	3.38E-02	1.96E-03	1.47E-03	1.68E-02	1.19E+03	1.36E-01
			Motor Home	8.07E-01	4.28E-02	1.88E-03	1.66E-03	1.94E-02	8.85E+02	8.15E-02
			Refuse Truck	7.38E-01	3.94E-02	1.88E-03	1.05E-03	1.31E-02	1.53E+03	1.03E-01
			Light Commercial Truck	9.62E-01	2.11E-02	1.54E-03	1.14E-03	1.27E-02	6.05E+02	5.79E-02
		Gasoline	Motorcycle	1.37E+01	2.88E-02	1.95E-03	2.24E-02	8.72E-03	3.72E+02	4.33E-02
			Passenger Car	1.60E+00	3.97E-03	9.20E-04	6.18E-04	2.30E-04	2.77E+02	6.60E-03
			Passenger Truck	3.46E+00	4.04E-03	2.05E-03	2.46E-03	9.05E-04	3.78E+02	1.23E-02
			School Bus	1.77E+01	1.48E-02	8.31E-03	2.16E-02	7.90E-03	7.70E+02	8.14E-03

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Single Unit Long-haul Truck	1.31E+01	6.27E-03	4.96E-03	1.29E-02	4.81E-03	8.03E+02	6.73E-03
			Single Unit Short-haul Truck	1.35E+01	6.34E-03	4.60E-03	1.31E-02	4.95E-03	8.54E+02	6.60E-03
			Transit Bus	2.08E+01	1.02E-02	6.74E-03	2.85E-02	1.05E-02	1.13E+03	8.90E-03
			Motor Home	1.90E+01	9.93E-03	8.29E-03	1.86E-02	6.68E-03	8.70E+02	1.06E-02
			Refuse Truck	2.32E+01	7.30E-03	5.29E-03	2.44E-02	8.70E-03	1.42E+03	1.01E-02
			Light Commercial Truck	3.75E+00	4.18E-03	2.29E-03	2.85E-03	1.06E-03	3.78E+02	1.20E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.27E+01	1.26E-02	3.98E-02			9.36E+02	4.62E-03
	2022	Diesel Fuel	Combination Long-haul Truck	7.46E-01	3.77E-02	1.77E-03	9.87E-04	1.23E-02	1.95E+03	1.18E-01
			Combination Short-haul Truck	6.35E-01	3.84E-02	1.77E-03	8.63E-04	1.11E-02	1.87E+03	8.78E-02
			Intercity Bus	1.11E+00	3.94E-02	1.96E-03	1.50E-03	1.75E-02	1.62E+03	1.71E-01
			Passenger Car	1.14E+00	8.60E-03	3.82E-04	9.64E-05	1.52E-03	2.82E+02	3.88E-03
			Passenger Truck	8.16E-01	2.31E-02	1.51E-03	7.19E-04	8.67E-03	6.06E+02	3.56E-02
			School Bus	7.32E-01	3.32E-02	1.96E-03	1.34E-03	1.55E-02	8.15E+02	9.74E-02
			Single Unit Long-haul Truck	4.98E-01	4.38E-02	1.88E-03	8.79E-04	1.16E-02	8.01E+02	3.82E-02
			Single Unit Short-haul Truck	4.54E-01	4.37E-02	1.88E-03	7.66E-04	1.05E-02	8.56E+02	3.31E-02
			Transit Bus	9.11E-01	3.44E-02	1.96E-03	1.29E-03	1.51E-02	1.19E+03	1.18E-01
			Motor Home	7.39E-01	4.33E-02	1.88E-03	1.48E-03	1.76E-02	8.85E+02	7.27E-02
			Refuse Truck	6.55E-01	4.01E-02	1.88E-03	9.22E-04	1.18E-02	1.53E+03	8.69E-02
			Light Commercial Truck	9.21E-01	2.18E-02	1.54E-03	1.02E-03	1.15E-02	6.03E+02	5.11E-02
		Gasoline	Motorcycle	1.36E+01	2.88E-02	1.95E-03	2.21E-02	8.63E-03	3.72E+02	4.33E-02
			Passenger Car	1.58E+00	4.00E-03	9.12E-04	5.89E-04	2.21E-04	2.73E+02	6.58E-03
			Passenger Truck	3.37E+00	3.87E-03	1.90E-03	2.28E-03	8.42E-04	3.72E+02	1.22E-02
			School Bus	1.66E+01	1.30E-02	7.60E-03	2.10E-02	7.72E-03	7.70E+02	7.64E-03
			Single Unit Long-haul Truck	1.31E+01	6.28E-03	4.64E-03	1.29E-02	4.80E-03	8.03E+02	6.71E-03
			Single Unit Short-haul Truck	1.34E+01	6.29E-03	4.31E-03	1.30E-02	4.94E-03	8.54E+02	6.55E-03
			Transit Bus	2.05E+01	1.02E-02	6.28E-03	2.85E-02	1.05E-02	1.13E+03	8.86E-03
			Motor Home	1.85E+01	9.21E-03	7.68E-03	1.83E-02	6.56E-03	8.69E+02	1.02E-02
			Refuse Truck	2.24E+01	6.97E-03	4.86E-03	2.40E-02	8.56E-03	1.42E+03	9.87E-03
			Light Commercial Truck	3.66E+00	4.01E-03	2.12E-03	2.67E-03	1.00E-03	3.72E+02	1.20E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.16E+01	1.21E-02	3.98E-02			9.36E+02	4.52E-03
	2023	Diesel Fuel	Combination Long-haul Truck	6.69E-01	3.82E-02	1.77E-03	8.80E-04	1.13E-02	1.95E+03	1.01E-01
			Combination Short-haul Truck	5.72E-01	3.88E-02	1.77E-03	7.69E-04	1.02E-02	1.87E+03	7.50E-02
			Intercity Bus	1.01E+00	4.02E-02	1.96E-03	1.36E-03	1.62E-02	1.62E+03	1.51E-01
			Passenger Car	1.20E+00	9.19E-03	3.82E-04	9.78E-05	1.57E-03	2.77E+02	3.68E-03
			Passenger Truck	8.00E-01	2.36E-02	1.51E-03	6.46E-04	7.97E-03	6.04E+02	3.13E-02
			School Bus	6.66E-01	3.39E-02	1.96E-03	1.21E-03	1.43E-02	8.15E+02	8.58E-02
			Single Unit Long-haul Truck	4.63E-01	4.40E-02	1.88E-03	7.99E-04	1.08E-02	8.01E+02	3.35E-02
			Single Unit Short-haul Truck	4.24E-01	4.38E-02	1.88E-03	6.98E-04	9.81E-03	8.56E+02	2.89E-02
			Transit Bus	8.03E-01	3.48E-02	1.96E-03	1.14E-03	1.36E-02	1.19E+03	1.02E-01
			Motor Home	6.87E-01	4.38E-02	1.88E-03	1.35E-03	1.63E-02	8.85E+02	6.49E-02
			Refuse Truck	5.89E-01	4.06E-02	1.88E-03	8.19E-04	1.08E-02	1.53E+03	7.39E-02
			Light Commercial Truck	8.87E-01	2.24E-02	1.54E-03	9.10E-04	1.05E-02	6.00E+02	4.51E-02
		Gasoline	Motorcycle	1.35E+01	2.88E-02	1.94E-03	2.19E-02	8.55E-03	3.72E+02	4.33E-02
			Passenger Car	1.57E+00	4.01E-03	9.07E-04	5.71E-04	2.15E-04	2.70E+02	6.58E-03

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Passenger Truck	3.27E+00	3.67E-03	1.77E-03	2.11E-03	7.87E-04	3.67E+02	1.22E-02
			School Bus	1.63E+01	1.26E-02	7.15E-03	2.09E-02	7.69E-03	7.70E+02	7.56E-03
			Single Unit Long-haul Truck	1.31E+01	6.17E-03	4.37E-03	1.29E-02	4.81E-03	8.02E+02	6.70E-03
			Single Unit Short-haul Truck	1.34E+01	6.14E-03	4.07E-03	1.30E-02	4.94E-03	8.54E+02	6.52E-03
			Transit Bus	1.99E+01	9.66E-03	5.83E-03	2.83E-02	1.04E-02	1.13E+03	8.73E-03
			Motor Home	1.81E+01	8.44E-03	7.12E-03	1.80E-02	6.46E-03	8.69E+02	9.88E-03
			Refuse Truck	2.18E+01	6.68E-03	4.52E-03	2.37E-02	8.46E-03	1.42E+03	9.70E-03
			Light Commercial Truck	3.57E+00	3.79E-03	1.98E-03	2.52E-03	9.47E-04	3.68E+02	1.19E-02
		Compressed Natural Gas (CNG)	Transit Bus	2.07E+01	1.14E-02	3.98E-02			9.36E+02	4.42E-03
	2024	Diesel Fuel	Combination Long-haul Truck	6.03E-01	3.86E-02	1.77E-03	7.88E-04	1.04E-02	1.95E+03	8.76E-02
			Combination Short-haul Truck	5.20E-01	3.91E-02	1.77E-03	6.90E-04	9.43E-03	1.87E+03	6.44E-02
			Intercity Bus	9.12E-01	4.09E-02	1.96E-03	1.23E-03	1.50E-02	1.62E+03	1.33E-01
			Passenger Car	1.25E+00	9.67E-03	3.82E-04	9.92E-05	1.62E-03	2.73E+02	3.56E-03
			Passenger Truck	7.85E-01	2.39E-02	1.51E-03	5.81E-04	7.34E-03	6.02E+02	2.76E-02
			School Bus	6.09E-01	3.45E-02	1.96E-03	1.09E-03	1.31E-02	8.15E+02	7.58E-02
			Single Unit Long-haul Truck	4.34E-01	4.41E-02	1.88E-03	7.30E-04	1.02E-02	8.01E+02	2.95E-02
			Single Unit Short-haul Truck	3.99E-01	4.39E-02	1.88E-03	6.42E-04	9.26E-03	8.56E+02	2.54E-02
			Transit Bus	7.11E-01	3.52E-02	1.96E-03	1.01E-03	1.24E-02	1.19E+03	8.83E-02
			Motor Home	6.41E-01	4.42E-02	1.88E-03	1.23E-03	1.52E-02	8.85E+02	5.82E-02
			Refuse Truck	5.33E-01	4.10E-02	1.88E-03	7.33E-04	9.97E-03	1.53E+03	6.31E-02
			Light Commercial Truck	8.55E-01	2.29E-02	1.54E-03	8.14E-04	9.60E-03	5.98E+02	3.98E-02
		Gasoline	Motorcycle	1.34E+01	2.88E-02	1.94E-03	2.17E-02	8.48E-03	3.72E+02	4.33E-02
			Passenger Car	1.57E+00	4.05E-03	9.04E-04	5.59E-04	2.11E-04	2.67E+02	6.58E-03
			Passenger Truck	3.18E+00	3.43E-03	1.65E-03	1.96E-03	7.33E-04	3.62E+02	1.21E-02
			School Bus	1.57E+01	1.11E-02	6.60E-03	2.06E-02	7.59E-03	7.70E+02	7.47E-03
			Single Unit Long-haul Truck	1.31E+01	5.97E-03	4.15E-03	1.29E-02	4.81E-03	8.02E+02	6.70E-03
			Single Unit Short-haul Truck	1.34E+01	5.96E-03	3.88E-03	1.30E-02	4.94E-03	8.54E+02	6.52E-03
			Transit Bus	1.94E+01	9.07E-03	5.44E-03	2.81E-02	1.04E-02	1.12E+03	8.66E-03
			Motor Home	1.77E+01	7.61E-03	6.60E-03	1.77E-02	6.38E-03	8.69E+02	9.81E-03
			Refuse Truck	2.14E+01	6.41E-03	4.23E-03	2.35E-02	8.38E-03	1.42E+03	9.60E-03
			Light Commercial Truck	3.48E+00	3.52E-03	1.84E-03	2.37E-03	8.96E-04	3.63E+02	1.19E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.97E+01	1.04E-02	3.98E-02			9.36E+02	4.33E-03
	2025	Diesel Fuel	Combination Long-haul Truck	5.47E-01	3.90E-02	1.77E-03	7.11E-04	9.62E-03	1.95E+03	7.57E-02
			Combination Short-haul Truck	4.77E-01	3.94E-02	1.77E-03	6.26E-04	8.81E-03	1.87E+03	5.56E-02
			Intercity Bus	8.26E-01	4.16E-02	1.96E-03	1.12E-03	1.39E-02	1.62E+03	1.17E-01
			Passenger Car	1.30E+00	1.01E-02	3.82E-04	1.01E-04	1.67E-03	2.69E+02	3.47E-03
			Passenger Truck	7.76E-01	2.42E-02	1.51E-03	5.26E-04	6.82E-03	6.00E+02	2.42E-02
			School Bus	5.58E-01	3.50E-02	1.96E-03	9.92E-04	1.22E-02	8.15E+02	6.68E-02
			Single Unit Long-haul Truck	4.08E-01	4.43E-02	1.88E-03	6.72E-04	9.58E-03	8.01E+02	2.60E-02
			Single Unit Short-haul Truck	3.79E-01	4.40E-02	1.88E-03	5.95E-04	8.80E-03	8.56E+02	2.25E-02
			Transit Bus	6.30E-01	3.55E-02	1.96E-03	8.97E-04	1.13E-02	1.19E+03	7.61E-02
			Motor Home	5.98E-01	4.45E-02	1.88E-03	1.13E-03	1.41E-02	8.85E+02	5.14E-02
			Refuse Truck	4.87E-01	4.13E-02	1.88E-03	6.61E-04	9.28E-03	1.53E+03	5.40E-02
			Light Commercial Truck	8.29E-01	2.34E-02	1.54E-03	7.29E-04	8.78E-03	5.96E+02	3.47E-02

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
		Gasoline	Motorcycle	1.33E+01	2.88E-02	1.94E-03	2.16E-02	8.41E-03	3.72E+02	4.33E-02
			Passenger Car	1.57E+00	4.06E-03	9.02E-04	5.53E-04	2.09E-04	2.64E+02	6.60E-03
			Passenger Truck	3.10E+00	3.24E-03	1.55E-03	1.82E-03	6.84E-04	3.58E+02	1.20E-02
			School Bus	1.49E+01	9.55E-03	6.06E-03	2.02E-02	7.47E-03	7.69E+02	6.59E-03
			Single Unit Long-haul Truck	1.30E+01	5.81E-03	3.95E-03	1.29E-02	4.81E-03	8.02E+02	6.63E-03
			Single Unit Short-haul Truck	1.33E+01	5.82E-03	3.71E-03	1.30E-02	4.94E-03	8.54E+02	6.44E-03
			Transit Bus	1.89E+01	8.58E-03	5.09E-03	2.80E-02	1.04E-02	1.12E+03	8.49E-03
			Motor Home	1.73E+01	6.81E-03	6.12E-03	1.74E-02	6.29E-03	8.69E+02	8.80E-03
			Refuse Truck	2.10E+01	6.21E-03	3.99E-03	2.33E-02	8.31E-03	1.42E+03	9.38E-03
			Light Commercial Truck	3.41E+00	3.29E-03	1.73E-03	2.23E-03	8.49E-04	3.59E+02	1.18E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.90E+01	9.76E-03	3.98E-02			9.36E+02	4.19E-03
	2026	Diesel Fuel	Combination Long-haul Truck	5.00E-01	3.93E-02	1.77E-03	6.45E-04	8.98E-03	1.95E+03	6.56E-02
			Combination Short-haul Truck	4.41E-01	3.96E-02	1.77E-03	5.73E-04	8.29E-03	1.87E+03	4.84E-02
			Intercity Bus	7.47E-01	4.22E-02	1.96E-03	1.01E-03	1.28E-02	1.62E+03	1.02E-01
			Passenger Car	1.33E+00	1.04E-02	3.82E-04	1.03E-04	1.70E-03	2.66E+02	3.42E-03
			Passenger Truck	7.69E-01	2.45E-02	1.51E-03	4.82E-04	6.40E-03	5.99E+02	2.15E-02
			School Bus	5.11E-01	3.55E-02	1.96E-03	8.96E-04	1.12E-02	8.15E+02	5.82E-02
			Single Unit Long-haul Truck	3.88E-01	4.44E-02	1.88E-03	6.25E-04	9.12E-03	8.01E+02	2.31E-02
			Single Unit Short-haul Truck	3.62E-01	4.41E-02	1.88E-03	5.57E-04	8.42E-03	8.56E+02	2.01E-02
			Transit Bus	5.62E-01	3.57E-02	1.96E-03	8.01E-04	1.03E-02	1.19E+03	6.57E-02
			Motor Home	5.60E-01	4.48E-02	1.88E-03	1.03E-03	1.32E-02	8.85E+02	4.53E-02
			Refuse Truck	4.47E-01	4.16E-02	1.88E-03	6.01E-04	8.70E-03	1.53E+03	4.63E-02
			Light Commercial Truck	8.04E-01	2.38E-02	1.54E-03	6.52E-04	8.04E-03	5.95E+02	3.01E-02
		Gasoline	Motorcycle	1.32E+01	2.88E-02	1.94E-03	2.14E-02	8.36E-03	3.72E+02	4.33E-02
			Passenger Car	1.57E+00	4.39E-03	9.01E-04	5.38E-04	2.04E-04	2.62E+02	6.63E-03
			Passenger Truck	3.02E+00	3.40E-03	1.46E-03	1.66E-03	6.26E-04	3.54E+02	1.19E-02
			School Bus	1.40E+01	8.75E-03	5.56E-03	1.98E-02	7.32E-03	7.69E+02	6.42E-03
			Single Unit Long-haul Truck	1.30E+01	6.35E-03	3.79E-03	1.28E-02	4.81E-03	8.02E+02	6.64E-03
			Single Unit Short-haul Truck	1.33E+01	6.32E-03	3.59E-03	1.30E-02	4.93E-03	8.54E+02	6.44E-03
			Transit Bus	1.85E+01	9.06E-03	4.80E-03	2.78E-02	1.03E-02	1.12E+03	8.46E-03
			Motor Home	1.69E+01	6.74E-03	5.73E-03	1.72E-02	6.21E-03	8.69E+02	8.68E-03
			Refuse Truck	2.06E+01	6.48E-03	3.80E-03	2.31E-02	8.25E-03	1.42E+03	9.31E-03
			Light Commercial Truck	3.33E+00	3.46E-03	1.63E-03	2.08E-03	7.94E-04	3.55E+02	1.17E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.78E+01	9.43E-03	3.98E-02			9.36E+02	4.10E-03
	2027	Diesel Fuel	Combination Long-haul Truck	4.61E-01	3.95E-02	1.77E-03	5.90E-04	8.45E-03	1.95E+03	5.72E-02
			Combination Short-haul Truck	4.13E-01	3.98E-02	1.77E-03	5.31E-04	7.88E-03	1.87E+03	4.27E-02
			Intercity Bus	6.80E-01	4.27E-02	1.96E-03	9.24E-04	1.20E-02	1.62E+03	9.00E-02
			Passenger Car	1.36E+00	1.07E-02	3.82E-04	1.04E-04	1.73E-03	2.64E+02	3.39E-03
			Passenger Truck	7.61E-01	2.47E-02	1.51E-03	4.41E-04	6.00E-03	5.98E+02	1.89E-02
			School Bus	4.68E-01	3.59E-02	1.96E-03	8.10E-04	1.04E-02	8.15E+02	5.06E-02
			Single Unit Long-haul Truck	3.71E-01	4.44E-02	1.88E-03	5.86E-04	8.73E-03	8.01E+02	2.08E-02
			Single Unit Short-haul Truck	3.49E-01	4.41E-02	1.88E-03	5.27E-04	8.13E-03	8.56E+02	1.82E-02
			Transit Bus	5.00E-01	3.59E-02	1.96E-03	7.14E-04	9.46E-03	1.19E+03	5.64E-02
			Motor Home	5.26E-01	4.51E-02	1.88E-03	9.43E-04	1.23E-02	8.85E+02	4.00E-02

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Refuse Truck	4.16E-01	4.18E-02	1.88E-03	5.53E-04	8.23E-03	1.53E+03	4.02E-02
			Light Commercial Truck	7.85E-01	2.41E-02	1.54E-03	5.90E-04	7.45E-03	5.94E+02	2.65E-02
		Gasoline	Motorcycle	1.31E+01	2.88E-02	1.94E-03	2.13E-02	8.30E-03	3.72E+02	4.33E-02
			Passenger Car	1.57E+00	4.42E-03	9.01E-04	5.36E-04	2.03E-04	2.61E+02	6.65E-03
			Passenger Truck	2.97E+00	3.38E-03	1.39E-03	1.59E-03	6.03E-04	3.50E+02	1.19E-02
			School Bus	1.38E+01	8.68E-03	5.17E-03	1.97E-02	7.29E-03	7.69E+02	6.45E-03
			Single Unit Long-haul Truck	1.30E+01	6.36E-03	3.65E-03	1.28E-02	4.81E-03	8.02E+02	6.66E-03
			Single Unit Short-haul Truck	1.33E+01	6.31E-03	3.47E-03	1.30E-02	4.93E-03	8.54E+02	6.46E-03
			Transit Bus	1.82E+01	9.00E-03	4.50E-03	2.77E-02	1.03E-02	1.12E+03	8.45E-03
			Motor Home	1.67E+01	6.64E-03	5.27E-03	1.70E-02	6.16E-03	8.69E+02	8.71E-03
			Refuse Truck	2.03E+01	6.44E-03	3.62E-03	2.30E-02	8.20E-03	1.42E+03	9.27E-03
			Light Commercial Truck	3.29E+00	3.45E-03	1.54E-03	2.01E-03	7.70E-04	3.52E+02	1.17E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.73E+01	9.28E-03	3.98E-02			9.36E+02	4.08E-03
	2028	Diesel Fuel	Combination Long-haul Truck	4.28E-01	3.97E-02	1.77E-03	5.45E-04	8.02E-03	1.95E+03	5.01E-02
			Combination Short-haul Truck	3.90E-01	3.99E-02	1.77E-03	4.97E-04	7.55E-03	1.87E+03	3.79E-02
			Intercity Bus	6.21E-01	4.31E-02	1.96E-03	8.43E-04	1.12E-02	1.62E+03	7.85E-02
			Passenger Car	1.37E+00	1.09E-02	3.82E-04	1.05E-04	1.76E-03	2.62E+02	3.36E-03
			Passenger Truck	7.53E-01	2.49E-02	1.51E-03	4.04E-04	5.64E-03	5.96E+02	1.64E-02
			School Bus	4.31E-01	3.62E-02	1.96E-03	7.34E-04	9.67E-03	8.15E+02	4.35E-02
			Single Unit Long-haul Truck	3.56E-01	4.45E-02	1.88E-03	5.52E-04	8.40E-03	8.01E+02	1.88E-02
			Single Unit Short-haul Truck	3.38E-01	4.41E-02	1.88E-03	5.03E-04	7.89E-03	8.56E+02	1.66E-02
			Transit Bus	4.49E-01	3.61E-02	1.96E-03	6.42E-04	8.75E-03	1.19E+03	4.83E-02
			Motor Home	4.95E-01	4.54E-02	1.88E-03	8.63E-04	1.16E-02	8.85E+02	3.45E-02
			Refuse Truck	3.93E-01	4.20E-02	1.88E-03	5.17E-04	7.89E-03	1.53E+03	3.56E-02
			Light Commercial Truck	7.65E-01	2.44E-02	1.54E-03	5.30E-04	6.87E-03	5.93E+02	2.26E-02
		Gasoline	Motorcycle	1.31E+01	2.88E-02	1.94E-03	2.11E-02	8.25E-03	3.72E+02	4.33E-02
			Passenger Car	1.58E+00	4.40E-03	9.01E-04	5.36E-04	2.03E-04	2.59E+02	6.68E-03
			Passenger Truck	2.92E+00	3.29E-03	1.32E-03	1.51E-03	5.77E-04	3.47E+02	1.18E-02
			School Bus	1.36E+01	8.40E-03	4.80E-03	1.95E-02	7.25E-03	7.69E+02	6.42E-03
			Single Unit Long-haul Truck	1.30E+01	6.17E-03	3.53E-03	1.28E-02	4.81E-03	8.02E+02	6.66E-03
			Single Unit Short-haul Truck	1.33E+01	6.14E-03	3.38E-03	1.30E-02	4.93E-03	8.54E+02	6.46E-03
			Transit Bus	1.78E+01	8.72E-03	4.22E-03	2.76E-02	1.02E-02	1.12E+03	8.41E-03
			Motor Home	1.63E+01	6.38E-03	4.81E-03	1.68E-02	6.07E-03	8.68E+02	8.54E-03
			Refuse Truck	2.01E+01	6.28E-03	3.48E-03	2.29E-02	8.17E-03	1.42E+03	9.21E-03
			Light Commercial Truck	3.24E+00	3.34E-03	1.47E-03	1.93E-03	7.44E-04	3.49E+02	1.16E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.60E+01	8.84E-03	3.98E-02			9.36E+02	3.98E-03
	2029	Diesel Fuel	Combination Long-haul Truck	4.02E-01	3.99E-02	1.77E-03	5.08E-04	7.66E-03	1.95E+03	4.48E-02
			Combination Short-haul Truck	3.72E-01	4.00E-02	1.77E-03	4.69E-04	7.28E-03	1.87E+03	3.44E-02
			Intercity Bus	5.67E-01	4.35E-02	1.96E-03	7.71E-04	1.05E-02	1.62E+03	6.95E-02
			Passenger Car	1.39E+00	1.10E-02	3.82E-04	1.06E-04	1.77E-03	2.61E+02	3.35E-03
			Passenger Truck	7.50E-01	2.50E-02	1.51E-03	3.81E-04	5.42E-03	5.95E+02	1.52E-02
			School Bus	3.98E-01	3.65E-02	1.96E-03	6.68E-04	9.03E-03	8.15E+02	3.83E-02
			Single Unit Long-haul Truck	3.44E-01	4.45E-02	1.88E-03	5.24E-04	8.13E-03	8.01E+02	1.72E-02
			Single Unit Short-haul Truck	3.29E-01	4.41E-02	1.88E-03	4.83E-04	7.69E-03	8.56E+02	1.55E-02

MOVES EMISSION FACTORS -- WYOMING

RoadType	yearID	FuelType	SourceType	CO g/mi	Methane (CH4) g/mi	N2O g/mi	Benzene g/mi	Formaldehyde g/mi	CO2 Equivalent g/mi	PM2.5 Total Exh g/mi
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	2.25E+00	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	4.29E-01
			Combination Short-haul Truck	2.06E+00	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	3.84E-01
			Intercity Bus	2.80E+00	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	5.60E-01
			Passenger Car	3.73E-01	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	1.43E-02
			Passenger Truck	1.32E+00	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	1.23E-01
			School Bus	1.72E+00	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	2.88E-01
			Single Unit Long-haul Truck	1.29E+00	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	1.48E-01
			Single Unit Short-haul Truck	1.25E+00	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	1.52E-01
			Transit Bus	2.79E+00	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	4.21E-01
			Motor Home	1.63E+00	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	2.24E-01
			Refuse Truck	2.16E+00	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	3.95E-01
			Light Commercial Truck	1.67E+00	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	1.60E-01
		Gasoline	Combination Short-haul Truck	1.34E+02	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	1.21E-01
			Motorcycle	1.57E+01	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	4.33E-02
			Passenger Car	2.31E+00	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	8.31E-03
			Passenger Truck	5.01E+00	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	1.40E-02
			School Bus	3.12E+01	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	3.04E-02
			Single Unit Long-haul Truck	1.43E+01	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	7.63E-03
			Single Unit Short-haul Truck	1.58E+01	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	9.03E-03
			Transit Bus	2.90E+01	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	9.67E-03
			Motor Home	2.52E+01	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	2.11E-02
			Refuse Truck	3.79E+01	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	1.44E-02
			Light Commercial Truck	5.23E+00	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	1.37E-02
		Compressed Natural Gas (CNG)	Transit Bus	3.74E+01	2.21E-02	3.98E-02			9.37E+02	5.37E-03
	2014	Diesel Fuel	Combination Long-haul Truck	2.00E+00	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	3.77E-01
			Combination Short-haul Truck	1.81E+00	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	3.31E-01
			Intercity Bus	2.56E+00	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	5.00E-01
			Passenger Car	4.57E-01	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	1.18E-02
			Passenger Truck	1.21E+00	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	1.07E-01
			School Bus	1.58E+00	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	2.60E-01
			Transit Bus	4.05E-01	3.62E-02	1.96E-03	5.80E-04	8.13E-03	1.19E+03	4.23E-02
			Motor Home	4.68E-01	4.55E-02	1.88E-03	7.95E-04	1.09E-02	8.85E+02	3.09E-02
			Refuse Truck	3.75E-01	4.21E-02	1.88E-03	4.89E-04	7.62E-03	1.53E+03	3.24E-02
			Light Commercial Truck	7.57E-01	2.46E-02	1.54E-03	4.96E-04	6.55E-03	5.91E+02	2.08E-02
		Gasoline	Motorcycle	1.30E+01	2.88E-02	1.94E-03	2.10E-02	8.21E-03	3.72E+02	4.33E-02
			Passenger Car	1.58E+00	4.30E-03	9.02E-04	5.40E-04	2.05E-04	2.58E+02	6.70E-03
			Passenger Truck	2.87E+00	3.19E-03	1.26E-03	1.45E-03	5.54E-04	3.44E+02	1.17E-02
			School Bus	1.36E+01	8.20E-03	4.47E-03	1.96E-02	7.26E-03	7.69E+02	6.42E-03
			Single Unit Long-haul Truck	1.30E+01	6.03E-03	3.42E-03	1.28E-02	4.81E-03	8.02E+02	6.66E-03
			Single Unit Short-haul Truck	1.33E+01	6.00E-03	3.30E-03	1.30E-02	4.93E-03	8.54E+02	6.46E-03
			Transit Bus	1.78E+01	8.51E-03	3.97E-03	2.76E-02	1.02E-02	1.12E+03	8.39E-03
			Motor Home	1.63E+01	6.23E-03	4.44E-03	1.68E-02	6.08E-03	8.68E+02	8.50E-03
			Refuse Truck	2.01E+01	6.15E-03	3.37E-03	2.29E-02	8.17E-03	1.42E+03	9.18E-03
			Light Commercial Truck	3.19E+00	3.23E-03	1.40E-03	1.87E-03	7.21E-04	3.47E+02	1.15E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.60E+01	8.61E-03	3.98E-02			9.36E+02	3.93E-03
	2030	**Diesel Fuel**	**Combination Long-haul Truck**	3.79E-01	4.00E-02	1.77E-03	4.76E-04	7.35E-03	1.95E+03	4.04E-02
			Combination Short-haul Truck	3.57E-01	4.01E-02	1.77E-03	4.46E-04	7.06E-03	1.87E+03	3.16E-02
			Intercity Bus	5.17E-01	4.38E-02	1.96E-03	7.04E-04	9.87E-03	1.62E+03	6.12E-02
			Passenger Car	1.40E+00	1.12E-02	3.82E-04	1.07E-04	1.79E-03	2.60E+02	3.34E-03
			Passenger Truck	7.44E-01	2.52E-02	1.51E-03	3.49E-04	5.12E-03	5.95E+02	1.36E-02
			School Bus	3.67E-01	3.68E-02	1.96E-03	6.07E-04	8.44E-03	8.15E+02	3.36E-02
			Single Unit Long-haul Truck	3.34E-01	4.46E-02	1.88E-03	5.01E-04	7.89E-03	8.01E+02	1.59E-02
			Single Unit Short-haul Truck	3.22E-01	4.42E-02	1.88E-03	4.67E-04	7.53E-03	8.56E+02	1.46E-02
			Transit Bus	3.69E-01	3.63E-02	1.96E-03	5.28E-04	7.63E-03	1.19E+03	3.73E-02
			Motor Home	4.43E-01	4.57E-02	1.88E-03	7.30E-04	1.03E-02	8.85E+02	2.75E-02
			Refuse Truck	3.60E-01	4.22E-02	1.88E-03	4.67E-04	7.40E-03	1.53E+03	2.98E-02
			Light Commercial Truck	7.39E-01	2.49E-02	1.54E-03	4.41E-04	6.02E-03	5.91E+02	1.81E-02
		Gasoline	Motorcycle	1.29E+01	2.88E-02	1.94E-03	2.09E-02	8.17E-03	3.72E+02	4.33E-02
			Passenger Car	1.58E+00	4.18E-03	9.02E-04	5.45E-04	2.07E-04	2.57E+02	6.72E-03
			Passenger Truck	2.83E+00	3.07E-03	1.22E-03	1.39E-03	5.34E-04	3.42E+02	1.17E-02
			School Bus	1.36E+01	7.88E-03	4.19E-03	1.96E-02	7.28E-03	7.69E+02	6.47E-03
			Single Unit Long-haul Truck	1.30E+01	5.82E-03	3.33E-03	1.29E-02	4.81E-03	8.02E+02	6.68E-03
			Single Unit Short-haul Truck	1.33E+01	5.80E-03	3.24E-03	1.30E-02	4.94E-03	8.54E+02	6.47E-03
			Transit Bus	1.78E+01	8.20E-03	3.79E-03	2.76E-02	1.03E-02	1.12E+03	8.40E-03
			Motor Home	1.63E+01	5.99E-03	4.11E-03	1.68E-02	6.09E-03	8.68E+02	8.56E-03
			Refuse Truck	2.01E+01	5.98E-03	3.28E-03	2.29E-02	8.17E-03	1.42E+03	9.17E-03
			Light Commercial Truck	3.15E+00	3.10E-03	1.35E-03	1.81E-03	7.04E-04	3.45E+02	1.15E-02
		Compressed Natural Gas (CNG)	Transit Bus	1.59E+01	8.28E-03	3.98E-02			9.36E+02	3.92E-03

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Single Unit Long-haul Truck	2.68E+00	1.84E-01	1.41E-01	5.85E-03	1.15E+00	3.14E-01	8.00E+02	3.86E-02	1.88E-03	2.44E-03	2.69E-02	8.01E+02	
			Single Unit Short-haul Truck	2.76E+00	1.85E-01	1.41E-01	6.22E-03	1.10E+00	2.91E-01	8.55E+02	3.91E-02	1.88E-03	2.28E-03	2.52E-02	8.56E+02	
			Transit Bus	7.76E+00	4.26E-01	3.83E-01	8.92E-03	2.52E+00	4.64E-01	1.19E+03	2.35E-02	1.96E-03	3.43E-03	3.57E-02	1.19E+03	
			Motor Home	4.03E+00	2.46E-01	2.09E-01	6.59E-03	1.51E+00	4.65E-01	8.83E+02	3.49E-02	1.88E-03	3.55E-03	3.77E-02	8.84E+02	
			Refuse Truck	7.58E+00	4.19E-01	3.59E-01	1.14E-02	1.90E+00	3.95E-01	1.52E+03	2.99E-02	1.88E-03	2.84E-03	3.03E-02	1.53E+03	
			Light Commercial Truck	2.41E+00	1.66E-01	1.47E-01	4.73E-03	1.54E+00	3.31E-01	6.22E+02	1.37E-02	1.54E-03	2.56E-03	2.64E-02	6.23E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.64E-01	1.28E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.18E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.39E-01	5.03E-02	4.41E-02	6.50E-03	1.53E+01	9.13E-01	3.70E+02	2.89E-02	1.95E-03	2.55E-02	9.93E-03	3.71E+02	
			Passenger Car	3.11E-01	2.12E-02	1.11E-02	5.50E-03	2.15E+00	6.07E-02	3.13E+02	4.58E-03	1.37E-03	1.54E-03	5.50E-04	3.14E+02	
			Passenger Truck	8.58E-01	3.23E-02	1.81E-02	7.58E-03	4.74E+00	1.93E-01	4.31E+02	6.80E-03	3.91E-03	4.88E-03	1.74E-03	4.33E+02	
			School Bus	4.22E+00	7.23E-02	3.78E-02	1.35E-02	2.96E+01	1.47E+00	7.67E+02	4.99E-02	1.38E-02	3.87E-02	1.38E-02	7.73E+02	
			Single Unit Long-haul Truck	3.29E+00	5.30E-02	1.91E-02	1.41E-02	1.41E+01	6.38E-01	8.01E+02	8.04E-03	9.38E-03	1.39E-02	5.11E-03	8.04E+02	
			Single Unit Short-haul Truck	3.44E+00	5.41E-02	2.00E-02	1.50E-02	1.53E+01	6.35E-01	8.53E+02	9.50E-03	8.98E-03	1.50E-02	5.58E-03	8.56E+02	
			Transit Bus	4.03E+00	5.21E-02	2.03E-02	1.97E-02	2.75E+01	1.40E+00	1.12E+03	1.45E-02	1.22E-02	3.12E-02	1.14E-02	1.13E+03	
			Motor Home	4.33E+00	6.23E-02	3.02E-02	1.52E-02	2.43E+01	1.11E+00	8.67E+02	2.25E-02	1.37E-02	2.52E-02	8.95E-03	8.71E+02	
			Refuse Truck	5.46E+00	5.22E-02	2.34E-02	2.49E-02	3.52E+01	1.54E+00	1.42E+03	1.34E-02	1.08E-02	3.15E-02	1.12E-02	1.42E+03	
			Light Commercial Truck	9.45E-01	3.22E-02	1.79E-02	7.50E-03	4.96E+00	2.05E-01	4.27E+02	7.11E-03	4.36E-03	5.22E-03	1.88E-03	4.29E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.50E+00	4.69E-02	1.60E-02	0.00E+00	3.49E+01	0.00E+00	9.23E+02	2.04E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2015	Diesel Fuel	Combination Long-haul Truck	7.61E+00	4.00E-01	3.45E-01	1.44E-02	1.77E+00	3.51E-01	1.94E+03	3.05E-02	1.76E-03	2.39E-03	2.58E-02	1.95E+03	
			Combination Short-haul Truck	6.87E+00	3.47E-01	2.98E-01	1.37E-02	1.59E+00	3.32E-01	1.86E+03	3.19E-02	1.76E-03	2.28E-03	2.48E-02	1.87E+03	
			Intercity Bus	9.51E+00	5.35E-01	4.61E-01	1.22E-02	2.32E+00	4.26E-01	1.62E+03	2.98E-02	1.96E-03	3.05E-03	3.23E-02	1.62E+03	
			Passenger Car	4.30E-01	2.26E-02	1.29E-02	2.44E-03	5.37E-01	2.18E-02	3.34E+02	3.35E-03	3.82E-04	1.42E-04	1.63E-03	3.34E+02	
			Passenger Truck	1.74E+00	1.14E-01	9.74E-02	4.62E-03	1.11E+00	2.14E-01	6.24E+02	1.79E-02	1.51E-03	1.66E-03	1.77E-02	6.25E+02	
			School Bus	4.61E+00	3.10E-01	2.51E-01	6.11E-03	1.45E+00	3.74E-01	8.13E+02	2.56E-02	1.96E-03	2.82E-03	2.98E-02	8.15E+02	
			Single Unit Long-haul Truck	2.38E+00	1.65E-01	1.23E-01	5.79E-03	1.04E+00	2.77E-01	8.00E+02	4.01E-02	1.88E-03	2.16E-03	2.42E-02	8.01E+02	
			Single Unit Short-haul Truck	2.41E+00	1.63E-01	1.21E-01	6.16E-03	9.69E-01	2.52E-01	8.55E+02	4.06E-02	1.88E-03	1.98E-03	2.23E-02	8.56E+02	
			Transit Bus	6.86E+00	3.79E-01	3.38E-01	8.83E-03	2.25E+00	4.19E-01	1.19E+03	2.62E-02	1.96E-03	3.09E-03	3.25E-02	1.19E+03	
			Motor Home	3.64E+00	2.22E-01	1.85E-01	6.53E-03	1.39E+00	4.24E-01	8.83E+02	3.70E-02	1.88E-03	3.24E-03	3.47E-02	8.84E+02	
			Refuse Truck	6.60E+00	3.69E-01	3.10E-01	1.12E-02	1.67E+00	3.49E-01	1.52E+03	3.20E-02	1.88E-03	2.49E-03	2.69E-02	1.53E+03	
			Light Commercial Truck	2.21E+00	1.49E-01	1.30E-01	4.67E-03	1.42E+00	2.96E-01	6.20E+02	1.49E-02	1.54E-03	2.29E-03	2.38E-02	6.21E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.53E-01	1.18E-01	3.02E-02	1.34E+02	4.58E+00	1.72E+03	8.91E-02	1.16E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.30E-01	5.03E-02	4.41E-02	6.50E-03	1.49E+01	8.92E-01	3.70E+02	2.89E-02	1.95E-03	2.48E-02	9.65E-03	3.71E+02	
			Passenger Car	2.61E-01	2.08E-02	1.07E-02	5.41E-03	2.01E+00	5.12E-02	3.08E+02	4.39E-03	1.22E-03	1.29E-03	4.63E-04	3.08E+02	
			Passenger Truck	7.86E-01	3.20E-02	1.78E-02	7.43E-03	4.48E+00	1.74E-01	4.23E+02	6.33E-03	3.53E-03	4.40E-03	1.58E-03	4.24E+02	
			School Bus	3.95E+00	6.50E-02	3.11E-02	1.35E-02	2.75E+01	1.37E+00	7.67E+02	4.25E-02	1.32E-02	3.52E-02	1.26E-02	7.72E+02	
			Single Unit Long-haul Truck	3.25E+00	5.28E-02	1.89E-02	1.41E-02	1.38E+01	6.27E-01	8.01E+02	7.61E-03	8.44E-03	1.36E-02	5.02E-03	8.04E+02	
			Single Unit Short-haul Truck	3.38E+00	5.35E-02	1.95E-02	1.50E-02	1.48E+01	6.15E-01	8.53E+02	8.67E-03	8.00E-03	1.45E-02	5.40E-03	8.56E+02	
			Transit Bus	3.97E+00	5.19E-02	2.02E-02	1.97E-02	2.61E+01	1.39E+00	1.12E+03	1.35E-02	1.12E-02	3.06E-02	1.12E-02	1.13E+03	
			Motor Home	4.19E+00	5.96E-02	2.77E-02	1.52E-02	2.33E+01	1.08E+00	8.67E+02	1.99E-02	1.29E-02	2.39E-02	8.49E-03	8.71E+02	
			Refuse Truck	5.32E+00	5.14E-02	2.26E-02	2.49E-02	3.26E+01	1.49E+00	1.42E+03	1.20E-02	9.71E-03	3.00E-02	1.07E-02	1.42E+03	
			Light Commercial Truck	8.75E-01	3.19E-02	1.76E-02	7.37E-03	4.71E+00	1.86E-01	4.20E+02	6.61E-03	3.93E-03	4.74E-03	1.71E-03	4.21E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.45E+00	4.68E-02	1.59E-02	0.00E+00	3.25E+01	0.00E+00	9.23E+02	1.88E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2016	Diesel Fuel	Combination Long-haul Truck	6.74E+00	3.56E-01	3.03E-01	1.42E-02	1.56E+00	3.15E-01	1.94E+03	3.21E-02	1.76E-03	2.11E-03	2.31E-02	1.95E+03	
			Combination Short-haul Truck	5.99E+00	3.04E-01	2.56E-01	1.35E-02	1.39E+00	2.93E-01	1.86E+03	3.35E-02	1.76E-03	1.98E-03	2.19E-02	1.87E+03	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Intercity Bus	8.51E+00	4.77E-01	4.04E-01	1.20E-02	2.10E+00	3.89E-01	1.62E+03	3.17E-02	1.96E-03	2.77E-03	2.96E-02	1.62E+03	
			Passenger Car	3.66E-01	2.08E-02	1.11E-02	2.35E-03	6.30E-01	1.92E-02	3.24E+02	4.04E-03	3.82E-04	1.26E-04	1.52E-03	3.24E+02	
			Passenger Truck	1.58E+00	1.01E-01	8.51E-02	4.55E-03	1.04E+00	1.88E-01	6.21E+02	1.89E-02	1.51E-03	1.46E-03	1.58E-02	6.22E+02	
			School Bus	4.18E+00	2.84E-01	2.26E-01	6.06E-03	1.33E+00	3.42E-01	8.13E+02	2.71E-02	1.96E-03	2.58E-03	2.75E-02	8.15E+02	
			Single Unit Long-haul Truck	2.12E+00	1.49E-01	1.07E-01	5.74E-03	9.29E-01	2.45E-01	8.00E+02	4.12E-02	1.88E-03	1.92E-03	2.18E-02	8.01E+02	
			Single Unit Short-haul Truck	2.12E+00	1.46E-01	1.03E-01	6.10E-03	8.59E-01	2.19E-01	8.55E+02	4.16E-02	1.88E-03	1.72E-03	1.99E-02	8.56E+02	
			Transit Bus	6.06E+00	3.36E-01	2.96E-01	8.75E-03	2.00E+00	3.77E-01	1.19E+03	2.82E-02	1.96E-03	2.77E-03	2.94E-02	1.19E+03	
			Motor Home	3.30E+00	2.00E-01	1.65E-01	6.48E-03	1.29E+00	3.87E-01	8.83E+02	3.85E-02	1.88E-03	2.96E-03	3.20E-02	8.85E+02	
			Refuse Truck	5.73E+00	3.24E-01	2.66E-01	1.11E-02	1.46E+00	3.06E-01	1.52E+03	3.39E-02	1.88E-03	2.16E-03	2.38E-02	1.53E+03	
			Light Commercial Truck	2.02E+00	1.34E-01	1.16E-01	4.61E-03	1.31E+00	2.64E-01	6.17E+02	1.61E-02	1.54E-03	2.05E-03	2.14E-02	6.18E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.55E-01	1.17E-01	3.02E-02	1.34E+02	4.58E+00	1.72E+03	8.72E-02	1.23E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.23E-01	5.03E-02	4.41E-02	6.51E-03	1.46E+01	8.75E-01	3.70E+02	2.89E-02	1.95E-03	2.42E-02	9.42E-03	3.72E+02	
			Passenger Car	2.18E-01	2.05E-02	1.04E-02	5.30E-03	1.89E+00	4.34E-02	3.01E+02	4.22E-03	1.11E-03	1.08E-03	3.90E-04	3.02E+02	
			Passenger Truck	7.16E-01	3.17E-02	1.75E-02	7.28E-03	4.23E+00	1.54E-01	4.14E+02	5.74E-03	3.19E-03	3.90E-03	1.40E-03	4.15E+02	
			School Bus	3.67E+00	6.05E-02	2.70E-02	1.35E-02	2.54E+01	1.26E+00	7.67E+02	3.55E-02	1.24E-02	3.16E-02	1.14E-02	7.72E+02	
			Single Unit Long-haul Truck	3.22E+00	5.26E-02	1.87E-02	1.41E-02	1.36E+01	6.18E-01	8.01E+02	7.25E-03	7.62E-03	1.34E-02	4.95E-03	8.03E+02	
			Single Unit Short-haul Truck	3.33E+00	5.31E-02	1.91E-02	1.50E-02	1.44E+01	5.98E-01	8.53E+02	8.00E-03	7.17E-03	1.40E-02	5.25E-03	8.55E+02	
			Transit Bus	3.92E+00	5.18E-02	2.01E-02	1.97E-02	2.48E+01	1.37E+00	1.12E+03	1.27E-02	1.02E-02	3.00E-02	1.10E-02	1.13E+03	
			Motor Home	4.05E+00	5.78E-02	2.60E-02	1.52E-02	2.24E+01	1.04E+00	8.67E+02	1.77E-02	1.21E-02	2.27E-02	8.07E-03	8.71E+02	
			Refuse Truck	5.19E+00	5.07E-02	2.20E-02	2.49E-02	3.03E+01	1.45E+00	1.42E+03	1.08E-02	8.72E-03	2.86E-02	1.02E-02	1.42E+03	
			Light Commercial Truck	8.09E-01	3.16E-02	1.73E-02	7.23E-03	4.46E+00	1.67E-01	4.11E+02	5.98E-03	3.56E-03	4.25E-03	1.54E-03	4.13E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.40E+00	4.67E-02	1.58E-02	0.00E+00	3.03E+01	0.00E+00	9.23E+02	1.74E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2017	Diesel Fuel	Combination Long-haul Truck	5.96E+00	3.16E-01	2.64E-01	1.41E-02	1.38E+00	2.82E-01	1.94E+03	3.34E-02	1.76E-03	1.86E-03	2.07E-02	1.95E+03	
			Combination Short-haul Truck	5.21E+00	2.65E-01	2.18E-01	1.34E-02	1.21E+00	2.60E-01	1.86E+03	3.47E-02	1.76E-03	1.73E-03	1.95E-02	1.87E+03	
			Intercity Bus	7.58E+00	4.23E-01	3.52E-01	1.19E-02	1.89E+00	3.54E-01	1.62E+03	3.34E-02	1.96E-03	2.50E-03	2.71E-02	1.62E+03	
			Passenger Car	3.06E-01	1.95E-02	9.90E-03	2.26E-03	7.17E-01	1.71E-02	3.15E+02	4.68E-03	3.82E-04	1.13E-04	1.43E-03	3.15E+02	
			Passenger Truck	1.44E+00	8.97E-02	7.39E-02	4.49E-03	9.72E-01	1.65E-01	6.18E+02	1.98E-02	1.51E-03	1.29E-03	1.41E-02	6.19E+02	
			School Bus	3.77E+00	2.58E-01	2.01E-01	6.01E-03	1.21E+00	3.11E-01	8.13E+02	2.84E-02	1.96E-03	2.34E-03	2.52E-02	8.15E+02	
			Single Unit Long-haul Truck	1.90E+00	1.36E-01	9.37E-02	5.70E-03	8.33E-01	2.16E-01	8.00E+02	4.18E-02	1.88E-03	1.69E-03	1.96E-02	8.01E+02	
			Single Unit Short-haul Truck	1.87E+00	1.31E-01	8.86E-02	6.06E-03	7.63E-01	1.90E-01	8.55E+02	4.21E-02	1.88E-03	1.50E-03	1.77E-02	8.56E+02	
			Transit Bus	5.33E+00	2.95E-01	2.57E-01	8.67E-03	1.77E+00	3.36E-01	1.19E+03	3.01E-02	1.96E-03	2.45E-03	2.64E-02	1.19E+03	
			Motor Home	2.99E+00	1.82E-01	1.46E-01	6.43E-03	1.18E+00	3.52E-01	8.83E+02	3.96E-02	1.88E-03	2.68E-03	2.93E-02	8.85E+02	
			Refuse Truck	4.95E+00	2.83E-01	2.26E-01	1.10E-02	1.27E+00	2.69E-01	1.52E+03	3.54E-02	1.88E-03	1.87E-03	2.10E-02	1.53E+03	
			Light Commercial Truck	1.85E+00	1.20E-01	1.03E-01	4.55E-03	1.22E+00	2.35E-01	6.15E+02	1.73E-02	1.54E-03	1.83E-03	1.93E-02	6.15E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.55E-01	1.17E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	8.16E-02	1.41E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.17E-01	5.03E-02	4.41E-02	6.51E-03	1.44E+01	8.62E-01	3.70E+02	2.89E-02	1.95E-03	2.37E-02	9.23E-03	3.72E+02	
			Passenger Car	1.84E-01	2.02E-02	1.02E-02	5.19E-03	1.79E+00	3.75E-02	2.96E+02	4.11E-03	1.04E-03	9.19E-04	3.35E-04	2.96E+02	
			Passenger Truck	6.57E-01	3.15E-02	1.73E-02	7.13E-03	4.03E+00	1.39E-01	4.06E+02	5.30E-03	2.90E-03	3.52E-03	1.27E-03	4.07E+02	
			School Bus	3.44E+00	5.83E-02	2.50E-02	1.35E-02	2.35E+01	1.18E+00	7.67E+02	2.99E-02	1.17E-02	2.87E-02	1.03E-02	7.72E+02	
			Single Unit Long-haul Truck	3.20E+00	5.25E-02	1.86E-02	1.41E-02	1.34E+01	6.11E-01	8.01E+02	7.14E-03	6.91E-03	1.32E-02	4.89E-03	8.03E+02	
			Single Unit Short-haul Truck	3.30E+00	5.27E-02	1.88E-02	1.50E-02	1.41E+01	5.85E-01	8.53E+02	7.60E-03	6.47E-03	1.37E-02	5.14E-03	8.55E+02	
			Transit Bus	3.87E+00	5.17E-02	2.00E-02	1.97E-02	2.37E+01	1.36E+00	1.12E+03	1.23E-02	9.36E-03	2.96E-02	1.08E-02	1.13E+03	
			Motor Home	3.94E+00	5.67E-02	2.49E-02	1.52E-02	2.16E+01	1.01E+00	8.67E+02	1.59E-02	1.12E-02	2.17E-02	7.71E-03	8.71E+02	
			Refuse Truck	5.08E+00	4.99E-02	2.13E-02	2.49E-02	2.83E+01	1.42E+00	1.42E+03	9.89E-03	7.84E-03	2.74E-02	9.74E-03	1.42E+03	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Light Commercial Truck	7.52E-01	3.14E-02	1.71E-02	7.09E-03	4.28E+00	1.51E-01	4.04E+02	5.53E-03	3.23E-03	3.88E-03	1.41E-03	4.05E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.36E+00	4.67E-02	1.58E-02	0.00E+00	2.84E+01	0.00E+00	9.23E+02	1.64E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2018	Diesel Fuel	Combination Long-haul Truck	5.26E+00	2.81E-01	2.30E-01	1.40E-02	1.21E+00	2.52E-01	1.94E+03	3.45E-02	1.76E-03	1.63E-03	1.85E-02	1.95E+03	
			Combination Short-haul Truck	4.53E+00	2.31E-01	1.85E-01	1.33E-02	1.06E+00	2.29E-01	1.86E+03	3.57E-02	1.76E-03	1.49E-03	1.72E-02	1.87E+03	
			Intercity Bus	6.73E+00	3.69E-01	2.99E-01	1.18E-02	1.70E+00	3.22E-01	1.62E+03	3.49E-02	1.96E-03	2.26E-03	2.48E-02	1.62E+03	
			Passenger Car	2.53E-01	1.85E-02	8.93E-03	2.19E-03	8.04E-01	1.54E-02	3.07E+02	5.45E-03	3.82E-04	1.04E-04	1.39E-03	3.07E+02	
			Passenger Truck	1.32E+00	8.03E-02	6.48E-02	4.44E-03	9.23E-01	1.45E-01	6.15E+02	2.06E-02	1.51E-03	1.14E-03	1.27E-02	6.16E+02	
			School Bus	3.39E+00	2.33E-01	1.77E-01	5.96E-03	1.10E+00	2.80E-01	8.13E+02	2.95E-02	1.96E-03	2.10E-03	2.29E-02	8.15E+02	
			Single Unit Long-haul Truck	1.71E+00	1.24E-01	8.24E-02	5.67E-03	7.43E-01	1.87E-01	8.00E+02	4.24E-02	1.88E-03	1.47E-03	1.74E-02	8.01E+02	
			Single Unit Short-haul Truck	1.67E+00	1.18E-01	7.64E-02	6.03E-03	6.76E-01	1.64E-01	8.55E+02	4.26E-02	1.88E-03	1.29E-03	1.57E-02	8.56E+02	
			Transit Bus	4.69E+00	2.57E-01	2.19E-01	8.60E-03	1.55E+00	2.98E-01	1.19E+03	3.14E-02	1.96E-03	2.16E-03	2.36E-02	1.19E+03	
			Motor Home	2.72E+00	1.65E-01	1.30E-01	6.39E-03	1.08E+00	3.14E-01	8.83E+02	4.05E-02	1.88E-03	2.39E-03	2.65E-02	8.85E+02	
			Refuse Truck	4.27E+00	2.46E-01	1.90E-01	1.09E-02	1.10E+00	2.35E-01	1.52E+03	3.67E-02	1.88E-03	1.62E-03	1.85E-02	1.53E+03	
			Light Commercial Truck	1.69E+00	1.08E-01	9.11E-02	4.49E-03	1.14E+00	2.09E-01	6.12E+02	1.83E-02	1.54E-03	1.63E-03	1.74E-02	6.13E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.56E-01	1.18E-01	3.02E-02	1.34E+02	4.58E+00	1.72E+03	7.69E-02	1.57E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.12E-01	5.03E-02	4.41E-02	6.51E-03	1.42E+01	8.50E-01	3.71E+02	2.89E-02	1.95E-03	2.33E-02	9.07E-03	3.72E+02	
			Passenger Car	1.58E-01	2.00E-02	1.00E-02	5.09E-03	1.72E+00	3.32E-02	2.90E+02	4.03E-03	9.91E-04	8.02E-04	2.95E-04	2.90E+02	
			Passenger Truck	6.06E-01	3.12E-02	1.71E-02	6.99E-03	3.86E+00	1.26E-01	3.98E+02	4.92E-03	2.64E-03	3.20E-03	1.16E-03	3.99E+02	
			School Bus	3.24E+00	5.66E-02	2.34E-02	1.35E-02	2.18E+01	1.11E+00	7.67E+02	2.48E-02	1.09E-02	2.63E-02	9.51E-03	7.71E+02	
			Single Unit Long-haul Truck	3.18E+00	5.24E-02	1.85E-02	1.41E-02	1.33E+01	6.06E-01	8.01E+02	7.01E-03	6.31E-03	1.31E-02	4.86E-03	8.03E+02	
			Single Unit Short-haul Truck	3.27E+00	5.25E-02	1.85E-02	1.50E-02	1.39E+01	5.76E-01	8.53E+02	7.26E-03	5.87E-03	1.35E-02	5.07E-03	8.55E+02	
			Transit Bus	3.83E+00	5.16E-02	1.99E-02	1.97E-02	2.28E+01	1.35E+00	1.12E+03	1.19E-02	8.59E-03	2.92E-02	1.07E-02	1.13E+03	
			Motor Home	3.83E+00	5.55E-02	2.39E-02	1.52E-02	2.08E+01	9.87E-01	8.67E+02	1.41E-02	1.05E-02	2.07E-02	7.38E-03	8.70E+02	
			Refuse Truck	4.99E+00	4.93E-02	2.08E-02	2.49E-02	2.67E+01	1.39E+00	1.42E+03	9.08E-03	7.06E-03	2.64E-02	9.39E-03	1.42E+03	
			Light Commercial Truck	7.04E-01	3.11E-02	1.69E-02	6.96E-03	4.12E+00	1.38E-01	3.96E+02	5.14E-03	2.95E-03	3.56E-03	1.30E-03	3.97E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.32E+00	4.66E-02	1.57E-02	0.00E+00	2.67E+01	0.00E+00	9.23E+02	1.55E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2019	**Diesel Fuel**	**Combination Long-haul Truck**	4.65E+00	2.50E-01	2.00E-01	1.39E-02	1.07E+00	2.27E-01	1.94E+03	3.55E-02	1.76E-03	1.43E-03	1.66E-02	1.95E+03	
			Combination Short-haul Truck	3.95E+00	2.04E-01	1.58E-01	1.32E-02	9.21E-01	2.03E-01	1.86E+03	3.66E-02	1.76E-03	1.29E-03	1.53E-02	1.87E+03	
			Intercity Bus	5.98E+00	3.37E-01	2.68E-01	1.18E-02	1.53E+00	2.94E-01	1.62E+03	3.62E-02	1.96E-03	2.04E-03	2.27E-02	1.62E+03	
			Passenger Car	2.10E-01	1.78E-02	8.23E-03	2.12E-03	8.88E-01	1.42E-02	2.99E+02	6.19E-03	3.82E-04	9.76E-05	1.38E-03	3.00E+02	
			Passenger Truck	1.21E+00	7.27E-02	5.74E-02	4.39E-03	8.83E-01	1.28E-01	6.13E+02	2.14E-02	1.51E-03	1.01E-03	1.14E-02	6.13E+02	
			School Bus	3.04E+00	2.15E-01	1.59E-01	5.92E-03	9.93E-01	2.51E-01	8.13E+02	3.06E-02	1.96E-03	1.88E-03	2.07E-02	8.15E+02	
			Single Unit Long-haul Truck	1.55E+00	1.14E-01	7.28E-02	5.64E-03	6.65E-01	1.63E-01	8.00E+02	4.28E-02	1.88E-03	1.28E-03	1.56E-02	8.01E+02	
			Single Unit Short-haul Truck	1.49E+00	1.08E-01	6.67E-02	5.99E-03	6.03E-01	1.41E-01	8.55E+02	4.30E-02	1.88E-03	1.12E-03	1.39E-02	8.56E+02	
			Transit Bus	4.12E+00	2.29E-01	1.92E-01	8.54E-03	1.36E+00	2.65E-01	1.19E+03	3.25E-02	1.96E-03	1.90E-03	2.11E-02	1.19E+03	
			Motor Home	2.48E+00	1.50E-01	1.16E-01	6.35E-03	9.77E-01	2.79E-01	8.83E+02	4.14E-02	1.88E-03	2.12E-03	2.38E-02	8.85E+02	
			Refuse Truck	3.68E+00	2.18E-01	1.63E-01	1.08E-02	9.60E-01	2.06E-01	1.52E+03	3.78E-02	1.88E-03	1.40E-03	1.64E-02	1.53E+03	
			Light Commercial Truck	1.55E+00	9.76E-02	8.08E-02	4.43E-03	1.07E+00	1.85E-01	6.09E+02	1.93E-02	1.54E-03	1.45E-03	1.57E-02	6.10E+02	
		Gasoline	Motorcycle	8.07E-01	5.03E-02	4.41E-02	6.51E-03	1.40E+01	8.40E-01	3.71E+02	2.88E-02	1.95E-03	2.29E-02	8.94E-03	3.72E+02	
			Passenger Car	1.37E-01	1.99E-02	9.90E-03	5.01E-03	1.66E+00	3.00E-02	2.85E+02	4.02E-03	9.57E-04	7.17E-04	2.65E-04	2.85E+02	
			Passenger Truck	5.60E-01	3.11E-02	1.70E-02	6.86E-03	3.70E+00	1.15E-01	3.90E+02	4.57E-03	2.41E-03	2.92E-03	1.06E-03	3.91E+02	
			School Bus	3.07E+00	5.45E-02	2.15E-02	1.35E-02	2.02E+01	1.05E+00	7.67E+02	2.07E-02	9.99E-03	2.42E-02	8.79E-03	7.71E+02	
			Single Unit Long-haul Truck	3.17E+00	5.23E-02	1.84E-02	1.41E-02	1.32E+01	6.02E-01	8.01E+02	6.62E-03	5.79E-03	1.30E-02	4.84E-03	8.03E+02	
			Single Unit Short-haul Truck	3.25E+00	5.23E-02	1.83E-02	1.50E-02	1.37E+01	5.69E-01	8.53E+02	6.78E-03	5.37E-03	1.33E-02	5.02E-03	8.55E+02	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Transit Bus	3.80E+00	5.14E-02	1.98E-02	1.97E-02	2.21E+01	1.35E+00	1.12E+03	1.11E-02	7.90E-03	2.89E-02	1.06E-02	1.13E+03	
			Motor Home	3.74E+00	5.43E-02	2.27E-02	1.52E-02	2.02E+01	9.64E-01	8.67E+02	1.24E-02	9.70E-03	1.99E-02	7.10E-03	8.70E+02	
			Refuse Truck	4.91E+00	4.88E-02	2.03E-02	2.49E-02	2.53E+01	1.37E+00	1.42E+03	8.30E-03	6.37E-03	2.55E-02	9.10E-03	1.42E+03	
			Light Commercial Truck	6.60E-01	3.09E-02	1.67E-02	6.84E-03	3.97E+00	1.27E-01	3.89E+02	4.73E-03	2.69E-03	3.29E-03	1.21E-03	3.90E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.29E+00	4.65E-02	1.55E-02	0.00E+00	2.51E+01	0.00E+00	9.23E+02	1.42E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2020	**Diesel Fuel**	**Combination Long-haul Truck**	4.11E+00	2.24E-01	1.74E-01	1.38E-02	9.45E-01	2.04E-01	1.94E+03	3.63E-02	1.76E-03	1.26E-03	1.49E-02	1.95E+03	
			Combination Short-haul Truck	3.46E+00	1.80E-01	1.36E-01	1.31E-02	8.08E-01	1.81E-01	1.86E+03	3.73E-02	1.76E-03	1.12E-03	1.36E-02	1.87E+03	
			Intercity Bus	5.30E+00	3.07E-01	2.40E-01	1.17E-02	1.37E+00	2.68E-01	1.62E+03	3.74E-02	1.96E-03	1.84E-03	2.08E-02	1.62E+03	
			Passenger Car	1.76E-01	1.73E-02	7.71E-03	2.06E-03	9.82E-01	1.34E-02	2.93E+02	7.07E-03	3.82E-04	9.56E-05	1.41E-03	2.93E+02	
			Passenger Truck	1.12E+00	6.60E-02	5.09E-02	4.35E-03	8.57E-01	1.14E-01	6.10E+02	2.20E-02	1.51E-03	8.98E-04	1.04E-02	6.11E+02	
			School Bus	2.74E+00	1.98E-01	1.43E-01	5.88E-03	8.99E-01	2.26E-01	8.13E+02	3.15E-02	1.96E-03	1.69E-03	1.88E-02	8.15E+02	
			Single Unit Long-haul Truck	1.41E+00	1.06E-01	6.45E-02	5.61E-03	5.98E-01	1.42E-01	8.00E+02	4.32E-02	1.88E-03	1.12E-03	1.40E-02	8.01E+02	
			Single Unit Short-haul Truck	1.35E+00	9.96E-02	5.87E-02	5.97E-03	5.43E-01	1.23E-01	8.55E+02	4.33E-02	1.88E-03	9.76E-04	1.25E-02	8.56E+02	
			Transit Bus	3.61E+00	2.04E-01	1.68E-01	8.49E-03	1.19E+00	2.35E-01	1.19E+03	3.32E-02	1.96E-03	1.67E-03	1.88E-02	1.19E+03	
			Motor Home	2.26E+00	1.37E-01	1.03E-01	6.32E-03	8.87E-01	2.47E-01	8.83E+02	4.21E-02	1.88E-03	1.88E-03	2.15E-02	8.85E+02	
			Refuse Truck	3.19E+00	1.94E-01	1.40E-01	1.08E-02	8.40E-01	1.82E-01	1.52E+03	3.87E-02	1.88E-03	1.21E-03	1.45E-02	1.53E+03	
			Light Commercial Truck	1.42E+00	8.78E-02	7.13E-02	4.38E-03	1.01E+00	1.64E-01	6.07E+02	2.03E-02	1.54E-03	1.28E-03	1.41E-02	6.07E+02	
		Gasoline	Motorcycle	8.03E-01	5.03E-02	4.41E-02	6.51E-03	1.38E+01	8.31E-01	3.71E+02	2.88E-02	1.95E-03	2.26E-02	8.82E-03	3.72E+02	
			Passenger Car	1.22E-01	1.98E-02	9.82E-03	4.92E-03	1.62E+00	2.77E-02	2.80E+02	4.01E-03	9.34E-04	6.58E-04	2.44E-04	2.81E+02	
			Passenger Truck	5.20E-01	3.10E-02	1.69E-02	6.74E-03	3.57E+00	1.05E-01	3.84E+02	4.26E-03	2.22E-03	2.67E-03	9.79E-04	3.84E+02	
			School Bus	2.92E+00	5.26E-02	1.98E-02	1.35E-02	1.90E+01	9.95E-01	7.67E+02	1.71E-02	9.11E-03	2.23E-02	8.13E-03	7.71E+02	
			Single Unit Long-haul Truck	3.15E+00	5.21E-02	1.83E-02	1.41E-02	1.32E+01	5.98E-01	8.01E+02	6.30E-03	5.34E-03	1.29E-02	4.82E-03	8.03E+02	
			Single Unit Short-haul Truck	3.23E+00	5.21E-02	1.82E-02	1.50E-02	1.36E+01	5.63E-01	8.53E+02	6.43E-03	4.94E-03	1.32E-02	4.97E-03	8.55E+02	
			Transit Bus	3.77E+00	5.13E-02	1.97E-02	1.97E-02	2.14E+01	1.34E+00	1.12E+03	1.04E-02	7.29E-03	2.87E-02	1.06E-02	1.13E+03	
			Motor Home	3.64E+00	5.30E-02	2.16E-02	1.52E-02	1.96E+01	9.41E-01	8.67E+02	1.09E-02	8.97E-03	1.91E-02	6.83E-03	8.70E+02	
			Refuse Truck	4.84E+00	4.84E-02	1.99E-02	2.49E-02	2.42E+01	1.35E+00	1.42E+03	7.69E-03	5.79E-03	2.49E-02	8.87E-03	1.42E+03	
			Light Commercial Truck	6.23E-01	3.08E-02	1.67E-02	6.73E-03	3.85E+00	1.17E-01	3.83E+02	4.39E-03	2.48E-03	3.05E-03	1.13E-03	3.84E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.26E+00	4.63E-02	1.54E-02	0.00E+00	2.38E+01	0.00E+00	9.23E+02	1.32E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2021	Diesel Fuel	Combination Long-haul Truck	3.66E+00	2.00E-01	1.52E-01	1.37E-02	8.37E-01	1.85E-01	1.94E+03	3.71E-02	1.77E-03	1.11E-03	1.35E-02	1.95E+03	
			Combination Short-haul Truck	3.06E+00	1.61E-01	1.17E-01	1.31E-02	7.14E-01	1.63E-01	1.86E+03	3.79E-02	1.77E-03	9.81E-04	1.22E-02	1.87E+03	
			Intercity Bus	4.74E+00	2.81E-01	2.14E-01	1.16E-02	1.23E+00	2.44E-01	1.62E+03	3.85E-02	1.96E-03	1.66E-03	1.90E-02	1.62E+03	
			Passenger Car	1.50E-01	1.69E-02	7.33E-03	2.00E-03	1.07E+00	1.29E-02	2.87E+02	7.88E-03	3.82E-04	9.55E-05	1.46E-03	2.87E+02	
			Passenger Truck	1.04E+00	6.00E-02	4.51E-02	4.31E-03	8.35E-01	1.01E-01	6.07E+02	2.26E-02	1.51E-03	8.03E-04	9.47E-03	6.08E+02	
			School Bus	2.46E+00	1.83E-01	1.28E-01	5.84E-03	8.10E-01	2.02E-01	8.13E+02	3.24E-02	1.96E-03	1.50E-03	1.71E-02	8.15E+02	
			Single Unit Long-haul Truck	1.29E+00	9.83E-02	5.74E-02	5.59E-03	5.43E-01	1.25E-01	8.00E+02	4.35E-02	1.88E-03	9.86E-04	1.27E-02	8.01E+02	
			Single Unit Short-haul Truck	1.23E+00	9.28E-02	5.20E-02	5.95E-03	4.93E-01	1.08E-01	8.55E+02	4.35E-02	1.88E-03	8.59E-04	1.14E-02	8.56E+02	
			Transit Bus	3.19E+00	1.82E-01	1.47E-01	8.44E-03	1.04E+00	2.08E-01	1.19E+03	3.38E-02	1.96E-03	1.47E-03	1.68E-02	1.19E+03	
			Motor Home	2.08E+00	1.26E-01	9.23E-02	6.29E-03	8.07E-01	2.20E-01	8.83E+02	4.28E-02	1.88E-03	1.66E-03	1.94E-02	8.85E+02	
			Refuse Truck	2.80E+00	1.74E-01	1.20E-01	1.07E-02	7.38E-01	1.62E-01	1.52E+03	3.94E-02	1.88E-03	1.05E-03	1.31E-02	1.53E+03	
			Light Commercial Truck	1.30E+00	7.91E-02	6.28E-02	4.33E-03	9.62E-01	1.45E-01	6.04E+02	2.11E-02	1.54E-03	1.14E-03	1.27E-02	6.05E+02	
		Gasoline	Motorcycle	8.00E-01	5.03E-02	4.41E-02	6.51E-03	1.37E+01	8.24E-01	3.71E+02	2.88E-02	1.95E-03	2.24E-02	8.72E-03	3.72E+02	
			Passenger Car	1.11E-01	1.98E-02	9.79E-03	4.85E-03	1.60E+00	2.62E-02	2.76E+02	3.97E-03	9.20E-04	6.18E-04	2.30E-04	2.77E+02	
			Passenger Truck	4.84E-01	3.08E-02	1.67E-02	6.63E-03	3.46E+00	9.60E-02	3.77E+02	4.04E-03	2.05E-03	2.46E-03	9.05E-04	3.78E+02	
			School Bus	2.86E+00	5.21E-02	1.92E-02	1.35E-02	1.77E+01	9.75E-01	7.67E+02	1.48E-02	8.31E-03	2.16E-02	7.90E-03	7.70E+02	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Single Unit Long-haul Truck	3.14E+00	5.21E-02	1.83E-02	1.41E-02	1.31E+01	5.96E-01	8.01E+02	6.27E-03	4.96E-03	1.29E-02	4.81E-03	8.03E+02	
			Single Unit Short-haul Truck	3.22E+00	5.20E-02	1.81E-02	1.50E-02	1.35E+01	5.60E-01	8.53E+02	6.34E-03	4.60E-03	1.31E-02	4.95E-03	8.54E+02	
			Transit Bus	3.74E+00	5.12E-02	1.96E-02	1.97E-02	2.08E+01	1.34E+00	1.12E+03	1.02E-02	6.74E-03	2.85E-02	1.05E-02	1.13E+03	
			Motor Home	3.60E+00	5.26E-02	2.11E-02	1.52E-02	1.90E+01	9.28E-01	8.67E+02	9.93E-03	8.29E-03	1.86E-02	6.68E-03	8.70E+02	
			Refuse Truck	4.80E+00	4.81E-02	1.96E-02	2.49E-02	2.32E+01	1.33E+00	1.42E+03	7.30E-03	5.29E-03	2.44E-02	8.70E-03	1.42E+03	
			Light Commercial Truck	5.90E-01	3.07E-02	1.65E-02	6.62E-03	3.75E+00	1.09E-01	3.77E+02	4.18E-03	2.29E-03	2.85E-03	1.06E-03	3.78E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.24E+00	4.62E-02	1.53E-02	0.00E+00	2.27E+01	0.00E+00	9.23E+02	1.26E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2022	Diesel Fuel	Combination Long-haul Truck	3.27E+00	1.81E-01	1.33E-01	1.36E-02	7.46E-01	1.68E-01	1.94E+03	3.77E-02	1.77E-03	9.87E-04	1.23E-02	1.95E+03	
			Combination Short-haul Truck	2.73E+00	1.45E-01	1.02E-01	1.30E-02	6.35E-01	1.47E-01	1.86E+03	3.84E-02	1.77E-03	8.63E-04	1.11E-02	1.87E+03	
			Intercity Bus	4.28E+00	2.58E-01	1.92E-01	1.15E-02	1.11E+00	2.23E-01	1.62E+03	3.94E-02	1.96E-03	1.50E-03	1.75E-02	1.62E+03	
			Passenger Car	1.31E-01	1.66E-02	7.07E-03	1.96E-03	1.14E+00	1.26E-02	2.82E+02	8.60E-03	3.82E-04	9.64E-05	1.52E-03	2.82E+02	
			Passenger Truck	9.66E-01	5.49E-02	4.02E-02	4.27E-03	8.16E-01	9.04E-02	6.05E+02	2.31E-02	1.51E-03	7.19E-04	8.67E-03	6.06E+02	
			School Bus	2.22E+00	1.69E-01	1.15E-01	5.81E-03	7.32E-01	1.81E-01	8.13E+02	3.32E-02	1.96E-03	1.34E-03	1.55E-02	8.15E+02	
			Single Unit Long-haul Truck	1.19E+00	9.24E-02	5.18E-02	5.57E-03	4.98E-01	1.11E-01	8.00E+02	4.38E-02	1.88E-03	8.79E-04	1.16E-02	8.01E+02	
			Single Unit Short-haul Truck	1.14E+00	8.74E-02	4.68E-02	5.93E-03	4.54E-01	9.59E-02	8.55E+02	4.37E-02	1.88E-03	7.66E-04	1.05E-02	8.56E+02	
			Transit Bus	2.84E+00	1.63E-01	1.28E-01	8.39E-03	9.11E-01	1.85E-01	1.19E+03	3.44E-02	1.96E-03	1.29E-03	1.51E-02	1.19E+03	
			Motor Home	1.93E+00	1.17E-01	8.35E-02	6.26E-03	7.39E-01	1.96E-01	8.83E+02	4.33E-02	1.88E-03	1.48E-03	1.76E-02	8.85E+02	
			Refuse Truck	2.47E+00	1.58E-01	1.04E-01	1.07E-02	6.55E-01	1.45E-01	1.52E+03	4.01E-02	1.88E-03	9.22E-04	1.18E-02	1.53E+03	
			Light Commercial Truck	1.20E+00	7.20E-02	5.60E-02	4.29E-03	9.21E-01	1.29E-01	6.02E+02	2.18E-02	1.54E-03	1.02E-03	1.15E-02	6.03E+02	
		Gasoline	Motorcycle	7.97E-01	5.03E-02	4.41E-02	6.51E-03	1.36E+01	8.17E-01	3.71E+02	2.88E-02	1.95E-03	2.21E-02	8.63E-03	3.72E+02	
			Passenger Car	1.03E-01	1.98E-02	9.77E-03	4.79E-03	1.58E+00	2.51E-02	2.73E+02	4.00E-03	9.12E-04	5.89E-04	2.21E-04	2.73E+02	
			Passenger Truck	4.53E-01	3.08E-02	1.67E-02	6.53E-03	3.37E+00	8.86E-02	3.72E+02	3.87E-03	1.90E-03	2.28E-03	8.42E-04	3.72E+02	
			School Bus	2.81E+00	5.15E-02	1.87E-02	1.35E-02	1.66E+01	9.59E-01	7.67E+02	1.30E-02	7.60E-03	2.10E-02	7.72E-03	7.70E+02	
			Single Unit Long-haul Truck	3.14E+00	5.21E-02	1.82E-02	1.41E-02	1.31E+01	5.94E-01	8.01E+02	6.28E-03	4.64E-03	1.29E-02	4.80E-03	8.03E+02	
			Single Unit Short-haul Truck	3.21E+00	5.20E-02	1.81E-02	1.50E-02	1.34E+01	5.57E-01	8.53E+02	6.29E-03	4.31E-03	1.30E-02	4.94E-03	8.54E+02	
			Transit Bus	3.73E+00	5.12E-02	1.95E-02	1.97E-02	2.05E+01	1.33E+00	1.12E+03	1.02E-02	6.28E-03	2.85E-02	1.05E-02	1.13E+03	
			Motor Home	3.57E+00	5.21E-02	2.08E-02	1.52E-02	1.85E+01	9.19E-01	8.67E+02	9.21E-03	7.68E-03	1.83E-02	6.56E-03	8.69E+02	
			Refuse Truck	4.76E+00	4.78E-02	1.94E-02	2.49E-02	2.24E+01	1.32E+00	1.42E+03	6.97E-03	4.86E-03	2.40E-02	8.56E-03	1.42E+03	
			Light Commercial Truck	5.61E-01	3.07E-02	1.65E-02	6.53E-03	3.66E+00	1.01E-01	3.72E+02	4.01E-03	2.12E-03	2.67E-03	1.00E-03	3.72E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.22E+00	4.61E-02	1.52E-02	0.00E+00	2.16E+01	0.00E+00	9.23E+02	1.21E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2023	Diesel Fuel	Combination Long-haul Truck	2.95E+00	1.64E-01	1.17E-01	1.36E-02	6.69E-01	1.54E-01	1.94E+03	3.82E-02	1.77E-03	8.80E-04	1.13E-02	1.95E+03	
			Combination Short-haul Truck	2.46E+00	1.32E-01	8.89E-02	1.30E-02	5.72E-01	1.35E-01	1.86E+03	3.88E-02	1.77E-03	7.69E-04	1.02E-02	1.87E+03	
			Intercity Bus	3.87E+00	2.38E-01	1.72E-01	1.15E-02	1.01E+00	2.05E-01	1.62E+03	4.02E-02	1.96E-03	1.36E-03	1.62E-02	1.62E+03	
			Passenger Car	1.16E-01	1.64E-02	6.87E-03	1.92E-03	1.20E+00	1.24E-02	2.77E+02	9.19E-03	3.82E-04	9.78E-05	1.57E-03	2.77E+02	
			Passenger Truck	9.02E-01	5.06E-02	3.60E-02	4.24E-03	8.00E-01	8.07E-02	6.03E+02	2.36E-02	1.51E-03	6.46E-04	7.97E-03	6.04E+02	
			School Bus	2.01E+00	1.57E-01	1.03E-01	5.78E-03	6.66E-01	1.64E-01	8.13E+02	3.39E-02	1.96E-03	1.21E-03	1.43E-02	8.15E+02	
			Single Unit Long-haul Truck	1.11E+00	8.76E-02	4.71E-02	5.56E-03	4.63E-01	1.01E-01	8.00E+02	4.40E-02	1.88E-03	7.99E-04	1.08E-02	8.01E+02	
			Single Unit Short-haul Truck	1.06E+00	8.30E-02	4.25E-02	5.92E-03	4.24E-01	8.71E-02	8.55E+02	4.38E-02	1.88E-03	6.98E-04	9.81E-03	8.56E+02	
			Transit Bus	2.55E+00	1.47E-01	1.13E-01	8.36E-03	8.03E-01	1.66E-01	1.19E+03	3.48E-02	1.96E-03	1.14E-03	1.36E-02	1.19E+03	
			Motor Home	1.79E+00	1.09E-01	7.57E-02	6.23E-03	6.87E-01	1.79E-01	8.83E+02	4.38E-02	1.88E-03	1.35E-03	1.63E-02	8.85E+02	
			Refuse Truck	2.21E+00	1.44E-01	9.13E-02	1.06E-02	5.89E-01	1.31E-01	1.52E+03	4.06E-02	1.88E-03	8.19E-04	1.08E-02	1.53E+03	
			Light Commercial Truck	1.11E+00	6.58E-02	5.00E-02	4.25E-03	8.87E-01	1.15E-01	5.99E+02	2.24E-02	1.54E-03	9.10E-04	1.05E-02	6.00E+02	
		Gasoline	Motorcycle	7.95E-01	5.03E-02	4.41E-02	6.52E-03	1.35E+01	8.11E-01	3.71E+02	2.88E-02	1.94E-03	2.19E-02	8.55E-03	3.72E+02	
			Passenger Car	9.67E-02	1.98E-02	9.77E-03	4.73E-03	1.57E+00	2.43E-02	2.69E+02	4.01E-03	9.07E-04	5.71E-04	2.15E-04	2.70E+02	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Passenger Truck	4.25E-01	3.07E-02	1.66E-02	6.43E-03	3.27E+00	8.21E-02	3.66E+02	3.67E-03	1.77E-03	2.11E-03	7.87E-04	3.67E+02	
			School Bus	2.80E+00	5.14E-02	1.87E-02	1.35E-02	1.63E+01	9.57E-01	7.67E+02	1.26E-02	7.15E-03	2.09E-02	7.69E-03	7.70E+02	
			Single Unit Long-haul Truck	3.13E+00	5.21E-02	1.82E-02	1.41E-02	1.31E+01	5.94E-01	8.01E+02	6.17E-03	4.37E-03	1.29E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.21E+00	5.19E-02	1.81E-02	1.50E-02	1.34E+01	5.56E-01	8.53E+02	6.14E-03	4.07E-03	1.30E-02	4.94E-03	8.54E+02	
			Transit Bus	3.70E+00	5.10E-02	1.94E-02	1.97E-02	1.99E+01	1.33E+00	1.12E+03	9.66E-03	5.83E-03	2.83E-02	1.04E-02	1.13E+03	
			Motor Home	3.53E+00	5.18E-02	2.04E-02	1.52E-02	1.81E+01	9.10E-01	8.67E+02	8.44E-03	7.12E-03	1.80E-02	6.46E-03	8.69E+02	
			Refuse Truck	4.73E+00	4.77E-02	1.92E-02	2.49E-02	2.18E+01	1.31E+00	1.42E+03	6.68E-03	4.52E-03	2.37E-02	8.46E-03	1.42E+03	
			Light Commercial Truck	5.35E-01	3.06E-02	1.64E-02	6.44E-03	3.57E+00	9.49E-02	3.67E+02	3.79E-03	1.98E-03	2.52E-03	9.47E-04	3.68E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.20E+00	4.60E-02	1.51E-02	0.00E+00	2.07E+01	0.00E+00	9.23E+02	1.14E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2024	Diesel Fuel	Combination Long-haul Truck	2.67E+00	1.50E-01	1.03E-01	1.35E-02	6.03E-01	1.42E-01	1.94E+03	3.86E-02	1.77E-03	7.88E-04	1.04E-02	1.95E+03	
			Combination Short-haul Truck	2.24E+00	1.21E-01	7.83E-02	1.29E-02	5.20E-01	1.25E-01	1.86E+03	3.91E-02	1.77E-03	6.90E-04	9.43E-03	1.87E+03	
			Intercity Bus	3.50E+00	2.19E-01	1.54E-01	1.14E-02	9.12E-01	1.88E-01	1.62E+03	4.09E-02	1.96E-03	1.23E-03	1.50E-02	1.62E+03	
			Passenger Car	1.06E-01	1.63E-02	6.75E-03	1.88E-03	1.25E+00	1.23E-02	2.73E+02	9.67E-03	3.82E-04	9.92E-05	1.62E-03	2.73E+02	
			Passenger Truck	8.46E-01	4.68E-02	3.23E-02	4.21E-03	7.85E-01	7.22E-02	6.01E+02	2.39E-02	1.51E-03	5.81E-04	7.34E-03	6.02E+02	
			School Bus	1.83E+00	1.47E-01	9.34E-02	5.75E-03	6.09E-01	1.48E-01	8.13E+02	3.45E-02	1.96E-03	1.09E-03	1.31E-02	8.15E+02	
			Single Unit Long-haul Truck	1.04E+00	8.35E-02	4.31E-02	5.54E-03	4.34E-01	9.18E-02	8.00E+02	4.41E-02	1.88E-03	7.30E-04	1.02E-02	8.01E+02	
			Single Unit Short-haul Truck	1.00E+00	7.94E-02	3.91E-02	5.91E-03	3.99E-01	7.98E-02	8.55E+02	4.39E-02	1.88E-03	6.42E-04	9.26E-03	8.56E+02	
			Transit Bus	2.29E+00	1.33E-01	9.90E-02	8.32E-03	7.11E-01	1.49E-01	1.19E+03	3.52E-02	1.96E-03	1.01E-03	1.24E-02	1.19E+03	
			Motor Home	1.67E+00	1.02E-01	6.90E-02	6.21E-03	6.41E-01	1.64E-01	8.83E+02	4.42E-02	1.88E-03	1.23E-03	1.52E-02	8.85E+02	
			Refuse Truck	1.99E+00	1.33E-01	8.05E-02	1.06E-02	5.33E-01	1.20E-01	1.52E+03	4.10E-02	1.88E-03	7.33E-04	9.97E-03	1.53E+03	
			Light Commercial Truck	1.03E+00	6.04E-02	4.47E-02	4.22E-03	8.55E-01	1.03E-01	5.97E+02	2.29E-02	1.54E-03	8.14E-04	9.60E-03	5.98E+02	
		Gasoline	Motorcycle	7.92E-01	5.03E-02	4.41E-02	6.52E-03	1.34E+01	8.06E-01	3.71E+02	2.88E-02	1.94E-03	2.17E-02	8.48E-03	3.72E+02	
			Passenger Car	9.24E-02	1.98E-02	9.77E-03	4.68E-03	1.57E+00	2.38E-02	2.67E+02	4.05E-03	9.04E-04	5.59E-04	2.11E-04	2.67E+02	
			Passenger Truck	3.98E-01	3.06E-02	1.66E-02	6.35E-03	3.18E+00	7.60E-02	3.61E+02	3.43E-03	1.65E-03	1.96E-03	7.33E-04	3.62E+02	
			School Bus	2.76E+00	5.13E-02	1.86E-02	1.35E-02	1.57E+01	9.48E-01	7.67E+02	1.11E-02	6.60E-03	2.06E-02	7.59E-03	7.70E+02	
			Single Unit Long-haul Truck	3.13E+00	5.21E-02	1.82E-02	1.41E-02	1.31E+01	5.93E-01	8.01E+02	5.97E-03	4.15E-03	1.29E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.20E+00	5.19E-02	1.81E-02	1.50E-02	1.34E+01	5.55E-01	8.53E+02	5.96E-03	3.88E-03	1.30E-02	4.94E-03	8.54E+02	
			Transit Bus	3.68E+00	5.10E-02	1.93E-02	1.97E-02	1.94E+01	1.33E+00	1.12E+03	9.07E-03	5.44E-03	2.81E-02	1.04E-02	1.12E+03	
			Motor Home	3.51E+00	5.17E-02	2.03E-02	1.52E-02	1.77E+01	9.03E-01	8.67E+02	7.61E-03	6.60E-03	1.77E-02	6.38E-03	8.69E+02	
			Refuse Truck	4.71E+00	4.76E-02	1.91E-02	2.49E-02	2.14E+01	1.30E+00	1.42E+03	6.41E-03	4.23E-03	2.35E-02	8.38E-03	1.42E+03	
			Light Commercial Truck	5.10E-01	3.06E-02	1.64E-02	6.37E-03	3.48E+00	8.89E-02	3.62E+02	3.52E-03	1.84E-03	2.37E-03	8.96E-04	3.63E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.18E+00	4.59E-02	1.50E-02	0.00E+00	1.97E+01	0.00E+00	9.23E+02	1.04E-02	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2025	Diesel Fuel	Combination Long-haul Truck	2.43E+00	1.37E-01	9.09E-02	1.35E-02	5.47E-01	1.32E-01	1.94E+03	3.90E-02	1.77E-03	7.11E-04	9.62E-03	1.95E+03	
			Combination Short-haul Truck	2.06E+00	1.12E-01	6.95E-02	1.29E-02	4.77E-01	1.17E-01	1.86E+03	3.94E-02	1.77E-03	6.26E-04	8.81E-03	1.87E+03	
			Intercity Bus	3.17E+00	2.03E-01	1.38E-01	1.14E-02	8.26E-01	1.73E-01	1.62E+03	4.16E-02	1.96E-03	1.12E-03	1.39E-02	1.62E+03	
			Passenger Car	9.87E-02	1.62E-02	6.66E-03	1.85E-03	1.30E+00	1.23E-02	2.69E+02	1.01E-02	3.82E-04	1.01E-04	1.67E-03	2.69E+02	
			Passenger Truck	7.97E-01	4.32E-02	2.88E-02	4.18E-03	7.76E-01	6.50E-02	5.99E+02	2.42E-02	1.51E-03	5.26E-04	6.82E-03	6.00E+02	
			School Bus	1.68E+00	1.38E-01	8.45E-02	5.73E-03	5.58E-01	1.35E-01	8.13E+02	3.50E-02	1.96E-03	9.92E-04	1.22E-02	8.15E+02	
			Single Unit Long-haul Truck	9.82E-01	7.99E-02	3.96E-02	5.53E-03	4.08E-01	8.42E-02	8.00E+02	4.43E-02	1.88E-03	6.72E-04	9.58E-03	8.01E+02	
			Single Unit Short-haul Truck	9.47E-01	7.64E-02	3.61E-02	5.90E-03	3.79E-01	7.38E-02	8.55E+02	4.40E-02	1.88E-03	5.95E-04	8.80E-03	8.56E+02	
			Transit Bus	2.07E+00	1.20E-01	8.68E-02	8.29E-03	6.30E-01	1.35E-01	1.19E+03	3.55E-02	1.96E-03	8.97E-04	1.13E-02	1.19E+03	
			Motor Home	1.56E+00	9.51E-02	6.22E-02	6.19E-03	5.98E-01	1.50E-01	8.83E+02	4.45E-02	1.88E-03	1.13E-03	1.41E-02	8.85E+02	
			Refuse Truck	1.81E+00	1.24E-01	7.14E-02	1.06E-02	4.87E-01	1.11E-01	1.52E+03	4.13E-02	1.88E-03	6.61E-04	9.28E-03	1.53E+03	
			Light Commercial Truck	9.56E-01	5.51E-02	3.96E-02	4.19E-03	8.29E-01	9.14E-02	5.96E+02	2.34E-02	1.54E-03	7.29E-04	8.78E-03	5.96E+02	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
		Gasoline	Motorcycle	7.90E-01	5.03E-02	4.41E-02	6.52E-03	1.33E+01	8.01E-01	3.71E+02	2.88E-02	1.94E-03	2.16E-02	8.41E-03	3.72E+02	
			Passenger Car	8.94E-02	1.98E-02	9.79E-03	4.64E-03	1.57E+00	2.35E-02	2.64E+02	4.06E-03	9.02E-04	5.53E-04	2.09E-04	2.64E+02	
			Passenger Truck	3.74E-01	3.05E-02	1.64E-02	6.27E-03	3.10E+00	7.05E-02	3.57E+02	3.24E-03	1.55E-03	1.82E-03	6.84E-04	3.58E+02	
			School Bus	2.73E+00	5.04E-02	1.77E-02	1.35E-02	1.49E+01	9.38E-01	7.67E+02	9.55E-03	6.06E-03	2.02E-02	7.47E-03	7.69E+02	
			Single Unit Long-haul Truck	3.13E+00	5.20E-02	1.81E-02	1.41E-02	1.30E+01	5.92E-01	8.01E+02	5.81E-03	3.95E-03	1.29E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.20E+00	5.18E-02	1.80E-02	1.50E-02	1.33E+01	5.54E-01	8.53E+02	5.82E-03	3.71E-03	1.30E-02	4.94E-03	8.54E+02	
			Transit Bus	3.66E+00	5.08E-02	1.92E-02	1.97E-02	1.89E+01	1.32E+00	1.12E+03	8.58E-03	5.09E-03	2.80E-02	1.04E-02	1.12E+03	
			Motor Home	3.48E+00	5.06E-02	1.93E-02	1.52E-02	1.73E+01	8.96E-01	8.67E+02	6.81E-03	6.12E-03	1.74E-02	6.29E-03	8.69E+02	
			Refuse Truck	4.69E+00	4.73E-02	1.89E-02	2.49E-02	2.10E+01	1.30E+00	1.42E+03	6.21E-03	3.99E-03	2.33E-02	8.31E-03	1.42E+03	
			Light Commercial Truck	4.88E-01	3.04E-02	1.63E-02	6.30E-03	3.41E+00	8.34E-02	3.58E+02	3.29E-03	1.73E-03	2.23E-03	8.49E-04	3.59E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.16E+00	4.58E-02	1.49E-02	0.00E+00	1.90E+01	0.00E+00	9.23E+02	9.76E-03	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2026	Diesel Fuel	Combination Long-haul Truck	2.23E+00	1.27E-01	8.08E-02	1.35E-02	5.00E-01	1.24E-01	1.94E+03	3.93E-02	1.77E-03	6.45E-04	8.98E-03	1.95E+03	
			Combination Short-haul Truck	1.91E+00	1.04E-01	6.23E-02	1.29E-02	4.41E-01	1.10E-01	1.86E+03	3.96E-02	1.77E-03	5.73E-04	8.29E-03	1.87E+03	
			Intercity Bus	2.86E+00	1.88E-01	1.23E-01	1.13E-02	7.47E-01	1.60E-01	1.62E+03	4.22E-02	1.96E-03	1.01E-03	1.28E-02	1.62E+03	
			Passenger Car	9.36E-02	1.62E-02	6.61E-03	1.83E-03	1.33E+00	1.23E-02	2.66E+02	1.04E-02	3.82E-04	1.03E-04	1.70E-03	2.66E+02	
			Passenger Truck	7.56E-01	4.05E-02	2.61E-02	4.16E-03	7.69E-01	5.93E-02	5.98E+02	2.45E-02	1.51E-03	4.82E-04	6.40E-03	5.99E+02	
			School Bus	1.52E+00	1.29E-01	7.59E-02	5.71E-03	5.11E-01	1.23E-01	8.13E+02	3.55E-02	1.96E-03	8.96E-04	1.12E-02	8.15E+02	
			Single Unit Long-haul Truck	9.33E-01	7.70E-02	3.68E-02	5.52E-03	3.88E-01	7.82E-02	8.00E+02	4.44E-02	1.88E-03	6.25E-04	9.12E-03	8.01E+02	
			Single Unit Short-haul Truck	9.04E-01	7.39E-02	3.37E-02	5.89E-03	3.62E-01	6.89E-02	8.55E+02	4.41E-02	1.88E-03	5.57E-04	8.42E-03	8.56E+02	
			Transit Bus	1.88E+00	1.10E-01	7.65E-02	8.27E-03	5.62E-01	1.22E-01	1.19E+03	3.57E-02	1.96E-03	8.01E-04	1.03E-02	1.19E+03	
			Motor Home	1.45E+00	8.87E-02	5.61E-02	6.17E-03	5.60E-01	1.37E-01	8.83E+02	4.48E-02	1.88E-03	1.03E-03	1.32E-02	8.85E+02	
			Refuse Truck	1.66E+00	1.16E-01	6.38E-02	1.05E-02	4.47E-01	1.03E-01	1.52E+03	4.16E-02	1.88E-03	6.01E-04	8.70E-03	1.53E+03	
			Light Commercial Truck	8.90E-01	5.03E-02	3.50E-02	4.16E-03	8.04E-01	8.13E-02	5.94E+02	2.38E-02	1.54E-03	6.52E-04	8.04E-03	5.95E+02	
		Gasoline	Motorcycle	7.88E-01	5.03E-02	4.41E-02	6.52E-03	1.32E+01	7.97E-01	3.71E+02	2.88E-02	1.94E-03	2.14E-02	8.36E-03	3.72E+02	
			Passenger Car	8.73E-02	1.98E-02	9.82E-03	4.60E-03	1.57E+00	2.29E-02	2.62E+02	4.39E-03	9.01E-04	5.38E-04	2.04E-04	2.62E+02	
			Passenger Truck	3.50E-01	3.04E-02	1.64E-02	6.20E-03	3.02E+00	6.44E-02	3.53E+02	3.40E-03	1.46E-03	1.66E-03	6.26E-04	3.54E+02	
			School Bus	2.70E+00	5.02E-02	1.75E-02	1.35E-02	1.40E+01	9.25E-01	7.67E+02	8.75E-03	5.56E-03	1.98E-02	7.32E-03	7.69E+02	
			Single Unit Long-haul Truck	3.12E+00	5.20E-02	1.82E-02	1.41E-02	1.30E+01	5.91E-01	8.01E+02	6.35E-03	3.79E-03	1.28E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.20E+00	5.19E-02	1.80E-02	1.50E-02	1.33E+01	5.53E-01	8.53E+02	6.32E-03	3.59E-03	1.30E-02	4.93E-03	8.54E+02	
			Transit Bus	3.65E+00	5.07E-02	1.91E-02	1.97E-02	1.85E+01	1.32E+00	1.12E+03	9.06E-03	4.80E-03	2.78E-02	1.03E-02	1.12E+03	
			Motor Home	3.46E+00	5.05E-02	1.92E-02	1.52E-02	1.69E+01	8.89E-01	8.67E+02	6.74E-03	5.73E-03	1.72E-02	6.21E-03	8.69E+02	
			Refuse Truck	4.67E+00	4.72E-02	1.88E-02	2.49E-02	2.06E+01	1.29E+00	1.42E+03	6.48E-03	3.80E-03	2.31E-02	8.25E-03	1.42E+03	
			Light Commercial Truck	4.66E-01	3.03E-02	1.62E-02	6.23E-03	3.33E+00	7.76E-02	3.55E+02	3.46E-03	1.63E-03	2.08E-03	7.94E-04	3.55E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.14E+00	4.57E-02	1.48E-02	0.00E+00	1.78E+01	0.00E+00	9.23E+02	9.43E-03	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2027	Diesel Fuel	Combination Long-haul Truck	2.06E+00	1.18E-01	7.24E-02	1.34E-02	4.61E-01	1.17E-01	1.94E+03	3.95E-02	1.77E-03	5.90E-04	8.45E-03	1.95E+03	
			Combination Short-haul Truck	1.79E+00	9.86E-02	5.66E-02	1.29E-02	4.13E-01	1.04E-01	1.86E+03	3.98E-02	1.77E-03	5.31E-04	7.88E-03	1.87E+03	
			Intercity Bus	2.61E+00	1.75E-01	1.11E-01	1.13E-02	6.80E-01	1.48E-01	1.62E+03	4.27E-02	1.96E-03	9.24E-04	1.20E-02	1.62E+03	
			Passenger Car	9.00E-02	1.61E-02	6.58E-03	1.81E-03	1.36E+00	1.23E-02	2.64E+02	1.07E-02	3.82E-04	1.04E-04	1.73E-03	2.64E+02	
			Passenger Truck	7.19E-01	3.78E-02	2.35E-02	4.14E-03	7.61E-01	5.39E-02	5.97E+02	2.47E-02	1.51E-03	4.41E-04	6.00E-03	5.98E+02	
			School Bus	1.39E+00	1.21E-01	6.83E-02	5.69E-03	4.68E-01	1.12E-01	8.13E+02	3.59E-02	1.96E-03	8.10E-04	1.04E-02	8.15E+02	
			Single Unit Long-haul Truck	8.93E-01	7.46E-02	3.45E-02	5.51E-03	3.71E-01	7.32E-02	8.00E+02	4.44E-02	1.88E-03	5.86E-04	8.73E-03	8.01E+02	
			Single Unit Short-haul Truck	8.70E-01	7.20E-02	3.19E-02	5.88E-03	3.49E-01	6.51E-02	8.55E+02	4.41E-02	1.88E-03	5.27E-04	8.13E-03	8.56E+02	
			Transit Bus	1.71E+00	1.00E-01	6.71E-02	8.25E-03	5.00E-01	1.11E-01	1.19E+03	3.59E-02	1.96E-03	7.14E-04	9.46E-03	1.19E+03	
			Motor Home	1.36E+00	8.33E-02	5.08E-02	6.16E-03	5.26E-01	1.26E-01	8.83E+02	4.51E-02	1.88E-03	9.43E-04	1.23E-02	8.85E+02	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Refuse Truck	1.53E+00	1.10E-01	5.77E-02	1.05E-02	4.16E-01	9.65E-02	1.52E+03	4.18E-02	1.88E-03	5.53E-04	8.23E-03	1.53E+03	
			Light Commercial Truck	8.38E-01	4.66E-02	3.14E-02	4.14E-03	7.85E-01	7.32E-02	5.93E+02	2.41E-02	1.54E-03	5.90E-04	7.45E-03	5.94E+02	
		Gasoline	Motorcycle	7.86E-01	5.03E-02	4.41E-02	6.52E-03	1.31E+01	7.93E-01	3.71E+02	2.88E-02	1.94E-03	2.13E-02	8.30E-03	3.72E+02	
			Passenger Car	8.60E-02	1.99E-02	9.84E-03	4.57E-03	1.57E+00	2.28E-02	2.60E+02	4.42E-03	9.01E-04	5.36E-04	2.03E-04	2.61E+02	
			Passenger Truck	3.36E-01	3.04E-02	1.63E-02	6.14E-03	2.97E+00	6.14E-02	3.50E+02	3.38E-03	1.39E-03	1.59E-03	6.03E-04	3.50E+02	
			School Bus	2.69E+00	5.02E-02	1.76E-02	1.35E-02	1.38E+01	9.22E-01	7.67E+02	8.68E-03	5.17E-03	1.97E-02	7.29E-03	7.69E+02	
			Single Unit Long-haul Truck	3.12E+00	5.20E-02	1.82E-02	1.41E-02	1.30E+01	5.91E-01	8.01E+02	6.36E-03	3.65E-03	1.28E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.19E+00	5.19E-02	1.80E-02	1.50E-02	1.33E+01	5.52E-01	8.53E+02	6.31E-03	3.47E-03	1.30E-02	4.93E-03	8.54E+02	
			Transit Bus	3.63E+00	5.07E-02	1.91E-02	1.97E-02	1.82E+01	1.31E+00	1.12E+03	9.00E-03	4.50E-03	2.77E-02	1.03E-02	1.12E+03	
			Motor Home	3.44E+00	5.05E-02	1.93E-02	1.52E-02	1.67E+01	8.84E-01	8.67E+02	6.64E-03	5.27E-03	1.70E-02	6.16E-03	8.69E+02	
			Refuse Truck	4.66E+00	4.72E-02	1.88E-02	2.49E-02	2.03E+01	1.29E+00	1.42E+03	6.44E-03	3.62E-03	2.30E-02	8.20E-03	1.42E+03	
			Light Commercial Truck	4.52E-01	3.03E-02	1.62E-02	6.18E-03	3.29E+00	7.44E-02	3.52E+02	3.45E-03	1.54E-03	2.01E-03	7.70E-04	3.52E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.13E+00	4.57E-02	1.48E-02	0.00E+00	1.73E+01	0.00E+00	9.23E+02	9.28E-03	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2028	Diesel Fuel	Combination Long-haul Truck	1.92E+00	1.11E-01	6.52E-02	1.34E-02	4.28E-01	1.11E-01	1.94E+03	3.97E-02	1.77E-03	5.45E-04	8.02E-03	1.95E+03	
			Combination Short-haul Truck	1.69E+00	9.36E-02	5.18E-02	1.28E-02	3.90E-01	9.98E-02	1.86E+03	3.99E-02	1.77E-03	4.97E-04	7.55E-03	1.87E+03	
			Intercity Bus	2.38E+00	1.63E-01	9.96E-02	1.13E-02	6.21E-01	1.37E-01	1.62E+03	4.31E-02	1.96E-03	8.43E-04	1.12E-02	1.62E+03	
			Passenger Car	8.75E-02	1.61E-02	6.55E-03	1.80E-03	1.37E+00	1.23E-02	2.62E+02	1.09E-02	3.82E-04	1.05E-04	1.76E-03	2.62E+02	
			Passenger Truck	6.86E-01	3.52E-02	2.10E-02	4.13E-03	7.53E-01	4.90E-02	5.95E+02	2.49E-02	1.51E-03	4.04E-04	5.64E-03	5.96E+02	
			School Bus	1.27E+00	1.14E-01	6.11E-02	5.67E-03	4.31E-01	1.02E-01	8.13E+02	3.62E-02	1.96E-03	7.34E-04	9.67E-03	8.15E+02	
			Single Unit Long-haul Truck	8.58E-01	7.25E-02	3.24E-02	5.51E-03	3.56E-01	6.89E-02	8.00E+02	4.45E-02	1.88E-03	5.52E-04	8.40E-03	8.01E+02	
			Single Unit Short-haul Truck	8.42E-01	7.04E-02	3.03E-02	5.88E-03	3.38E-01	6.19E-02	8.55E+02	4.41E-02	1.88E-03	5.03E-04	7.89E-03	8.56E+02	
			Transit Bus	1.57E+00	9.17E-02	5.90E-02	8.23E-03	4.49E-01	1.02E-01	1.19E+03	3.61E-02	1.96E-03	6.42E-04	8.75E-03	1.19E+03	
			Motor Home	1.27E+00	7.75E-02	4.52E-02	6.14E-03	4.95E-01	1.16E-01	8.83E+02	4.54E-02	1.88E-03	8.63E-04	1.16E-02	8.85E+02	
			Refuse Truck	1.45E+00	1.05E-01	5.31E-02	1.05E-02	3.93E-01	9.18E-02	1.52E+03	4.20E-02	1.88E-03	5.17E-04	7.89E-03	1.53E+03	
			Light Commercial Truck	7.87E-01	4.26E-02	2.75E-02	4.12E-03	7.65E-01	6.53E-02	5.92E+02	2.44E-02	1.54E-03	5.30E-04	6.87E-03	5.93E+02	
		Gasoline	Motorcycle	7.85E-01	5.03E-02	4.41E-02	6.52E-03	1.31E+01	7.89E-01	3.71E+02	2.88E-02	1.94E-03	2.11E-02	8.25E-03	3.72E+02	
			Passenger Car	8.51E-02	1.99E-02	9.86E-03	4.54E-03	1.58E+00	2.27E-02	2.59E+02	4.40E-03	9.01E-04	5.36E-04	2.03E-04	2.59E+02	
			Passenger Truck	3.23E-01	3.03E-02	1.62E-02	6.09E-03	2.92E+00	5.81E-02	3.47E+02	3.29E-03	1.32E-03	1.51E-03	5.77E-04	3.47E+02	
			School Bus	2.67E+00	5.02E-02	1.75E-02	1.35E-02	1.36E+01	9.19E-01	7.67E+02	8.40E-03	4.80E-03	1.95E-02	7.25E-03	7.69E+02	
			Single Unit Long-haul Truck	3.12E+00	5.20E-02	1.82E-02	1.41E-02	1.30E+01	5.90E-01	8.01E+02	6.17E-03	3.53E-03	1.28E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.19E+00	5.19E-02	1.80E-02	1.50E-02	1.33E+01	5.52E-01	8.53E+02	6.14E-03	3.38E-03	1.30E-02	4.93E-03	8.54E+02	
			Transit Bus	3.62E+00	5.07E-02	1.91E-02	1.97E-02	1.78E+01	1.31E+00	1.12E+03	8.72E-03	4.22E-03	2.76E-02	1.02E-02	1.12E+03	
			Motor Home	3.42E+00	5.03E-02	1.91E-02	1.52E-02	1.63E+01	8.77E-01	8.67E+02	6.38E-03	4.81E-03	1.68E-02	6.07E-03	8.68E+02	
			Refuse Truck	4.65E+00	4.71E-02	1.87E-02	2.49E-02	2.01E+01	1.29E+00	1.42E+03	6.28E-03	3.48E-03	2.29E-02	8.17E-03	1.42E+03	
			Light Commercial Truck	4.41E-01	3.02E-02	1.61E-02	6.13E-03	3.24E+00	7.12E-02	3.49E+02	3.34E-03	1.47E-03	1.93E-03	7.44E-04	3.49E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.10E+00	4.56E-02	1.47E-02	0.00E+00	1.60E+01	0.00E+00	9.23E+02	8.84E-03	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2029	Diesel Fuel	Combination Long-haul Truck	1.80E+00	1.06E-01	6.00E-02	1.34E-02	4.02E-01	1.06E-01	1.94E+03	3.99E-02	1.77E-03	5.08E-04	7.66E-03	1.95E+03	
			Combination Short-haul Truck	1.61E+00	9.01E-02	4.83E-02	1.28E-02	3.72E-01	9.62E-02	1.86E+03	4.00E-02	1.77E-03	4.69E-04	7.28E-03	1.87E+03	
			Intercity Bus	2.17E+00	1.54E-01	9.06E-02	1.12E-02	5.67E-01	1.28E-01	1.62E+03	4.35E-02	1.96E-03	7.71E-04	1.05E-02	1.62E+03	
			Passenger Car	8.58E-02	1.61E-02	6.54E-03	1.79E-03	1.39E+00	1.23E-02	2.60E+02	1.10E-02	3.82E-04	1.06E-04	1.77E-03	2.61E+02	
			Passenger Truck	6.65E-01	3.39E-02	1.98E-02	4.11E-03	7.50E-01	4.60E-02	5.94E+02	2.50E-02	1.51E-03	3.81E-04	5.42E-03	5.95E+02	
			School Bus	1.16E+00	1.08E-01	5.60E-02	5.66E-03	3.98E-01	9.31E-02	8.13E+02	3.65E-02	1.96E-03	6.68E-04	9.03E-03	8.15E+02	
			Single Unit Long-haul Truck	8.27E-01	7.08E-02	3.08E-02	5.50E-03	3.44E-01	6.53E-02	8.00E+02	4.45E-02	1.88E-03	5.24E-04	8.13E-03	8.01E+02	
			Single Unit Short-haul Truck	8.19E-01	6.92E-02	2.92E-02	5.87E-03	3.29E-01	5.94E-02	8.55E+02	4.41E-02	1.88E-03	4.83E-04	7.69E-03	8.56E+02	

MOVES EMISSION FACTORS -- WYOMING

				Emission Factors (g/VMT)											GWPs for CO2e
RoadType	**yearID**	**FuelType**	**SourceType**	**NOx**	**PM10**	**PM2.5**	**SO2**	**CO**	**VOC**	**CO2**	**Methane (CH4)**	**N2O**	**Benzene**	**Formaldehyde**	**CO2 Equivalent**	CO2 = 1
Rural Unrestricted Access	2013	Diesel Fuel	Combination Long-haul Truck	9.64E+00	5.02E-01	4.44E-01	1.47E-02	2.25E+00	4.36E-01	1.94E+03	2.67E-02	1.76E-03	3.04E-03	3.20E-02	1.95E+03	CH4 = 21
			Combination Short-haul Truck	8.98E+00	4.50E-01	3.98E-01	1.40E-02	2.06E+00	4.21E-01	1.86E+03	2.80E-02	1.76E-03	2.96E-03	3.13E-02	1.87E+03	N2O = 320
			Intercity Bus	1.17E+01	6.59E-01	5.81E-01	1.24E-02	2.80E+00	5.05E-01	1.62E+03	2.56E-02	1.96E-03	3.66E-03	3.81E-02	1.62E+03	
			Passenger Car	5.73E-01	2.74E-02	1.75E-02	2.62E-03	3.73E-01	2.81E-02	3.50E+02	2.29E-03	3.82E-04	1.85E-04	1.99E-03	3.51E+02	
			Passenger Truck	2.14E+00	1.46E-01	1.28E-01	4.76E-03	1.32E+00	2.79E-01	6.30E+02	1.57E-02	1.51E-03	2.16E-03	2.26E-02	6.30E+02	
			School Bus	5.56E+00	3.66E-01	3.06E-01	6.23E-03	1.72E+00	4.42E-01	8.13E+02	2.20E-02	1.96E-03	3.34E-03	3.47E-02	8.14E+02	
			Single Unit Long-haul Truck	3.03E+00	2.06E-01	1.62E-01	5.91E-03	1.29E+00	3.56E-01	8.00E+02	3.67E-02	1.88E-03	2.77E-03	3.00E-02	8.01E+02	
			Single Unit Short-haul Truck	3.18E+00	2.10E-01	1.65E-01	6.29E-03	1.25E+00	3.37E-01	8.55E+02	3.73E-02	1.88E-03	2.63E-03	2.86E-02	8.56E+02	
			Transit Bus	8.75E+00	4.75E-01	4.31E-01	9.02E-03	2.79E+00	5.08E-01	1.19E+03	2.12E-02	1.96E-03	3.77E-03	3.89E-02	1.19E+03	
			Motor Home	4.46E+00	2.73E-01	2.35E-01	6.66E-03	1.63E+00	5.09E-01	8.83E+02	3.26E-02	1.88E-03	3.89E-03	4.09E-02	8.84E+02	
			Refuse Truck	8.64E+00	4.74E-01	4.12E-01	1.15E-02	2.16E+00	4.46E-01	1.52E+03	2.76E-02	1.88E-03	3.23E-03	3.40E-02	1.53E+03	
			Light Commercial Truck	2.63E+00	1.84E-01	1.65E-01	4.80E-03	1.67E+00	3.69E-01	6.24E+02	1.23E-02	1.54E-03	2.85E-03	2.92E-02	6.25E+02	
		Gasoline	Combination Short-haul Truck	1.67E+01	1.66E-01	1.30E-01	3.02E-02	1.34E+02	4.57E+00	1.72E+03	9.24E-02	1.17E-02	1.30E-01	4.60E-02	1.72E+03	
			Motorcycle	8.50E-01	5.03E-02	4.41E-02	6.50E-03	1.57E+01	9.39E-01	3.70E+02	2.90E-02	1.95E-03	2.64E-02	1.03E-02	3.71E+02	
			Passenger Car	3.69E-01	2.17E-02	1.15E-02	5.57E-03	2.31E+00	7.25E-02	3.17E+02	4.85E-03	1.56E-03	1.85E-03	6.56E-04	3.18E+02	
			Passenger Truck	9.37E-01	3.26E-02	1.84E-02	7.71E-03	5.01E+00	2.14E-01	4.39E+02	7.26E-03	4.35E-03	5.40E-03	1.92E-03	4.41E+02	
			School Bus	4.42E+00	7.62E-02	4.15E-02	1.35E-02	3.12E+01	1.54E+00	7.67E+02	5.54E-02	1.45E-02	4.12E-02	1.47E-02	7.73E+02	
			Single Unit Long-haul Truck	3.32E+00	5.31E-02	1.92E-02	1.41E-02	1.43E+01	6.47E-01	8.01E+02	8.55E-03	1.05E-02	1.41E-02	5.17E-03	8.04E+02	
			Single Unit Short-haul Truck	3.51E+00	5.47E-02	2.06E-02	1.50E-02	1.58E+01	6.57E-01	8.53E+02	1.06E-02	1.01E-02	1.56E-02	5.76E-03	8.56E+02	
			Transit Bus	4.09E+00	5.21E-02	2.03E-02	1.97E-02	2.90E+01	1.42E+00	1.12E+03	1.55E-02	1.34E-02	3.18E-02	1.15E-02	1.13E+03	
			Motor Home	4.47E+00	6.40E-02	3.17E-02	1.52E-02	2.52E+01	1.15E+00	8.67E+02	2.51E-02	1.46E-02	2.65E-02	9.36E-03	8.72E+02	
			Refuse Truck	5.61E+00	5.27E-02	2.39E-02	2.49E-02	3.79E+01	1.58E+00	1.42E+03	1.49E-02	1.20E-02	3.31E-02	1.18E-02	1.42E+03	
			Light Commercial Truck	1.02E+00	3.25E-02	1.82E-02	7.63E-03	5.23E+00	2.27E-01	4.34E+02	7.61E-03	4.84E-03	5.75E-03	2.06E-03	4.36E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.55E+00	4.70E-02	1.60E-02	0.00E+00	3.74E+01	0.00E+00	9.23E+02	2.21E-02	3.98E-02	0.00E+00	0.00E+00	9.37E+02	
	2014	Diesel Fuel	Combination Long-haul Truck	8.58E+00	4.48E-01	3.93E-01	1.45E-02	2.00E+00	3.92E-01	1.94E+03	2.87E-02	1.76E-03	2.70E-03	2.88E-02	1.95E+03	
			Combination Short-haul Truck	7.87E+00	3.96E-01	3.45E-01	1.38E-02	1.81E+00	3.74E-01	1.86E+03	3.01E-02	1.76E-03	2.60E-03	2.79E-02	1.87E+03	
			Intercity Bus	1.06E+01	5.97E-01	5.21E-01	1.23E-02	2.56E+00	4.65E-01	1.62E+03	2.77E-02	1.96E-03	3.35E-03	3.51E-02	1.62E+03	
			Passenger Car	5.00E-01	2.48E-02	1.50E-02	2.53E-03	4.57E-01	2.48E-02	3.43E+02	2.83E-03	3.82E-04	1.63E-04	1.80E-03	3.43E+02	
			Passenger Truck	1.93E+00	1.28E-01	1.11E-01	4.69E-03	1.21E+00	2.44E-01	6.27E+02	1.69E-02	1.51E-03	1.90E-03	2.00E-02	6.28E+02	
			School Bus	5.07E+00	3.37E-01	2.78E-01	6.17E-03	1.58E+00	4.08E-01	8.13E+02	2.39E-02	1.96E-03	3.08E-03	3.22E-02	8.14E+02	
			Transit Bus	1.45E+00	8.54E-02	5.30E-02	8.21E-03	4.05E-01	9.35E-02	1.19E+03	3.62E-02	1.96E-03	5.80E-04	8.13E-03	1.19E+03	
			Motor Home	1.20E+00	7.39E-02	4.17E-02	6.13E-03	4.68E-01	1.07E-01	8.83E+02	4.55E-02	1.88E-03	7.95E-04	1.09E-02	8.85E+02	
			Refuse Truck	1.38E+00	1.02E-01	4.99E-02	1.05E-02	3.75E-01	8.82E-02	1.52E+03	4.21E-02	1.88E-03	4.89E-04	7.62E-03	1.53E+03	
			Light Commercial Truck	7.57E-01	4.08E-02	2.57E-02	4.10E-03	7.57E-01	6.09E-02	5.90E+02	2.46E-02	1.54E-03	4.96E-04	6.55E-03	5.91E+02	
		Gasoline	Motorcycle	7.83E-01	5.03E-02	4.41E-02	6.52E-03	1.30E+01	7.86E-01	3.71E+02	2.88E-02	1.94E-03	2.10E-02	8.21E-03	3.72E+02	
			Passenger Car	8.45E-02	1.99E-02	9.89E-03	4.52E-03	1.58E+00	2.28E-02	2.58E+02	4.30E-03	9.02E-04	5.40E-04	2.05E-04	2.58E+02	
			Passenger Truck	3.11E-01	3.02E-02	1.62E-02	6.04E-03	2.87E+00	5.53E-02	3.44E+02	3.19E-03	1.26E-03	1.45E-03	5.54E-04	3.44E+02	
			School Bus	2.67E+00	5.02E-02	1.75E-02	1.35E-02	1.36E+01	9.20E-01	7.67E+02	8.20E-03	4.47E-03	1.96E-02	7.26E-03	7.69E+02	
			Single Unit Long-haul Truck	3.12E+00	5.20E-02	1.82E-02	1.41E-02	1.30E+01	5.90E-01	8.01E+02	6.03E-03	3.42E-03	1.28E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.19E+00	5.19E-02	1.80E-02	1.50E-02	1.33E+01	5.52E-01	8.53E+02	6.00E-03	3.30E-03	1.30E-02	4.93E-03	8.54E+02	
			Transit Bus	3.61E+00	5.07E-02	1.91E-02	1.97E-02	1.78E+01	1.31E+00	1.12E+03	8.51E-03	3.97E-03	2.76E-02	1.02E-02	1.12E+03	
			Motor Home	3.41E+00	5.03E-02	1.90E-02	1.52E-02	1.63E+01	8.77E-01	8.67E+02	6.23E-03	4.44E-03	1.68E-02	6.08E-03	8.68E+02	
			Refuse Truck	4.65E+00	4.71E-02	1.87E-02	2.49E-02	2.01E+01	1.29E+00	1.42E+03	6.15E-03	3.37E-03	2.29E-02	8.17E-03	1.42E+03	
			Light Commercial Truck	4.29E-01	3.01E-02	1.60E-02	6.08E-03	3.19E+00	6.83E-02	3.46E+02	3.23E-03	1.40E-03	1.87E-03	7.21E-04	3.47E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.10E+00	4.55E-02	1.46E-02	0.00E+00	1.60E+01	0.00E+00	9.23E+02	8.61E-03	3.98E-02	0.00E+00	0.00E+00	9.36E+02	
	2030	**Diesel Fuel**	**Combination Long-haul Truck**	1.71E+00	1.01E-01	5.56E-02	1.34E-02	3.79E-01	1.02E-01	1.94E+03	4.00E-02	1.77E-03	4.76E-04	7.35E-03	1.95E+03	
			Combination Short-haul Truck	1.55E+00	8.71E-02	4.55E-02	1.28E-02	3.57E-01	9.32E-02	1.86E+03	4.01E-02	1.77E-03	4.46E-04	7.06E-03	1.87E+03	
			Intercity Bus	2.00E+00	1.45E-01	8.22E-02	1.12E-02	5.17E-01	1.19E-01	1.62E+03	4.38E-02	1.96E-03	7.04E-04	9.87E-03	1.62E+03	
			Passenger Car	8.47E-02	1.61E-02	6.53E-03	1.78E-03	1.40E+00	1.23E-02	2.59E+02	1.12E-02	3.82E-04	1.07E-04	1.79E-03	2.60E+02	
			Passenger Truck	6.40E-01	3.23E-02	1.83E-02	4.10E-03	7.44E-01	4.19E-02	5.94E+02	2.52E-02	1.51E-03	3.49E-04	5.12E-03	5.95E+02	
			School Bus	1.09E+00	1.03E-01	5.13E-02	5.64E-03	3.67E-01	8.52E-02	8.13E+02	3.68E-02	1.96E-03	6.07E-04	8.44E-03	8.15E+02	
			Single Unit Long-haul Truck	8.05E-01	6.95E-02	2.95E-02	5.50E-03	3.34E-01	6.22E-02	8.00E+02	4.46E-02	1.88E-03	5.01E-04	7.89E-03	8.01E+02	
			Single Unit Short-haul Truck	8.02E-01	6.82E-02	2.82E-02	5.87E-03	3.22E-01	5.74E-02	8.55E+02	4.42E-02	1.88E-03	4.67E-04	7.53E-03	8.56E+02	
			Transit Bus	1.37E+00	8.03E-02	4.80E-02	8.20E-03	3.69E-01	8.69E-02	1.19E+03	3.63E-02	1.96E-03	5.28E-04	7.63E-03	1.19E+03	
			Motor Home	1.14E+00	7.04E-02	3.83E-02	6.12E-03	4.43E-01	9.89E-02	8.83E+02	4.57E-02	1.88E-03	7.30E-04	1.03E-02	8.85E+02	
			Refuse Truck	1.33E+00	9.91E-02	4.73E-02	1.05E-02	3.60E-01	8.53E-02	1.52E+03	4.22E-02	1.88E-03	4.67E-04	7.40E-03	1.53E+03	
			Light Commercial Truck	7.16E-01	3.80E-02	2.30E-02	4.09E-03	7.39E-01	5.37E-02	5.90E+02	2.49E-02	1.54E-03	4.41E-04	6.02E-03	5.91E+02	
		Gasoline	Motorcycle	7.82E-01	5.03E-02	4.41E-02	6.52E-03	1.29E+01	7.82E-01	3.71E+02	2.88E-02	1.94E-03	2.09E-02	8.17E-03	3.72E+02	
			Passenger Car	8.41E-02	1.99E-02	9.91E-03	4.51E-03	1.58E+00	2.29E-02	2.57E+02	4.18E-03	9.02E-04	5.45E-04	2.07E-04	2.57E+02	
			Passenger Truck	3.01E-01	3.02E-02	1.62E-02	6.00E-03	2.83E+00	5.27E-02	3.42E+02	3.07E-03	1.22E-03	1.39E-03	5.34E-04	3.42E+02	
			School Bus	2.67E+00	5.02E-02	1.76E-02	1.35E-02	1.36E+01	9.21E-01	7.67E+02	7.88E-03	4.19E-03	1.96E-02	7.28E-03	7.69E+02	
			Single Unit Long-haul Truck	3.12E+00	5.20E-02	1.82E-02	1.41E-02	1.30E+01	5.91E-01	8.01E+02	5.82E-03	3.33E-03	1.29E-02	4.81E-03	8.02E+02	
			Single Unit Short-haul Truck	3.19E+00	5.19E-02	1.80E-02	1.50E-02	1.33E+01	5.52E-01	8.53E+02	5.80E-03	3.24E-03	1.30E-02	4.94E-03	8.54E+02	
			Transit Bus	3.61E+00	5.07E-02	1.91E-02	1.97E-02	1.78E+01	1.31E+00	1.12E+03	8.20E-03	3.79E-03	2.76E-02	1.03E-02	1.12E+03	
			Motor Home	3.41E+00	5.03E-02	1.91E-02	1.52E-02	1.63E+01	8.78E-01	8.67E+02	5.99E-03	4.11E-03	1.68E-02	6.09E-03	8.68E+02	
			Refuse Truck	4.64E+00	4.71E-02	1.87E-02	2.49E-02	2.01E+01	1.29E+00	1.42E+03	5.98E-03	3.28E-03	2.29E-02	8.17E-03	1.42E+03	
			Light Commercial Truck	4.20E-01	3.01E-02	1.60E-02	6.05E-03	3.15E+00	6.59E-02	3.44E+02	3.10E-03	1.35E-03	1.81E-03	7.04E-04	3.45E+02	
		Compressed Natural Gas (CNG)	Transit Bus	3.10E+00	4.55E-02	1.46E-02	0.00E+00	1.59E+01	0.00E+00	9.23E+02	8.28E-03	3.98E-02	0.00E+00	0.00E+00	9.36E+02	

NONROAD EQUIPMENT LOAD FACTORS

Source: Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, Assessment and Standards Division Office of Transportation and Air Quality U.S. Environmental Protection Agency, EPA-420-R-10-016 NR-005d, July 2010. Appendix A.

Appendix A
Load Factor and Activity Estimates in NONROAD2008a

SCC	Equipment Description	Load Factor (fraction of power)	Activity (hr)yr)
2270001030	Diesel All Terrain Vehicles/MC (unused)	0.42	0
2270001050	Diesel Golf Carts (unused)	0.49	1150
2270001060	Diesel Specialty Vehicle Carts	0.21	435
2270002003	Diesel Pavers	0.59	821
2270002006	Diesel Tampers/Rammers (unused)	0.43	460
2270002009	Diesel Plate Compactors	0.43	484
2270002012	Diesel Concrete Pavers (unused)	0.59	0
2270002015	Diesel Rollers	0.59	760
2270002018	Diesel Scrapers	0.59	914
2270002021	Diesel Paving Equipment	0.59	622
2270002024	Diesel Surfacing Equipment	0.59	561
2270002027	Diesel Signal Boards	0.43	535
2270002030	Diesel Trenchers	0.59	593
2270002033	Diesel Bore/Drill Rigs	0.43	466
2270002036	Diesel Excavators	0.59	1092
2270002039	Diesel Concrete/Industrial Saws	0.59	580
2270002042	Diesel Cement & Mortar Mixers	0.43	275
2270002045	Diesel Cranes	0.43	990
2270002048	Diesel Graders	0.59	962
2270002051	Diesel Off-highway Trucks	0.59	1641
2270002054	Diesel Crushing/Proc. Equipment	0.43	955
2270002057	Diesel Rough Terrain Forklifts	0.59	662
2270002060	Diesel Rubber Tire Loaders	0.59	761
2270002063	Diesel Rubber Tire Dozers	0.59	899
2270002066	Diesel Tractors/Loaders/Backhoes	0.21	1135
2270002069	Diesel Crawler Tractors	0.59	936
2270002072	Diesel Skid Steer Loaders	0.21	818
2270002075	Diesel Off-Highway Tractors	0.59	855
2270002078	Diesel Dumpers/Tenders	0.21	566

Appendix A
Load Factor and Activity Estimates in NONROAD2008a

SCC	Equipment Description	Load Factor (fraction of power)	Activity (hr)yr)
2270002081	Diesel Other Construction Equipment	0.59	606
2270003010	Diesel Aerial Lifts	0.21	384
2270003020	Diesel Forklifts	0.59	1700
2270003030	Diesel Sweepers/Scrubbers	0.43	1220
2270003040	Diesel Other General Industrial Equipment	0.43	878
2270003050	Diesel Other Material Handling Equipment	0.21	421

On-road water truck treated as off-highway truck: very conservative load factor

Final Environmental Impact Statement
Parkdale Quarry Expansion Project

Appendix N

Public Comments on the Draft EIS

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APPENDIX N. PUBLIC COMMENTS ON THE DRAFT EIS

N.1 RESPONSE TO COMMENTS

This appendix contains public comments on the Bureau of Land Management's (BLM) Parkdale Quarry Draft EIS, along with responses to those comments. Comments were obtained through the NEPA public involvement process, which includes publishing a Notice of Availability (NOA) for the Draft EIS in the Federal Register, news releases, and a public meeting. The comment period began with publishing the NOA on February 7, 2020, and spanning 45 days, ending on March 23, 2020.

N.2 DRAFT EIS AVAILABILITY AND PUBLIC MEETING ADVERTISING

Advertising of the Draft EIS availability and public meetings was accomplished through the following methods:

- Federal Register NOA of the Draft EIS, published on February 7, 2020;
- BLM News Release announcing the availability of the Draft EIS, which was released on February 7, 2020; and
- The Cañon City Daily Record on February 8, 2020.

The Federal Register notice announced the availability of the Draft EIS, summarized the alternatives and other key information presented in the Draft EIS, provided a link to the project website, provided the methods by which comments on the Draft EIS might be sent to the BLM, and noted a 45-day comment period in which comments must be received. The news release provided information about the proposed quarry expansion, the date and venue information for the public meeting, and comment period timeframes. **Attachment 1** provides copies of the Federal Register NOA and BLM news release.

In addition to posting links to the Draft EIS, the BLM website also posted meeting information and comment methods and deadlines.

N.3 PUBLIC MEETINGS

The BLM held one public meetings for the Draft EIS. The meeting was held on February 26, 2020 at the Abbey Event Center in Cañon City, Colorado. The open house format provided attendees with the opportunity to review displays describing the project and summarizing the impacts by alternative, discuss key issues with BLM staff, and provide written comments. There were 15 people in attendance at the public meeting.

N.4 FORMAL SUBMISSIONS

During the formal 45-day comment period, the BLM received a total of 27 unique submissions, in the form of letters and CARA submittals. Each submittal varied in content, and ranged from one to several comments that contained technical information, suggestions for improving the content of the Draft EIS, as well as personal opinions. Table N.1 identifies the affiliation of each unique submission.

Table N.1. Number of Individual Submittals by Entity

Entity Type	Number of Submittals	Percentage
Individual	18	66.67%
Federal Agency	1	3.70%
State Agency	3	11.11%
NGO/Special Interest	5	18.52%
Total	**27**	**100.00%**

N.5 CONTENT ANALYSIS

Content analysis is a method developed for analyzing public comments. This method employs both qualitative and quantitative approaches. It is a systematic process designed to: (1) extract concerns from each submission; (2) group similar concerns from different submissions; and (3) identify a comprehensive list of specific topics of concern to be addressed in the Final EIS. The goals of the content analysis process are to:

- Ensure that every submission is considered;
- Identify the concerns raised by all respondents; and
- Represent the breadth and depth of the public's viewpoints and concerns as fairly as possible.

NEPA requires the BLM to identify and respond to all substantive public comments received during the Draft EIS comment period. The BLM used a systematic process to compile, categorize, and consider all public comments received on the Draft EIS to identify substantive issues for consideration by BLM-decision makers, in accordance with NEPA regulations.

The steps below describe how the BLM processed the comment letters, identified and bracketed substantive comments, and responded to substantive comments using the BLM's Comment Analysis and Response Application[1] (CARA):

1. Log in to CARA to review comment letters received. If a comment letter is received outside of CARA, upload the comment letter to CARA.
2. Review the comment letters and identify (bracket) each distinct, substantive comment within the letter. Many comment letters were bracketed into multiple comments.
3. Code each comment to one of the comment coding categories based on the content of the comment. Comment coding categories are broad topics used to group comments containing similar subject matter.
4. Export all comments from CARA into a sortable database containing the comment coding category, contact information, affiliation, and other relevant information.
5. Sort comments by comment coding category and formulate individual responses to each comment.

There were a total of 145 distinct comments extracted from submissions. Of those comments, 114 were deemed substantive.

After each submission was coded, the comments were entered into a database. This system allows for each of the comments to be properly distributed to the specific resource specialists to which the comments were coded. Once all comments were entered, organized, and distributed to the resource specialists, they were carefully considered and provided a response to address the concerns presented by the commenter. Table N.2 provides a count of comments by resource or EIS issue.

[1] CARA is an online software application that interfaces with the BLM's ePlanning application, through which public comments are submitted, and assists with comment review and analysis.

Table N.2. Comments by Resource or EIS Issue

Resource	Number of Comments	Percentage
Lands with Wilderness Characteristics	14	9.66%
Land Use Plan Conformance	10	6.90%
Wetland and Riparian Zones	3	2.07%
Terrestrial Wildlife	7	4.83%
Socioeconomic Conditions	8	5.52%
Surface, Ground Water, And Water Quality	37	25.52%
Recreation / Socio / Water Quality	1	0.69%
Other Substantive Issues Raised for Analysis	8	5.52%
Purpose and Need	1	0.69%
Recreation	3	2.07%
Visual Resources	2	1.38%
NEPA Process	1	0.69%
Air Resources and Greenhouse Gases	12	8.28%
Geology and Paleontology	1	0.69%
Analysis Methods and Assumptions	1	0.69%
Proposed Action and Alternatives	1	0.69%
Reclamation	3	2.07%
Mitigation	1	0.69%
Non-Substantive Comments	31	21.38%
Total	**145**	**100.00%**

N.6 COMMENTS AND RESPONSES

In accordance with NEPA guidelines, the BLM is required to formally respond to all public comments identified as substantive. A substantive comment is one that reasonably questions the accuracy and/or adequacy of information presented in the Draft EIS, presents reasonable alternatives to meet the purpose and need of the proposed action, questions the merit of the alternative(s), causes changes or revisions to the proposed action, or questions the adequacy of the planning process itself. A non-substantive comment generally presents an unsupported personal preference or opinion, or may provide information not directly related to Draft EIS content. Although non-substantive comments, including personal preferences and opinions, may be considered by the decision-maker as he or she chooses the agency's Preferred Alternative, they generally will not affect the analysis. The BLM has reviewed all non-substantive comments.

Attachment 2 displays each of the coded comments and their responses.

ATTACHMENT 1

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DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[LLCOF02000.L51100000.GL0000. LVEMC1700600.17X]

Notice of Availability of the Draft Environmental Impact Statement for the Proposed Competitive Mineral Materials Sale at Parkdale, Fremont County, CO

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of availability.

SUMMARY: In compliance with the National Environmental Policy Act of 1969, as amended (NEPA), the Federal Land Policy and Management Act of 1976, as amended, the Bureau of Land Management (BLM) Royal Gorge Field Office, Cañon City, Colorado, has prepared a Draft Environmental Impact Statement (EIS), for the Proposed Competitive Mineral Materials Sale (COC–078119) at Parkdale, Fremont County, CO and by this notice is announcing the opening of the comment period.

DATES: To ensure that comments will be considered, the BLM must receive written comments on the Draft EIS within 45 days following the date the Environmental Protection Agency publishes its Notice of Availability in the **Federal Register**. The BLM will announce future meetings or hearings and any other public participation activities at least 15 days in advance through public notices, media releases and the BLM National NEPA Register at: *https://eplanning.blm.gov/.*

ADDRESSES: Comments related to the Proposed Competitive Mineral Materials Sale (COC–078119) at Parkdale, Fremont County, Colorado, must be submitted by any of the following methods:

- Electronic comments must be submitted via the BLM ePlanning website at *https://go.usa.gov/xy6tn.*
- Hard copy comments must be submitted via mail or hand-delivered to BLM Royal Gorge Field Office, 3028 East Main Street, Canon City, CO 81212.

Copies of the Draft EIS are available at this same street address or on the BLM ePlanning website at *https://go.usa.gov/xy6tn.* Click the ''Documents & Reports'' link on the left side of the screen to find the electronic version of the document.

FOR FURTHER INFORMATION CONTACT: Stephanie Carter, Geologist, 719–269–8551; 3028 East Main Street, Canon City, CO 81212; email: *sscarter@blm.gov.* Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service (FRS) at 1–800–877–8339 to contact Ms. Carter during normal business hours. The FRS is available 24 hours a day, 7 days a week, to leave a message or question. You will receive a reply during normal business hours.

SUPPLEMENTARY INFORMATION: The BLM has prepared a Draft EIS to evaluate an application submitted by Martin Marietta Materials, Inc. for a contract to mine 400-million net tons of aggregate reserves located on BLM-managed lands, adjacent to their existing hard rock quarry northwest of Cañon City, Colorado. The aggregate reserves consist of a granodiorite bedrock that will be mined utilizing blasting, crushing, and screening methods. The mining activity would be conducted on up to approximately 700 acres of BLM lands for up to 100 years, at a production of 4-million tons annually. The aggregate would be used in the production of asphalt and concrete, as well as for a source of railroad ballast. The current mine is the only rail-served aggregate mine in Colorado. The BLM mineral material reserves would sustain uninterrupted supplies of aggregate to meet future demands in southern Colorado and adjacent areas.

The formal public scoping process for the Draft EIS began July 31, 2019, with the publication of a Notice of Intent in the **Federal Register** (84 FR 37334). The BLM held one open-house scoping meeting in Cañon City, Colorado, on August 15, 2019. The public-scoping comments helped the BLM identify relevant issues and frame the scope of analysis in the Draft EIS.

Relevant issues considered in the Draft EIS include understanding the types and amounts of air pollutants that would be emitted and the potential effects to public health and the environment. In addition, the analysis focused on the proposal and its possible effects on the inventoried wilderness characteristics, water (quality and quantity), visual resources, as well as local and regional economies in the area. Evaluating the availability and quality of key wildlife and plant habitat, as possibly impacted by the proposal was also a key issue in the Draft EIS.

The Draft EIS does not have a preferred alternative and evaluates in detail the Proposed Action (Alternative A), the No Action Alternative (Alternative B) and one action alternative (Alternative C). A preferred alternative will be identified after reviewing public comments and input from cooperating agencies. After the public comment period closes, the BLM will prepare the Final EIS, which may reflect changes or adjustments based on information received during public comment on the Draft EIS, new information, or changes in BLM policies or priorities. The Final EIS may include objectives and actions described in any of the alternatives analyzed in the Draft EIS.

The requested sale is for aggregate material consisting of a granite bedrock that would be mined utilizing blasting, crushing, and screening methods. Reclamation would be ongoing, following mining activity in an area, as soon as conditions would be feasible. Details of Alternative A include: Mined material would be used for concrete, asphalt and railroad ballast products and would take place on approximately 700 acres of BLM-administered public lands for up to 100 years; the southwestern boundary of the proposed mining area would border the Arkansas River Canyonlands Areas of Critical Environmental Concern (ACEC); surface mining would progress in five phases; mining direction for each phase would be from northwest to southeast, creating a ''mine from behind'' visual scenario from the Highway 50 corridor. Alternative B involves the continuation of surface mining on the existing private aggregate reserves, anticipated to last 15–30 years, with aggregate produced only for concrete and asphalt products. Alternative B consists of three phases, with the mining direction for phases 1 and 2 being west to east and phase 3 being north to south. Details on Alternative C include: Mined material would be used for concrete, asphalt and railroad ballast products and would take place on approximately 633 acres of BLM-administered public lands for up to 100 years; the boundary of this footprint would not border the Arkansas River Canyonlands ACEC; surface mining would progress in six phases; mining direction for each phase would vary, so a ''mine from behind'' visual scenario from the Highway 50 corridor may not always be achieved.

Please note that public comments and information submitted including names, street addresses, and email addresses of persons who submit comments will be available for public review and disclosure at the address listed previously during regular business hours (8 a.m. to 4 p.m.), Monday through Friday, except holidays.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time.

While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Authority: 40 CFR 1506.6, 40 CFR 1506.10, 43 CFR 1610.2.

Jamie E. Connell,

Colorado State Director.

[FR Doc. 2020–02341 Filed 2–6–20; 8:45 am]

BILLING CODE 4310–JB–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 731–TA–1465 (Preliminary)]

4th Tier Cigarettes From Korea

Determination

On the basis of the record [1] developed in the subject investigation, the United States International Trade Commission (''Commission'') determines, pursuant to the Tariff Act of 1930 (''the Act''), that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of 4th tier cigarettes from Korea, provided for in subheading 2402.20.80 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value (''LTFV'').[2]

Commencement of Final Phase Investigation

Pursuant to section 207.18 of the Commission's rules, the Commission also gives notice of the commencement of the final phase of its investigation. The Commission will issue a final phase notice of scheduling, which will be published in the **Federal Register** as provided in section 207.21 of the Commission's rules, upon notice from the U.S. Department of Commerce (''Commerce'') of an affirmative preliminary determination in the investigation under section 733(b) of the Act, or, if the preliminary determination is negative, upon notice of an affirmative final determination in that investigation under section 735(a) of the Act. Parties that filed entries of appearance in the preliminary phase of the investigation need not enter a separate appearance for the final phase of the investigation. Industrial users, and, if the merchandise under investigation is sold at the retail level, representative consumer organizations have the right to appear as parties in Commission antidumping investigation. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to the investigation.

Background

On December 18, 2019, the Coalition Against Korean Cigarettes, Xcaliber International, Pryor, Oklahoma, and Cheyenne International, Grover, North Carolina filed a petition with the Commission and Commerce, alleging that an industry in the United States is materially injured or threatened with material injury by reason of LTFV imports of 4th Tier Cigarettes from Korea. Accordingly, effective December 18, 2019, the Commission instituted antidumping duty investigation No. 731–TA–1465 (Preliminary).

Notice of the institution of the Commission's investigation and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the **Federal Register** on December 26, 2019 (84 FR 70997). The conference was held in Washington, DC, on January 8, 2020, and all persons who requested the opportunity were permitted to appear in person or by counsel.

The Commission made this determination pursuant to section 733(a) of the Act (19 U.S.C. 1673b(a)). It completed and filed its determination in this investigation on February 3, 2020. The views of the Commission are contained in USITC Publication 5016 (February 2020), entitled *4th Tier Cigarettes from Korea: Investigation No. 731–TA–1465 (Preliminary).*

By order of the Commission.

Issued: February 4, 2020.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2020–02451 Filed 2–6–20; 8:45 am]

BILLING CODE 7020–02–P

[1] The record is defined in sec. 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR 207.2(f)).

[2] *4th Tier Cigarettes from the Republic of Korea: Initiation of Less-Than-Fair-Value Investigation;* 85 FR 2390, January 15, 2020.

INTERNATIONAL TRADE COMMISSION

[Investigation Nos. 701–TA–632–635 and 731–TA–1466–1468 (Preliminary)]

Fluid End Blocks From China, Germany, India, and Italy

Determinations

On the basis of the record [1] developed in the subject investigations, the United States International Trade Commission (''Commission'') determines, pursuant to the Tariff Act of 1930 (''the Act''), that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of fluid end blocks from Germany, India, and Italy, provided for in subheadings 7218.91.00, 7218.99.00, 7224.90.00, 7326.19.00, 7326.90.86, and 8413.91.90 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value (''LTFV'') and to be subsidized by the Governments of China, Germany, India, and Italy.[2]

Commencement of Final Phase Investigations

Pursuant to section 207.18 of the Commission's rules, the Commission also gives notice of the commencement of the final phase of its investigations. The Commission will issue a final phase notice of scheduling, which will be published in the **Federal Register** as provided in section 207.21 of the Commission's rules, upon notice from the U.S. Department of Commerce (''Commerce'') of affirmative preliminary determinations in the investigations under sections 703(b) or 733(b) of the Act, or, if the preliminary determinations are negative, upon notice of affirmative final determinations in those investigations under sections 705(a) or 735(a) of the Act. Parties that filed entries of appearance in the preliminary phase of the investigations need not enter a separate appearance for the final phase of the investigations. Industrial users, and, if the merchandise under investigation is sold at the retail level, representative consumer organizations have the right to appear as parties in Commission antidumping and countervailing duty investigations. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to the investigations.

[1] The record is defined in sec. 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR 207.2(f)).

[2] 85 FR 2385 and 85 FR 2394 (January 15, 2020).

U.S. Department of the Interior
Bureau of Land Management

News Release

Royal Gorge Field Office, Colorado

For Immediate Release: February 7, 2020
Contact: Brant Porter, Public Affairs Specialist, (719) 269-8553

BLM evaluates mineral materials sale proposal in Fremont County

CAÑON CITY, Colo. – The Bureau of Land Management (BLM) Royal Gorge Field Office is seeking the public's input on a draft Environmental Impact Statement (EIS) evaluating the proposed expansion of the Parkdale Quarry, west of Cañon City.

If approved, the expansion would provide access to approximately 400 million net tons of aggregate used to produce asphalt and concrete, as well as used for railroad ballast.

"Our analysis thus far includes several alternatives that address the public demand for aggregates throughout southern Colorado and beyond," said Royal Gorge Field Manager Keith Berger. "We look forward to hearing from our partners and the public to help inform our decision."

The public comment period will run for 45 days. Public comments will be most helpful if received by March 23 and must be submitted through the BLM ePlanning site https://go.usa.gov/xy6tn or mailed to "Parkdale Quarry Expansion Comments," 3028 E Main Street, Cañon City, CO 81212

The BLM will host an open house public meeting on Feb. 26 at the Abbey Event Center in Cañon City from 4:30 p.m. to 6:30 p.m.

In Fiscal Year 2018, non-energy minerals on BLM lands in Colorado generated approximately $194 million in economic output and supported 650 jobs.

Before including your address, phone number, e-mail address, or any other personal identifying information in your comments, please be advised that your entire comment, including personal identifying information, may be made publicly available at any time. While individuals may request the BLM to withhold personal identifying information from public view, the BLM cannot guarantee it will be able to do so.

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The BLM manages more than 245 million acres of public land located primarily in 12 Western states, including Alaska. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. In fiscal year 2018, the diverse activities authorized on BLM-managed lands generated $105 billion in economic output across the country. This economic activity supported 471,000 jobs and contributed substantial revenue to the U.S. Treasury and state governments, mostly through royalties on minerals.

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ATTACHMENT 2

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Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	3	1	The area where the quarry is proposed to expand is high-quality wilderness-eligible public lands that are of utmost importance to Colorado wildlife and primitive recreation. We cannot keep permanently destroying these public lands. Because of its beauty and high quality, this area has been proposed or Wilderness numerous times since 2003 as part of the Table Mountain proposed Wilderness, identified for its unique and extraordinary biological values. The BLM must take into account the ecological value of managing the Table Mountain area to maintain its unique and extraordinary biological characteristics.	Thank you for your comment. The BLM recognizes the importance of the area for its wilderness and biological characteristics. Impacts related to wilderness and biological characteristics from the proposed expansion are disclosed in Section 3.7 and 3.6, respectively, to aid in the decision making process.
Public	3	3	The BLM should defer consideration of the project until completion of the ongoing Eastern Colorado Resource Management Plan. With the RMP process nearing completion, we believe that the reasons for deferral are even stronger than previously stated.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Public	4	1	Please consider impacts to riparian areas and wildlife corridors along Currant and Tallahassee Creeks. Tallahassee and Currant Creek both contain dense riparian vegetation.	Thank you for your review and comment. The BLM recognizes the importance and biological significance of riparian corridors for wildlife. Impacts to existing surface water, priority terrestrial wildlife habitat and special status species habitat are disclosed in Sections 3.5 and 3.6 of the EIS and analyzed as required by NEPA and Secretarial Order 3355 to aid in the decision making process.
Public	5	1	The BLM must take into account the ecological value of managing the Table Mountain area to maintain its unique and extraordinary biological characteristics.	Thank you for your review and comment. Table Mountain is outside the analysis area for the project, and is not expected to be impacted by the Proposed Action. Impacts to biological resources and lands with wilderness characteristics are disclosed in Sections 3.6 and 3.7 respectively as required by NEPA to aid in the decision making process.
Public	5	2	The BLM must also consider impacts to riparian areas and wildlife corridors along Currant and Tallahassee Creeks. Tallahassee and Currant Creek both contain dense riparian vegetation.	Thank you for your review and comment. The BLM recognizes the importance and biological significance of riparian corridors for wildlife. Impacts to existing surface water, priority terrestrial wildlife habitat and special status species habitat present within the sale area are disclosed in Sections 3.5, and 3.6 of the EIS and analyzed as required by NEPA to aid in the decision making process.
Public	5	3	The BLM must consider how granting the permit could impact the nearby McIntyre Hills and Grape Creek Wilderness Study Areas and proposed Wildernesses. Factors impairing the wilderness and wildlife value of the one area therefore could significantly affect the others. For example, the Bighorn Sheep Canyon herd of bighorn sheep range on both sides of the Arkansas River, which for much of the year does not present a substantial barrier to their movement.	The BLM does not agree that the Project would impact the McIntyre Hills and Grape Creek Wilderness Study Areas and proposed wilderness areas. Impacts affecting bighorn sheep range are discussed in Section 3.6 .

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	5	4	The BLM should defer consideration of the project until completion of the ongoing Eastern Colorado Resource Management Plan. With the RMP process nearing completion, we believe that the reasons for deferral are even stronger than previously stated.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Public	5	5	While the environmental impacts of granting the permit application are clear and easily determinable, the economic and socioeconomic impacts of granting it are much less certain and ascertainable. It therefore would be improper to give them greater or conclusive weight when compared against the environmental impacts.	Thank you for your comment. As no undue weight was given in Section 3.9 Socioeconomic Conditions, the impacts were analyzed per NEPA guidance.
Public	7	1	Please reconsider and reject both alternatives A and C for the expansion of the Parkdale Quarry at Table Mountain as they would lead to compromising wilderness quality lands as documented by the BLM in 2015. These areas have been proposed for Wilderness protection, as early as 2003 and as recently as 2018 because they have unique wilderness qualities, ecological value, and noteworthy biological characteristics.	Thank you for your comment. To be clear, these lands have been proposed to be managed to maintain their wilderness characteristics, which is not the same as a Wilderness Study Area. The BLM recognizes the importance of the area for its high-quality wilderness and biological characteristics. Impacts related to wilderness and biological characteristics from the proposed expansion are disclosed in Sections 3.7 and 3.6, respectively, to aid in the decision making process.
Public	7	2	I am also worried about compromising Current and Tallahassee Creeks which provides habitat and migration routes for ungulates, mountain lions, black bears, bald eagles, Mexican spotted owls and peregrine falcons. Granting permission to expand operations would put both Wilderness Study Areas and proposed Wilderness at risk of compromising their wilderness values.	Thank you for your review and comment. Impacts to surface waters, biological resources and lands with wilderness characteristics present within the mineral sale area are disclosed in Sections 3.5, 3.6 and 3.7 respectively as required by NEPA to aid in the decision making process.
Public	7	3	It’s also premature given the Resource Management Plan is still being developed.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Public	9	1	I oppose both the Proposed Action (Alternative A) and the Alternative Sale Area (Alternative C) as they are both 100-year life-of-mines that would expand onto BLM's greater Echo Canyon Lands with Wilderness Characteristics (LWC), high-quality wilderness-eligible public lands that are of utmost importance to Colorado wildlife and primitive recreation. This would permanently impair, and indeed destroy, the wilderness values of these lands.	Thank you for your comment. Impacts to LWC, wildlife, and recreation are disclosed in Sections 3.7, 3.6, and 3.9, respectively. As stated in those sections, these resources would not be impaired as a result of Alternative A or Alternative C.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	11	1	As to the statement, "Free flowing groundwater that enters the quarry during mining would be routed to settling ponds to ensure that it meets applicable standards for suspended sediment and turbidity prior to re-infiltration to groundwater or being discharged to either Currant or Tallahassee Creek," many mining companies have said their settling ponds would have no effect. However, flash floods and big rain events have caused ponds to breach, thus harm could be done to the adjacent creeks and the river, negatively affecting fish and insects.	Thank you for your comment. The sediment ponds would be designed for the 100 year precipitation event and would be excavated below grade. Because the ponds would not be dammed structures, the potential to be breached during flash flooding or large precipitation events would be minimized. Similar to the current operation, water detained within the ponds would be monitored according to the requirements of the stormwater discharge permit (COG-500325) to ensure that it meets applicable standards prior to release to either Currant or Tallahassee creek. Precipitation that exceeds the design storm event may temporarily increase the volume of water discharged from the ponds, but would not result in failure of the structures or detrimental impacts to water quality in receiving streams. Monitoring data for sediment ponds from the existing mining operation indicates that the discharge consistently meets applicable standards for all monitored parameters.
Public	11	2	Continuing on, your finding of potential harm to the groundwater is disturbing. Water is more precious to preserve life, not grow more corporate greed. Mining is necessary, however, at the VERY least BLM should wait for the final revision of the Eastern Colorado Resource Management Plan.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Public	11	3	Both Alt. A & C intrude on lands determined by BLM to have wilderness characteristics so that should be enough to deny this permit. I imagine there are other places for suitable for mining aggregate. This area can last another 20+ years.	Thank you for your comment. The BLM has considered impacts to wilderness characteristics as a result of approving either Alternative A or C, as disclosed in the EIS (Section 3.7).
Public	12	1	I am concerned about sedimentation reaching the tributary stream and Arkansas river. Recent fires (Hayden Creek/Decker) have and will continue to negitively impact habitat for trout and benthic organisms and feel the mine expansion could potentally add to the problem. I have spoken with former CPW aquatic biologist, Greg Polisky, about the biggest threats to the Upper Arkansas river and he listed, "sedimentation" as #1.	Thank you for your comment. Best management practices (BMPs) to minimize sediment transport from areas that would be disturbed by the quarry are described in the Stormwater Management Plan (Martin Marietta 2019). The BMPs include: • Sedimentation ponds, silt fences, and wattles to control sediment transport in surface water runoff from disturbed areas • Site grading (i.e. diversion dikes and berms, vegetated swales and natural depressions) to stabilize exposed areas and contain runoff • Erosion controls (check dams, rip rap, drop structures, rock socks, and erosion blankets) to stabilize drainages and exposed areas • Concurrent reclamation and revegetation of disturbed areas with mining progress • Conservation and maintenance of riparian buffers adjacent to streams These BMPs would be implemented as needed to prevent adverse sediment impacts to the Arkansas River and its tributaries from the proposed mining operation. Martin Marietta, 2019. Stormwater Management Plan, Parkdale Quarry, Cañon City, Fremont County, Colorado. Permit No. COG-500325

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	12	2	I am concerned the mine could negitively impact the Gold Medal status of the river and hence damage local economies as they pertain to angler recreation.	Comment Noted. Best management practices (BMPs) that are designed to minimize sediment transport from disturbed areas are described in the Stormwater Management Plan for the Parkdale Quarry (Martin Marietta 2019). If implemented correctly, BMPs will prevent detrimental levels of sediment transport to adjacent streams and thus preventing negative impacts on the Gold Medal status of the river. Martin Marietta, 2019. Stormwater Management Plan, Parkdale Quarry, Cañon City, Fremont County, Colorado. Permit No. COG-500325
Collegiate Peaks chapter of Trout Unlimited	13	1	Given that Trout Unlimited's mission is to conserve, protect, and restore coldwater fisheries and their watersheds, we are acutely concerned that this proposed quarry expansion will adversely affect the riparian areas and wildlife corridors along Currant and Tallahassee Creeks.	Thank you for your review and comment. The BLM recognizes the importance and biological significance of riparian corridors for wildlife. Impacts to surface water, existing priority terrestrial wildlife habitat and special status species habitat are disclosed in Sections 3.5 and 3.6 of the EIS and analyzed as required by NEPA.
Collegiate Peaks chapter of Trout Unlimited	13	2	The proposed quarry expansion in both the Proposed Action (Alternative A) and the Alternative Sale Area (Alternative C) would expand onto the eastern portion of BLM's 31,918-acre Echo Canyon Lands with Wilderness Characteristics (LWC), which the BLM documented in a 2015 report. As a testament to its wilderness character, these areas have been proposed as Wilderness numerous times since 2003 as part of the Table Mountain proposed Wilderness, identified for its unique and extraordinary biological values. It was proposed for Wilderness as recently as the Colorado Wilderness Act of 2018, and this portion of the Table Mountain proposed Wilderness was only excluded from the Colorado Wilderness Act of 2019 in order to minimize conflicts with the quarry expansion proposal. The BLM must consider how the expansion of this quarry could impact the nearby McIntyre Hills and Grape Creek Wilderness Study Areas and proposed Wilderness Areas. Factors impairing the wilderness and wildlife value of this one area could significantly affect the others. For example, bighorn sheep range on both sides of the Arkansas River throughout Bighorn Sheep Canyon - the river does not present a substantial barrier to their range for much of the year.	The BLM does not agree that the Project would impact the McIntyre Hills and Grape Creek Wilderness Study Areas and proposed wilderness areas because they are both outside the area of analysis (the McIntyre Hills WSA is approximately 6 miles away from the Parkdale Quarry, while the Grape Creek WSA is approximately 10m miles away from the Parkdale Quarry). As stated in the EIS (Table 3.4), the nearest existing wilderness or wilderness study area or Natural Area is the High Mesa Grassland Natural Area, is located more than 2.5 miles from the proposed mine expansion area. The proposed Parkdale Quarry expansion would not directly affect wilderness or wilderness study areas. The proposed Sale Area includes a limited portion of the proposed but not currently designated Table Mountain Wilderness Area. Impacts affecting bighorn sheep range are disclosed in Section 3.6: Terrestrial Wildlife.
Collegiate Peaks chapter of Trout Unlimited	13	3	At the very least, the BLM should defer consideration of the project until completion of the ongoing Eastern Colorado Resource Management Plan. With the RMP process nearing completion, we believe that now is not the proper time to make this decision. The existing quarry has sufficient materials to continue to operate for an additional 15 to 30 years.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	14	1	I opose both the Proposed Action (Alternative A) and the Alternative Sale Area (Alternative C) as they are both 100-year life-of-mines that would expand onto BLM's greater Echo Canyon Lands with Wilderness Characteristics (LWC), high-quality wilderness-eligible public lands that are of utmost importance to Colorado wildlife and primitive recreation. This would permanently impair, and indeed destroy, the wilderness values of these lands. This area has been proposed for Wilderness numerous times as part of the Table Mountain proposed Wilderness of the Colorado Wilderness Act, identified for its unique and extraordinary biological values.	Thank you for your comment. The BLM has considered impacts to wilderness characteristics as a result of approving either Alternative A or C, as disclosed in the EIS (Section 3.7).
American Whitewater	15	1	Due to its late summer flows, high-quality rapids and incredible scenery, this section of the Arkansas is at the top of the list for most paddlers in Colorado and around the country. After reviewing the DEIS, the following are our primary concerns that would affect outdoor recreation: ? Impacts to scenery/visual resources from upland quarry expansion. ? Impacts to water quality and quantity in the Wild and Scenic Suitable Arkansas River Segments 3 and 4, especially during active mining periods. ? Increased traffic and noise from increased train and truck transfer of expanded mine output. ? Insufficient analysis of impacts on recreation within the Socioeconomics Cumulative Effect Study Area.	As stated in Table 3.4 of the Draft EIS, impacts to recreation are expected to be minor, because mining activity is already occurring in the area. The Proposed Action is not anticipated to impact the ability for the public to access the Arkansas Headwaters Recreation Area or substantially change the visitors experience. Impacts to the Arkansas Headwaters Recreation Area would be similar in nature to those currently experienced due to current mining at the Parkdale Quarry. Impacts to visual resources have been analyzed and can be found in section 3.8.2. Impacts to water quality have been analyzed, and can be found in section 3.5.2. As stated in Table 3.4 of the Draft EIS, the proposed action and alternatives would not substantially alter the level of noise resulting from mining and processing activity and therefore user experience within the AHRA would be similar to Alternative B. Lastly, because recreation is not expected to be impacted as a result of the Proposed Action, further analysis under Section 3.9: Socioeconomic Conditions related to recreation is not warranted.
American Whitewater	15	2	AW has general concerns that the mine expansion will negatively impact water quality and quantity in the Arkansas River Segment 3 and 4. The segments of river from Salida to Parkdale and Parkdale to Canon City, respectively, were found suitable for inclusion in the Wild and Scenic River's system by the RGFO.[5] [5. https://eplanning.blm.gov/epl-front-office/projects/lup/39877/98743/119611/Draft_WSR_Suitability-Report_RGFO.pdf] The impacts from the quarry expansion could affect recreation, wildlife, botany, and fish outstandingly remarkable values (ORVs) identified in that finding.	Groundwater, surface water, and stormwater modeling completed for the EIS have concluded that impacts to surface water quantity and quality are likely to be negligible. The mine expansion will occur outside the 0.25 mile corridor on both sides of the river that has been determined to be suitable for Wild and Scenic River designation, so impacts to the ORVs are unlikely.
American Whitewater	15	3	Section 1.2 Purpose and Need - The DEIS does not sufficiently describe the need for the drastic increase in production rate (approx. 2M-4M more short tons of rock material annually) for the next 100 years and how that would meet critical resource needs locally or regionally.	Under the requirements of NEPA, "The purpose and need statement for an externally generated action must describe the BLM purpose and need, not an applicant's or external proponent's purpose and need (40 CFR 1502.13)" (BLM NEPA Handbook, page 35). Therefore, it is not necessary or required to describe the applicant's purpose or need to expand the mine. The BLM's action(s) trigger NEPA, not the applicant's. As stated in Section 1.2 of the EIS, the project need is based on the BLM's multiple-use mission, set forth in the Federal Land Policy and Management Act of 1976, which mandates that public land resources be managed for a variety of uses, including mining.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
American Whitewater	15	4	Section 1.7 Key Issues - We suggest that the BLM add Recreation as a key issue and analyze how the proposed Parkdale Quarry expansion would affect the whitewater paddling opportunities on the Arkansas River in Big Horn Sheep Canyon and the Royal Gorge. Outdoor recreation - and specifically river-based recreation - provide significant socioeconomic benefits to the local communities and the DEIS should analyze the project's potential impacts to this.	Impacts to recreation were considered during internal and external scoping. However, because impacts are expected to be minor, it was not carried forward as an impact topic in the Draft EIS. Impacts to recreation are expected to be minor, because mining activity is already occurring in the area. The Proposed Action is not anticipated to impact the ability for the public to access the Arkansas Headwaters Recreation Area or substantially change the visitors experience. Impacts to the Arkansas Headwaters Recreation Area would be similar in nature to those currently experienced due to current mining at the Parkdale Quarry. Furthermore, the duration of visual impacts to rafters and paddlers on the Arkansas River would be negligible, considering the length of the Arkansas Headwaters Recreation Area and the amount of time that the impacts from the expanded mining would be visible to passing rafters and paddlers.
American Whitewater	15	5	o VIS-01: In its 2017 Suitability Report, the RGFO identified scenery as one of many ORVs and recognizes how important the surrounding landscape is to the extensive river-related recreation use that takes place. It is important for this Design Feature to not effect this visual resource. From the maps and phasing plans it is not clear how the "mine from behind" approach would be implemented. All of the proposed activity is upland of the existing mine and would be more readily seen from the highway and river. The long lag time (5 15 years, DEIS pg. 2-10) from the completion of mining operations to reclaimed land ensures that a subsequent phase of mining would take place during the reclaiming of used mine land and would not be sufficient in blocking viewsheds into the quarry.	The Visual Resources section and contrast ratings were completed per BLM Visual Resource Management (VRM) guidance. As stated in the DEIS (section 3.8.1), the VRM class established in the 1996 Royal Gorge Resource Area RMP for the proposed Sale Area is Class II. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. From KOPs 1, 3, and 4, much of the mining activity would not be visible, due to the "mine from behind" approach (see the visual simulations presented in Appendix H). Furthermore, the duration of visual impacts to rafters and paddlers on the Arkansas River would be negligible, considering the length of the Arkansas Headwaters Recreation Area and the amount of time that the impacts from the expanded mining would be visible to passing rafters and paddlers. The phased approach to reclamation would also mitigate these impacts, because areas of the mined area would be reclaimed concurrently, resulting in a diversity of vegetative communities representative of the surrounding area.
American Whitewater	15	6	o AQ-01: The use of magnesium chloride to control dust and mitigate air quality impacts is concern to American Whitewater. Studies have shown that using magnesium chloride ($MgCl_2$) as a road deicer in place of other salts and sand is less detrimental to water quality, especially on small Rocky Mountain streams in Colorado.[6] [6. https://www.codot.gov/programs/research/pdfs/1999/magchlorideenveffects.pdf] However, in this proposed application it is prudent to look closely at the impacts $MgCl_2$ has on aquatic ecosystems. This study on the South Fork of the Cache la Poudre River in Colorado showed that "relatively short-term exposure to $MgCl_2$ road deicer resulted in impairment to a natural community of benthic macroinvertebrates. Highly significant reductions in total abundance were observed at concentrations below the U.S. EPA chronic chloride criteria value for surface water."[7] [7.Kotalik, Christopher & Clements, William & Cadmus, Pete. (2017). Effects of magnesium chloride road deicer on montane stream benthic communities. Hydrobiologia. 10.1007/s10750-017-3212-5.] The BLM should analyze how this air quality mitigation action could affect water quality in the Arkansas River and affected tributaries and what those impacts would be on fish ORVs on Wild and Scenic suitable Segments 3 and 4.	Thank you for your comment. Runoff from roads will be routed to sedimentation ponds that will be monitored according to the requirements of the stormwater discharge permit (COG-500325) to ensure that the detained water meets applicable surface water standards as determined by the CDPHE prior to release.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
American Whitewater	15	7	o AQ-02, 03 and 06: American Whitewater has concerns with the quantity of water necessary to control dust on haul roads and stockpiles. In Table 2.4, the daily water use rate is described as having no increase from existing - 10 gpm. While much onsite water use is recycled, the watering of haul roads is a defined consumptive use (DEIS pg. 2-21). The air quality control measures of 1.1 miles of new haul road in addition to watering of stockpiled materials would undoubtedly increase the consumptive use of water at the quarry.	The current area for which water is used for dust suppression including the existing stockpile, quarry, and haul road is 46.5 acres. The new section of haul road would add 3.4 acres to this area which is a 7.3 percent increase. Assuming the area watered is proportional to consumptive use, the new section of haul road would increase water consumption by 0.73 gpm. The value in Table 2.4 has been modified to reflect 11 gpm rather than 10 gpm.
American Whitewater	15	8	- Table 3.4. Resource Area or Supplemental Authority for Which No Issues Were Identified or Not Carried Forward for Detailed Evaluation: American Whitewater is concerned that in this EIS the BLM fails to analyze potential impacts from these proposed lease sales on specific recreation areas. The DEIS states that "impacts to the Arkansas Headwaters Recreation Area would be similar in nature to those currently experienced due to current mining at Parkdale" (DEIS, pg. 3-11). The greatly expanded footprint of the mining operations are all upland of the current processes and will surely have an impact on the scenic values of the Arkansas River. As the DEIS points out, the adjacent segment of the Arkansas River was given a tentative classification of suitable (recreation) and is managed to protect the recreation, scenery, wildlife, botany, fish and cultural ORVs identified. Both the 'Recreation' and 'Special Designations - Wild and Scenic Rivers' programs areas could be impacted and the DEIS should carry both forward for detailed evaluation.	Groundwater, surface water, and stormwater modeling completed for the EIS have concluded that impacts to surface water quantity and quality are likely to be negligible. The mine expansion will occur outside the 0.25 mile corridor on both sides of the river that has been determined to be suitable for Wild and Scenic River designation, so impacts to the ORVs are unlikely. Impacts to visual resources are detailed in section 3.8.2. As stated in the EIS, impacts would be noticeable, but are not expected to impact recreation or recreational values to a substantial extent.
American Whitewater	15	9	o Recreation: As the RGFO states in its 2019 Wild and Scenic Suitability Report, this segment of the Arkansas River has an unusually high number of ORVs as well as high levels of visitation specifically for river-related recreation.[8] [8.https://eplanning.blm.gov/epl-front-office/projects/lup/39877/98743/119611/Draft_WSR_Suitability-Report_RGFO.pdf] Local communities see significant benefit from this recreational draw. "The public makes substantial investments of time and money to experience river related values, resulting in an economic impact to the corridor of more than $60 million annually" (Suitability Report pg. 70). This DEIS needs to evaluate how the proposed project's scenic impacts, increased heavy truck traffic, noise pollution from increased frequency and length of trains, and water quality could affect this high-quality and highly valuable outdoor recreational resource.	As stated in the Draft EIS, an increase in regional transportation (traffic and trains) is expected under the proposed action, but would decrease regionally as longer rail trips are displaced by shorter rail trips. Moreover, Martin Marietta projects that local demand for ballast under Alternative B would result in development of four additional quarries in Colorado that would ship their production by truck. While a noise study has not been conducted for the operation, the Proposed Action would utilize the processing equipment for current operations on private land and would move mining and some processing activities further from the Highway 50 corridor, thus potentially reducing noise impacts from those operations. As stated in Section 3.8.1, "The VRM class ... for the proposed Sale Area is Class II. The objective for Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer." As discussed in Section 3.8.2, visual impacts of mining from a vantage point for recreationists gathering at the Arkansas Headwaters Recreation Area and in-river would not be visible until approximately Phase 3 through 5. The areas disturbed would be concurrently reclaimed as mining progresses, maintaining the VRM Class II status of the proposed Sale Area. Appendix H presents the visual simulations in KOPs 3 and 4 and thus what the impacts are expected to be. As this is a short section of river in which people kayak and raft, visual impacts of mining will only be noticeable for the short amount of time that recreators either float by or put in personal watercrafts. Due to the short amount of time that visual impacts of mining will be visible, it is not expected to have a significant impact on recreation and/or tourism.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
American Whitewater	15	10	o Noise: The rationale for this determination on noise impacts cites the fact that recreation activity is currently affected by existing mining and processing operations and the proposed 698-acre expansion would not affect it further. Further analysis is needed to display how increases in mine output (approx. 2,000,000 - 4,000,000 short tons per year increase) and the associated increase in transportation of that material would not add to impacts to noise, scenic, and recreational resources.	As stated in the Draft EIS, an increase in regional transportation (traffic and trains) is expected under the proposed action, but would decrease regionally as longer rail trips are displaced by shorter rail trips. Moreover, Martin Marietta projects that local demand for ballast under Alternative B would result in development of four additional quarries in Colorado that would ship their production by truck. While a noise study has not been conducted for the operation, the Proposed Action would utilize the processing equipment for current operations on private land and would move mining and some processing activities further from the Highway 50 corridor, thus potentially reducing noise impacts from those operations.
American Whitewater	15	11	o Special Designation - Wild and Scenic Rivers: The Arkansas River was determined by the BLM to be suitable for a total of 121.3 miles. Segment 3 (Salida to Parkdale) consists of 47.9 miles and Segment 4 (Parkdale to Canon City) make up the final 8 miles of suitable river. The river adjacent and downstream of its confluence with Tallahassee Creek have both been found suitable and "the BLM concludes that the comprehensive management standards provided by a determination of suitable are important for ensuring that the river-related values are not inadvertently degraded over the long term." (Suitability Report pg. 67-68). By not evaluating the potential impacts from this proposed mining action on federal lands the BLM cannot ensure that this proposed action will not be in violation of the non-degradation standard outlined in BLM Manual 6400. The DEIS does not analyze how the project fits within the requirement to "protect and enhance" the ORVs for which the river was determined suitable (emphasis added).	Groundwater, surface water, and stormwater modeling completed for the EIS have concluded that impacts to surface water quantity and quality are likely to be negligible. The mine expansion will occur outside the 0.25 mile corridor on both sides of the river that has been determined to be suitable for Wild and Scenic River designation, so impacts to the ORVs are unlikely. The proposed action includes a monitoring program to ensure that project impacts do not indirectly degrade ORVs.
American Whitewater	15	12	Section 3.5 Surface, Ground Water, and Water Quality - The EIS identifies major impacts to local groundwater levels and BLM-owned associated water rights. Mitigation measures mentioned include wells or surface water impoundments that could further affect water quantity. The EIS states that groundwater impacts from total dissolved solids and nitrogen species would be present during active mining but would be treated and only temporary. As for surface water, the EIS describes analysis of comparisons to pre- and post-mining activity. This analysis does not include the impacts to surface runoff during active mining. Much of the proposed expansion is upland of Tallahassee Creek and its confluence with the Arkansas River. Other surface water mitigation measures described are settling ponds prior to discharge into Tallahassee Creek, however details of those discharge and monitoring plans are not included. We are concerned with the cumulative impacts to water quality and quantity and their affects to the suitable wild and scenic segments (DEIS 3-41).	The comment does not accurately represent conclusions in the EIS with respect to water quality. On pages 3-35 and 3-36, the EIS states that “Runoff from the site during mining may have increased turbidity, sediment, and elevated concentrations of nitrate and nitrite, but would be routed to settling ponds and monitored to ensure that it meets applicable water quality standards prior to being discharged to either Currant or Tallahassee Creek. Runoff from the reclaimed quarry is expected to be similar in quality to the pre-mining condition and would not require settling before being allowed to flow into Current and Tallahassee creeks.” Current monitoring requirements for sediment pond outfalls are listed in the Storm Water Management Plan for Parkdale Quarry (Martin Marietta 2019). A surface water and groundwater monitoring plan for the quarry expansion will be developed in cooperation CDPHE as a requirement of the ROD. Sections 3.5.2.1 of the EIS discuss the intent to develop the monitoring program and the overall objectives of the program. Martin Marietta Materials Inc., 2019. Storm Water Management Plan Parkdale Quarry, Cañon City, Fremont County, Colorado, Permit No. COG-500325. 28 p.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
American Whitewater	15	13	Section 3.9 Socioeconomic Conditions - Here again, the DEIS recognizes the significant benefit of whitewater recreation to Fremont County just as the BLM does in the 2019 Wild and Scenic Suitability Report: The public makes substantial investments of time and money to experience river-related values, resulting in an economic impact to the corridor of more than $60 million annually. It is clear that the public expects that river related values will be maintained and enhanced. Communities along the river corridor have developed a significant economy based upon river-oriented recreation, and they expect the environmental and cultural resources associated with the river to continue to support their economies.[9] [9.https://eplanning.blm.gov/epl-front-office/projects/lup/39877/98743/119611/Draft_WSR_Suitability-Report_RGFO.pdf] However, the DEIS fails to provide any detailed analysis on how the significant expansion could affect the socioeconomic conditions of Fremont County or surrounding areas.	Comment Noted. Regarding water quality in Fremont County, best management practices (BMPs) are designed to minimize sediment transport from disturbed areas are described in the Stormwater Management Plan for the Parkdale Quarry (Martin Marietta 2019). If implemented correctly, BMPs will prevent detrimental levels of sediment transport to adjacent streams and thus preventing negative water quality impacts. Regarding visual impacts, as discussed in 3.8.2, visual impacts of mining from a vantage point for recreationists gathering at the Arkansas Headwaters Recreation Area and in-river would not be visible until approximately Phase 3 through 5. The areas disturbed would be concurrently reclaimed as mining progresses, maintaining the VRM Class II status of the proposed Sale Area. Appendix H presents the visual simulations in KOPs 3 and 4 and thus what the impacts are expected to be. As this is a short section of river in which people kayak and raft, visual impacts of mining will only be noticeable for the short amount of time that recreators either float by or put in personal watercrafts. Due to the short amount of time that visual impacts of mining will be visible, it is not expected to have a significant impact on recreation and/or tourism. Martin Marietta, 2019. Stormwater Management Plan, Parkdale Quarry, Cañon City, Fremont County, Colorado. Permit No. COG-500325
Upper Arkansas Wilderness Volunteers	16	1	First there is no rush and BLM should wait until the Eastern Colorado Resource Management Plan is completed	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Upper Arkansas Wilderness Volunteers	16	2	Proposed wilderness areas like McIntyre Hills andGrape Creek could be impacted as well. Wilderness character is part of The Colorado Wilderness Act that has been considered for years.	The BLM does not agree that the Project would impact the McIntyre Hills and Grape Creek Wilderness Study Areas and proposed wilderness areas because they are both outside the area of analysis (the McIntyre Hills WSA is approximately 6 miles away from the Parkdale Quarry, while the Grape Creek WSA is approximately 10m miles away from the Parkdale Quarry).
Public	17	1	Tallahassee and Currant creeks provide important habitat corridors for a long list of large mammals and birds, including sensitive and federally-protected species, among other wildlife. The BLM has itself acknowledged this in the 2015 Final Wild and Scenic Eligibility Report for the Royal Gorge Field Office. Despite the earlier recommendation of the BLM to Martin Marietta to move the mine area farther from Currant Creek, mining activities could nonetheless negatively impact the wildlife species that use the riparian corridor. Further, despite the intermittent nature of these creeks, the habitats that they support are becoming a rarity throughout our region due to development pressures.	Thank you for your review and comment. The BLM recognizes the importance and biological significance of riparian corridors for wildlife. Impacts to existing priority terrestrial wildlife habitat and special status species habitat are disclosed in Section 3.6 of the EIS and analyzed as required by NEPA.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	17	2	Please consider postponing further consideration of the Parkdale Quarry expansion until after completion of the Eastern Colorado RMP.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Colorado Parks and Wildlife	18	1	The Proposed Action as described in Alternative A identifies a mineral lease covering 1458 acres of public land where approximately 700 acres is proposed for extraction and sale of mineral materials. There is habitat for a variety of terrestrial and aquatic wildlife species and the location provides access to public lands for various recreational activities. In the issues analysis in Chapter 3, Table 3.4 describes issues identified but not carried forward for detailed evaluation. Regarding impacts to recreation, we do have two clarifications on potential impacts to recreation from the proposed action. Under Noise, we agree that current operations can affect activity at the Arkansas Headwaters Recreation Area (AHRA). However, an increase in production as described in the mining plan for Phases 2 through 5 indicates there could be an increase in noise from more frequent blasting and additional shifts for processing operations. In addition, a longer life of the mine would extend those impacts beyond the currently anticipated timeline. CPW does not believe this necessarily elevates the issue to require a detailed analysis but we do think impacts would likely be somewhat higher than in Alternative B. These issues are likely to be reviewed in the amended DRMS permit where CPW anticipates we will address any additional comments or recommendations.	Understood. Thank you for your comment.
Colorado Parks and Wildlife	18	2	Within the Recreation entry in Table 3.4, with regards to impacts at the Parkdale site within the AHRA our comments would be similar to those on noise described above. For hunting, the site is difficult to access but there is limited use by hunters, particularly for mule deer. Recreation impacts over the entire term of the lease depends in part on access for hunters to areas within the identified buffer areas but outside DRMS mine boundary, and post mining access as reclamation occurs. Will the mine boundary recede with mining as reclamation bonds are released? If the entire lease area is considered lost to recreation for the entire 100 years of the proposed mining plan that could increase impacts to hunting. The amount of public lands available for hunters in the vicinity of the leased area however would likely keep this issue from rising to a level that requires further analysis.	Access to the mine buffer areas would remain open to recreational hunters and others during the life of the project. These areas would not be fenced or closed to walk in access. Public access to active mine site areas would be restricted through signage and/or fencing as determined appropriate by CDRMS and MSHA. Areas of active ongoing reclamation would be signed or fenced for public safety and to support the success of reclamation efforts. Once reclaimed areas are determined to be successful, released from monitoring and from bonding, public recreation would then be allowed without restriction or signage.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Colorado Parks and Wildlife	18	3	The draft EIS identifies no anticipated impacts to aquatic wildlife or wetlands and riparian areas from the proposed action (Table 3.4). The project plan identified no impacts to the Arkansas River and adjoining riparian areas. With the proposed mining plan and stated plan to avoid disturbance to Tallahassee Creek and adjoining riparian zones in the buffer area of the proposed action, impacts on the aquatic species in Tallahassee Creek are not anticipated. Best management practices and adherence to the rules protecting water quality as discussed in the comments from Colorado Division of Public Health and Environment Water Quality Control Division regarding water quality and proposed mitigation and adaptive management should provide sufficient protection for species and aquatic habitat in the Arkansas, Cottonwood, and Tallahassee drainages. If there are potential impacts to water quality in these waterways that could occur during operations in the new mining areas from high water events or failures of the minimization procedures, CPW recommends some level of response planning that would evaluate threats to aquatic wildlife and habitat.	Comment noted. The project will adhere to best management practices (BMPs) and stormwater monitoring as specified in the stormwater management plan. A surface water and groundwater monitoring plan for the quarry expansion will also be developed in cooperation CDPHE as a requirement of the ROD. BMPs will be monitored on an ongoing basis for effectiveness at preventing sediment discharge from the site. Sediment ponds will not be dammed structures, so catastrophic failure is unlikely. Potential impacts to downstream aquatic communities from decreased water quality from storm water events would be mitigated by the use of BMPs to control turbidity, sediment, and nitrogen in runoff and by monitoring to ensure that runoff collected in sediment ponds meets applicable water quality standards prior to release to the surrounding drainages. A Stormwater Management Plan (SMP) and Spill Prevention, Control, and Countermeasures (SPCC) Plan also would be required for compliance under additional permitting authorities as described in Section 1.5, Permits and Approvals, therefore, impacts to downstream aquatic biological resources are not anticipated. In the event of a high water event or failure, considerations for protections of aquatic wildlife and habitat would be covered in the above plans.
Colorado Parks and Wildlife	18	4	Within the Division of Natural Resources, the Colorado Water Conservation Board holds decreed instream flow water rights to preserve the natural environment to a reasonable degree on: (1) Currant Creek from its confluence with Cottonwood Creek to its confluence with Tallahassee Creek, decreed in Case No. 95CW231 for 5 cfs (11/1 - 3/31) and 1.25 cfs (4/1 - 10/31); and (2) Tallahassee Creek from its confluence with South Tallahassee Creek to its confluence with the Arkansas River, decreed in Case No. 95CW232 for 1 cfs (4/1 - 10/31) and .5 cfs (11/1 - 3/31). The location of the proposed mining site is adjacent to these instream flow water right reaches. Any monitoring plan or mitigation measures conducted or implemented under the chosen alternative should include monitoring for and prevention of injury (reduction of flows below the decreed flow rates) and adverse impacts to these instream flow water right reaches. For example, page 3-35 of the PDEIS states "Decreased infiltration to groundwater is expected to result in decreased baseflows to the creeks, which would be partially offset by increased streamflows during major storm events." Increased streamflows during storm events do not offset injury to an instream flow water right; the decreed flow rates should not be reduced by the mining activities.	A calculation of potential baseflow impacts to Currant and Tallassee Creeks has been added to the EIS in section 3.5.2.1. The potential reductions in baseflows to Currant and Tallahassee creeks are calculated to be 0.00012 and 0.00028 cfs respectively. These flows are 0.12 and 0.06 percent of the estimated low-flows for Currant Creek (0.1 cfs) and Tallahassee Creek (0.5 cfs) and would not result in measurable losses that would affect instream water rights.
Colorado Parks and Wildlife	18	5	3.6.2.1. Issue 1. Regarding potential impacts to bighorn sheep in the proposed action, CPW appreciates the inclusion of a timing stipulation for the initial disturbance into winter range in Phase 1 of the mining plan. With the 'mine from behind' plan and the phased reclamation, big game habitat should become more available to big game as the active mining phase recedes from the northern and western edges of the lease area. CPW does agree that seasonal timing limitations would have limited benefit during active mining operations after the initial disturbance. However, once reclamation ground work (slopes and revegetation) is completed, CPW recommends winter timing limitations be implemented in reclaimed areas. Human encroachment, including overflights, should be minimized to the maximum extent possible from November to April to encourage winter use by bighorn sheep and other big game in reclaimed habitat.	Thank you for your review and comment. Design features for bighorn sheep and other big game species have been updated in the EIS (Table 2.2) to include CPW's recommendation of a winter timing restriction in areas that have been reclaimed. This EIS can only impose restrictions on the applicant and can not make decisions for winter timing limitations for other users post reclamation. The RMP would have to have those restrictions in place.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Colorado Parks and Wildlife	18	6	CPW appreciates the operator's intention to implement our recommendations on reclamation to create landscape features that support use by bighorn sheep. More specifically, the most important features that likely determine post mining use by bighorn sheep are slope, availability of escape terrain, and early re-vegetation in reclaimed areas. Escape terrain designed from high walls or talus slopes of rock overburden of at least a 40 degree slope, with three or more benches, and in proximity to forage areas was found to be critical for use by bighorn sheep in a study in the northern Rockies (MacCallum and Geist, 1992). Wild sheep in that study avoided slopes of 11-35 degrees and avoided areas of available forage that were more than 300 meters from suitable escape terrain. Placement of rock piles on the feeding areas was also shown to support use by bighorn sheep. These same features, if applied at the Parkdale site, would also support use by a variety of other wildlife post mining; small mammals, cliff nesting raptors, bats, and songbirds, including those special status species identified in 3.6.2.1. Issue 3.	Thank you for your review and comment. The Reclamation Plan will be updated to ensure Martin Marietta's adherence to CPW's recommendations for landscape feature designs benefitting bighorn sheep and other wildlife.
Colorado Parks and Wildlife	18	7	3.6.2.1 Issue 2. For migratory birds and raptors CPW supports the seasonal recommendations on timing of vegetation removal to limit impacts to nesting migratory birds. While no active raptor nests were identified on the site during pre-leasing surveys, CPW recommends raptor nest surveys be conducted ahead of any new significant surface disturbance in suitable habitat and requests adherence to the Colorado Recommended Raptor Buffer Distances in the attached document (Attachment 1).	Thank you for your review and comment. Text was added to Section 3.6 stating that Martin Marietta would have a qualified biologist conduct raptor nest surveys prior to any new significant surface disturbance activities within suitable habitat. If active nests are located, Martin Marietta would coordinate with BLM to establish appropriate nest activity buffers in adherence with CPW's recommended raptor buffer distances. Any activity that could disturb nesting raptors would be avoided in the established activity buffer until the nest is no longer in-use, or as directed by BLM. Surface disturbing activities would commence once the nest fledges.
Colorado Parks and Wildlife	18	8	We do note, however, that none of the proposed minimization actions for wildlife impacts described in Chapter 3 and in Appendix D are listed in Table 2.2. Applicant and BLM Proposed Design Features for Alternative A. In the paragraph on Ferruginous hawk direct adverse impacts under Issue 3 in 3.6.2.1, the text specifically mentions Table 2.2 as a reference for minimization measures for direct adverse impacts to sensitive raptors and migratory bird species. Given that the description of that table Includes wildlife resources, and the references in chapter 3, CPW recommends the proposed timing stipulations, survey commitments, and other recommendations described in section 3.6 Terrestrial Wildlife and included in the mining plan be included in Table 2.2. If these are not included in Table 2.2, CPW requests that BLM provide information on how those commitments in the EIS would be implemented over the lifespan of the lease.	Thank you for your review and comment. Table 2.2 will be updated to include BLM and Applicant terrestrial wildlife design features, including details on when and how the commitments will be carried out.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Colorado Parks and Wildlife	18	9	Appendix D includes a more detailed mining and reclamation plan for the site. Section 6.4. Reclamation Seed Mixtures was reviewed and CPW has identified concerns with a few species included in the plan. The soil stockpile stabilization mix contains two weedy aggressive nonnative species. Desert Wheatgrass Agropyron desertorum is another name for Crested wheatgrass. CPW has designated this species as an aggressive non-native that can create a monoculture, reducing plant species diversity in wildlife habitats. Yellow sweetclover Melilotus officinalis is a non-native forb that can spread aggressively and reduce plant diversity in wildlife habitats as well. State Park weed management plans, including the plan for the AHRA, target both of these species for removal. CPW has recommendations available specific to the region and we have attached the restoration seed mixes created specifically for the nearby AHRA (Attachment 2). These lists may provide some useful information for reclamation on the BLM Parkdale site. These seed mixes are based upon elevation to accommodate the diversity of habitat types along the river corridor and were designed to mimic local native habitat vegetation diversity with the elevation, soil types, revegetation success rates/species, and revegetation success rates per seed mix in mind. We suggest use of the facilities/maintenance medium elevation mix in the AHRA specific revegetation document for the soil stockpile mix. The roads and quarry floor mix in Appendix D is mostly native species however Sheep's fescue Festuca ovina is not native to Colorado and CPW does not recommended it for use. Idaho Fescue or Arizona fescue are appropriate alternatives. This mix is also heavy on grasses and may not be as successful as a mix containing higher forb content. The Quarry benches mix also contains Sheep's fescue and the same concern with the use of a non-native species applies.	The revised Appendix D includes proposed Martin Marietta's Mine and Reclamation Plan which still refers to the 3 seed types. Neither ICF nor BLM has authority to change that Mine and Rec Plan at this time. However, the revised Appendix E, which is now the BLM RGFO Solid Minerals Reclamation Standards and Reclamation Plan Supplemental Information, notes that final details of reclamation including the interim and final reclamation seed mixes would be reviewed and approved by the CDRMS and BLM (Item 4-G in the Supplementation Information document).

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Colorado Department of Public Health and Environment	20	1	NEPA requires federal agencies to include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on: the environmental impact of the proposed action; any adverse environmental effects which cannot be avoided should the proposal be implemented; alternatives to the proposed action; the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and; any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. 42 U.S.C. § 4332(2)(C). Under Council on Environmental Quality (CEQ) regulations, an Environmental Impact Statement (EIS) EIS should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. 40 C.F.R § 1502.14. An EIS should include scientific and analytic discussions of environmental consequences, including direct and indirect effects and their significance. 40 C.F.R. § 1502.16. Under the DOI NEPA regulations, an EIS shall disclose a range of content including, the environmental impact of the proposed action, any adverse environmental effects, and examination of alternatives to the proposed actions. 43 C.F.R. § 46.415. CDPHE requests the BLM clarify if the DEIS is intended to fulfill NEPA requirements, including but not limited to the requirements listed in the previous paragraph, for the estimated 100-year life of the proposed project, and if so, to provide the required information to fulfill these requirements. If the DEIS is not intended to fulfill NEPA requirements for the 100 year period, the document should state such and the period of analysis. Table 3.27 of the DEIS includes a summary of anticipated operations and production of the proposed project through 2120. The estimated emissions inventory provided in Table 3.5 of the DEIS includes assumptions through the year 2033. CDPHE is not aware of any method to accurately estimate social, economic, or environmental effects 100 years into the future.	This EIS is intended to fulfill NEPA requirements, and the BLM maintains that it does. Please see Table 2.4 for a comparison of alternative and impacts. The EIS is for the sale of the material. NEPA analyzes the impacts of the alternatives, not compliance. Compliance to laws, regulations, and policies will always be required, whether it is for the protection of threatened and endangered species, air emissions, water quality, etc. Compliance is achieved through BLM's required inspection and enforcement protocol, as well the production verification process, which would be ongoing post-NEPA analysis. The renewal of the contract relies on these inspections and enforcement protocols. The U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service also have regulatory authority over the mine. Furthermore, providing the specifics of the reviews and inspections are outside the scope of NEPA. Yes, this NEPA document is intended to fulfill NEPA requirements for the proposed 100 year life of the mine. Throughout the life of mine, the proponent will be required to request contract renewals. During these renewal reviews, BLM will determine if the project, affected environment, and circumstances described in this EIS have changed sufficiently to invalidate the conclusions of the EIS. If this is the case, BLM will undertake additional coordination and NEPA analysis, as needed, as part of the permit renewal process.
Colorado Department of Public Health and Environment	20	2	Page 3-16 of the DEIS references an air pollutant emissions inventory that was developed to characterize the emissions from the Parkdale Quarry and the proposed expansion. This inventory is presented on page 3-17 of the DEIS, Table 3.5, which includes source types and estimated emissions of criteria pollutants and GHGs. Due to the scope of this project, CDPHE requests the following information be included in the emissions inventory: ? CO, PM 10 , PM 2.5 , and VOC estimates of the purchased electricity source type. ? Reference the permitted stationary sources for greater public transparency. ? Estimated hazardous air pollutant (HAP) emissions. ? State the rail distance used for the rail source type.	Electricity: the utility electric grid comprises multiple interconnected power plants across a large region, and emissions associated with the project cannot be identified with a specific power plant. Emissions were calculated with the EPA eGRID model for the eGRID subdivision (Western Electricity Coordinating Council/Rockies) corresponding to the project area. eGRID provides emissions only for NOx, SO2, and GHGs. Source types: a list of the permitted stationary sources will be added to the EIS. HAP emissions: Based on the provisions of its CDPHE air quality permit, the Parkdale Quarry is not a major HAP source. Given its non-major status, HAP emissions associated with the quarry would not be expected to lead to health risks in the community. Accordingly, HAP emissions were not quantified. Rail distance: the distances will be added to the EIS.

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Colorado Department of Public Health and Environment	20	3	The DEIS states that both a conveyor system and trucks will be used to move materials from pits to processing. We suggest that a conveyor system is used to the maximum extent feasible in order to minimize emissions. As noted in the DEIS, the Parkdale Quarry is not located within a nonattainment or maintenance area. However, trucks and trains associated with the quarry travel through two maintenance areas: the Cañon City PM 10 maintenance area and the Colorado Springs CO maintenance area. CDPHE requests the estimated truck and locomotive emission projections in these areas and modeling that shows maintenance budgets will not be exceeded. The Colorado Springs area is at risk of violating the 2008 ozone National Ambient Air Quality Standard (NAAQS). Due to projected population and economic growth in the area, in addition to projected increases in truck and train activity related to this project, we suggest expanding the air quality cumulative effects study area (CESA) analysis to include the Colorado Springs area, which is just outside of the 31 mile CESA used in the DEIS.	Conveyors: The Plan of Operations states that a conveyor system could be implemented in the expansion areas to haul ore to the processing station. According to Martin Marietta, a future decision to install a conveyor system would depend on the economics of the system and future market conditions. Maintenance areas: the General Conformity evaluation in the EIS included Canon City and Colorado Springs. The maximum project-associated increase in truck and locomotive PM10 emissions in the Canon City PM10 maintenance area is 0.16 tons per year. The maximum project-associated increase in truck and locomotive CO emissions in the Colorado Springs CO maintenance area is 39 tons per year. Both increases are less than the General Conformity threshold of 100 tons per year in each area. Cumulative: given the relatively small minor emissions associated with the project in the Colorado Springs area, the discussion of cumulative impacts in Section 3.4.3 applies to the Colorado Springs area as well.
Colorado Department of Public Health and Environment	20	4	CDPHE is encouraged to see that the DEIS acknowledges the threat of climate change and notes that global warming is expected to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates. The Colorado legislature and Governor have adopted science-based emissions targets, designed to align our state with the scale and pace of emissions reductions that are needed to mitigate the worst of these impacts. These targets include greenhouse gas (GHG) reduction goals of 50% by 2030 and 90% by 2050 (based on 2005 levels). CO HB 19-1261 (2019). The DEIS states that the primary source of GHG emissions at the Parkdale Quarry is exhaust from equipment vehicles, and to a lesser extent from permitted stationary sources. CDPHE supports the stated transition to electric and alternatively-fueled equipment. CDPHE requests estimates for this transition, for the life of the project, to be included in the document. CDPHE supports GHG reduction measures that the BLM may include in this contract.	Table 3-5 in the DEIS presents estimated GHG emissions for 2020 and 2033. The pace and extent of transition to electric and alternative-fuel equipment is uncertain as it depends on the development and commercialization of electric and alternative-fuel technologies applicable to the types of equipment and vehicles used at Parkdale Quarry, as well as the economic feasibility of specific equipment and vehicles for the quarry. Consequently, levels of GHG emissions in greater detail than given in the DEIS are not reasonably foreseeable.
Colorado Department of Public Health and Environment	20	5	The DEIS states that the quarry consisted of two types of deposits located to the north of the Arkansas River: an alluvial deposit and granite deposit. Appendix F, page 56 of the DEIS includes water testing results with levels of uranium, radium 226, radium 228, gross alpha, and gross beta that exceed water supply standards. Radioactive contamination could result from the extraction, blasting, excavation, processing, transport, and end use of minerals with high background radiation levels. CDPHE requests clarification on any previous radioactivity surveys at the quarry. We note that the aggregate can be tested for activity concentrations to ensure that it is suitable for use as a product and recommend that EPA regional radiation personnel be contacted to determine next steps. CDPHE is working on a state regulatory structure for TENORM, which would potentially apply to materials that contain concentrated naturally occurring radioactive materials.	Monitoring of radionuclides is not required by CDPHE for current mining operations at the Parkdale site. Alternatives A and C would mine granite to be used as aggregate similar to the current operation. The mining areas for both alternatives would be within the same granite body that is currently being mined, and the mining method would be the same as the current operation. Granite currently forms the majority of the surface outcrop in the analysis area. Mining under Alternatives A and C would not increase the area of exposed granite or potential exposure of the public to naturally occurring background radiation. Use of granite as construction aggregate would not result in exposure of the public to levels of radiation above background levels normally observed in Colorado. It is also noted that radionuclide levels in water from monitoring wells MW-03 and MW-10 are consistent with background levels reported for Currant Creek and Tallahassee Creek in Appendix F of the EIS. Mining under Alternatives A and C is not expected to result in measurable changes in the naturally occurring radionuclide concentration of groundwater or surface water at the site.

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Colorado Department of Public Health and Environment	20	6	The following comments are limited to the analysis provided in the DEIS as it relates to potential water quality impacts. A total of 5.29 stream miles and 12.6 acres of riverine wetlands are located within the study area associated with the project. This project may impact the following waterbodies: ? Tallahassee Creek - A relatively short length of Tallahassee Creek may be impacted by the expanded mining operation. In addition, four intermittent tributaries to Tallahassee Creek appear to fall directly within the project area. ? Currant Creek in Park County - This creek appears to serve as the western boundary of the area that will be mined. There are two intermittent tributaries to Currant Creek that would fall directly within the project area. ? Cottonwood Creek - This stream is included in the analysis area for the EIS, but there do not appear to be potential impacts to this stream as a result of the project. ? Arkansas River from the Chaffee/Fremont County Line to a point immediately above Highway 115 bridge - This segment has historic impairments for cadmium and zinc. A TMDL was written for this section of the Arkansas River in 2009. This segment is currently on Colorado's Monitoring and Evaluation List for suspected impairment for temperature. This stream is already impacted by the existing mining operation. Special consideration should be given in this case to avoid causing or contributing to further impairments on this segment.	Commented noted. Analytical data for groundwater in contact with granite that would be produced from the quarry (six samples) indicate that cadmium and zinc concentrations are below detection limits (Appendix K). This suggests that cadmium and zinc would have limited mobility in runoff from the quarry and that the proposed Project would not increase loading of these constituents to the Arkansas River. A monitoring plan for the quarry expansion will be developed in cooperation CDPHE as a requirement of the ROD to ensure that the project meets water quality standards in adjacent streams including Currant and Tallassee creeks and the Arkansas River. Cottonwood Creek is upstream from the project area and water quality in this stream will not be affected by project development. The current stormwater permit for the quarry recognizes that cadmium and zinc are priority water quality issues for the Arkansas river below the project and contains a provision that the certification may be reopened and limitation may be added.
Colorado Department of Public Health and Environment	20	7	The DEIS includes limited water quality data for a number of sites on Cottonwood, Currant, and Tallahassee creeks. The largest dataset presented in the DEIS is for Tallahassee Creek, and includes samples collected as early as 1980 and as recently as 2011 with the majority collected in 1992 and earlier. For Currant Creek, only one recent sample (collected in 2010) is available; the rest of the data were collected in 1982 and earlier. The only data available for Cottonwood Creek were collected in 1980 and 1981. Data collected in 1992 and earlier are not representative of current baseline water quality conditions, especially given that the existing Parkdale Quarry did not begin operating until 1997. Moreover, early samples may have been analyzed at a time when detection limits were below current water quality standards, limiting the applicability of those sample results. The dataset available for recent years indicates somewhat elevated concentrations of uranium and selenium, though most pollutant concentrations are low relative to current water quality standards. However, without additional recent data, it is challenging to conduct an adequate assessment of potential project impacts, such as those that may be associated with increased runoff and decreased baseflow to these streams following reclamation. There is also concern regarding the lack of uranium and radionuclides data. These parameters are likely the parameters of greatest concern in this region for water supply, and recent data are not available. Moreover, older uranium data collected by USGS are available only for the dissolved fraction. The water supply use standard for uranium is assessed against total fraction results, and dissolved fraction results are expected to be low relative to total fractions. CDPHE recommends that additional data be collected or obtained to provide a more robust analysis of baseline conditions and an analysis of potential water quality impacts.	Comment noted. Analytical data for six samples collected from monitoring wells #'s 1, 3 and 10 (ERM 2019) indicate that selenium concentrations in groundwater from granite within the quarry footprint are below drinking water standards and surface water aquatic lifer standards. Uranium concentrations are below aquatic life standards for the six samples and below drinking water standards for five of the six samples. All other monitored parameters including zinc and cadmium which were below detection limits also met drinking water and aquatic life standards for the samples. A surface water and groundwater monitoring plan for the quarry expansion will be developed in cooperation CDPHE as a requirement of the ROD. Sections 3.5.2.1 of the EIS discuss the intent to develop the monitoring program and the overall objectives of the program.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Colorado Department of Public Health and Environment	20	8	The applicant drilled three wells in the project area, screening them in the fractured granitic rock that constitutes the bulk of the material that they would extract. Water levels ranged between 87 and 322 feet higher than the projected minimum pit floor elevation of 5,940 ft amsl, implying that groundwater pumping would be required. Water levels measured in the three wells indicate that groundwater in the fractured bedrock flows to the south towards Tallahassee Creek and the Arkansas River. This suggests that both streams gain groundwater in these reaches. However, because the elevations of these streams are below the minimum pit floor elevation, pumping associated with the project is not expected to impact baseflows. Therefore, pumping activities are not likely to cause impacts to surface water quality. The DEIS includes an analysis of wells within the project area according to the database maintained by Colorado Division of Water Resources. This analysis shows that there are 97 wells (listed as constructed or replaced) in the area of interest, most of which are domestic (56), domestic - stock (21), or household use only (7). The DEIS explains that the majority of these wells are located in areas underlain by cretaceous sedimentary rocks north of the Parkdale Fault, and implies that this fact alone is sufficient to conclude that these wells are not open or screened below the fault. However, it is possible that some of these wells are open at or below the fault such that project-related pumping could affect their yield and/or water chemistry. The Final Environmental Impact Statement (FEIS) should include a thorough review of available construction information for each potentially impacted domestic drinking water well to ensure that all potentially impacted wells are fully considered.	BLM notes that the maxim anticipated depth of mining below the water table at any given location in the quarry would be less than about 300 feet. Mining at the location of Well 3 which has a water level elevation near 6,027 feet and is located near the lowest elevation of the proposed pit (5,940 feet) would extend about 87 feet below the water table. It is also noted that active dewatering of the quarry by pumping will not occur. Analysis of the hydraulic conductivity of the granite body and previous mining experience at Parkdale indices that adequate dewatering will be accomplished by free draining seepage from the working face. Review of USGS geologic maps (Taylor et al. 1975 and Wobus et al. 1979) indicates that sedimentary rocks within the analysis area are underlain at depth by Precambrian igneous and metamorphic rocks. Review of available construction records for wells located in areas with surface exposures of sedimentary rocks did not indicate any wells that are completed in the Precambrian basement. It's noted that construction records with geologic information are not available for all wells. The deepest well in the analysis area (Permit # 300505) is located in sedimentary rocks north of the Parkdale fault and has a depth of 775 feet. The bottom of the well is terminated in shale and the well did not penetrate the Precambrian crystalline basement rocks. Water quality impacts are not predicted for any of the domestic wells within the analysis area. The groundwater flow direction in the analysis area is south to is southeast toward Tallahassee Creek and the Arkansas River and will be the same under a lower gradient during and after mining and reclamation of the site. A potential solute transport direction from the quarry toward domestic wells located north and east of the Sale Area is not indicated. Potential drawdown impacts to wells used as a source are conservative considered in the analyses included in Appendices F and K of the EIS. The analyses assume the wells are completed in the same groundwater system as the domestic wells without barriers between the quarry and wells. Taylor, R. B., G. R. Scott, R. A. Wobus, and R. C. Epis, 1975. Reconnaissance Geologic Map of the Royal Gorge Quadrangle, Fremont and Custer Counties, Colorado. Miscellaneous Investigations Series Map I-869. Wobus, R. A., R. C. Epis, G.R. Scott, 1979. Geologic Map of the Cover Mountain Triangle, Fremont, Park, and Teller Counties, Colorado. Miscellaneous Investigations Series Map I-1179.
Colorado Department of Public Health and Environment	20	9	The DEIS explains that during project operation, stormwater and excess groundwater seeping into the expanded quarry will be captured and diverted into settling ponds. Water quality will then be monitored to ensure that any imposed NPDES permit limits are met before discharge to Tallahassee Creek and/or re-infiltration to groundwater. CDPHE supports this approach to water quality management during project operations, but notes that additional best management practices (BMPs) may be required in order to ensure that all water quality requirements are met. CDPHE maintains Clean Water Policy 12, Selection of Water Quality Best Management Practices for Regulation No. 82 , as guidance for the selection BMPs for projects that require 401 certifications. This policy may be relevant to project activities even though 401 certification is not required.	Comment noted. BMPs to ensure that the Project meets applicable water quality standards are included as part of the Parkdale Quarry Stormwater Management Plan (Martin Marietta 2019). The plan will be reviewed as part of the permit requirement to ensure that it is consistent with guidance contained in Clean Water Policy 12, Selection of Water Quality Best Management Practices for Regulation No. 82, Appendix I. Martin Marietta Materials Inc., 2019. Storm Water Management Plan Parkdale Quarry, Cañon City, Fremont County, Colorado, Permit No. COG-500325. 28 p.
Colorado Department of Public Health and Environment	20	10	The applicant explains that nitrate and nitrite concentrations may be elevated in surface water and groundwater impacted by mining activities. CDPHE expects that water quality standards for total nitrogen will be in place statewide in 2027 for surface waters. Given the expected lifetime of the project, CDPHE encourages the applicant to consider designing BMPs to ensure protection of uses and future total nitrogen standards.	Comment noted. The potential nitrate and nitrite impacts to surface water and groundwater will be minimized by the use of careful blasting practices and BMPs will be developed to ensure that the quarry meets current and future nitrogen standards.

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Colorado Department of Public Health and Environment	20	11	The applicant will develop a monitoring plan, including operational and post reclamation monitoring, to detect changes in groundwater levels, shallow groundwater chemistry, and water quality and flow on Currant and Tallahassee creeks. Springs south of the Parkdale Fault for which impacts are predicted would also be monitored for potential changes in flow and water quality. Should water quality monitoring for surface water or groundwater indicate adverse impacts, the applicant plans to use adaptive management of mining practices to address them. CDPHE supports additional data collection and an adaptive management approach. However, the applicant is encouraged to develop a comprehensive adaptive management strategy to ensure that mitigation measures can be readily implemented in the event that water quality impacts are observed.	Comment noted. The general direction of groundwater flow during and after mining will be toward the southeast, and a solute transport direction that could impact the water quality of springs northwest of the site is not indicated. Campbell King Spring is located down gradient from the Sale Area and will monitored for water quality impacts as a condition of the ROD. BMPs to limit and mitigate potential impacts to surface water are included as part of the Storm Water Management Plan (Martin Marietta 2019) and existing permit requirements. Martin Marietta Materials Inc., 2019. Storm Water Management Plan Parkdale Quarry, Cañon City, Fremont County, Colorado, Permit No. COG-500325. 28 p.
Public	21	1	The proposed quarry would expand onto high-quality wilderness-eligible public lands that are of utmost importance to Colorado wildlife and primitive recreation. This would permanently impair, and indeed destroy, the wilderness values of these lands. The proposed quarry expansion in both the Proposed Action (Alternative A) and the Alternative Sale Area (Alternative C) would expand onto the eastern portion of BLM's 31,918 acre Echo Canyon Lands with Wilderness Characteristics (LWC), which the BLM documented in a 2015 report. As a testament to its wilderness character, this areas has been proposed or Wilderness numerous times since 2003 as part of the Table Mountain proposed Wilderness, identified for its unique and extraordinary biological values. It was proposed for Wilderness as recently as the Colorado Wilderness Act of 2018, and this portion of the Table Mountain proposed Wilderness was only excluded from the Colorado Wilderness Act of 2019 due to minimize conflicts with the quarry expansion proposal.	Thank you for your comment. The BLM recognizes the importance of the area for its wilderness and biological characteristics. Impacts related to wilderness and biological characteristics resulting from the proposed expansion are disclosed in Section 3.7 and 3.6, respectively, to aid in the decision making process.
Public	21	2	The BLM must take into account the ecological value of managing the Table Mountain area to maintain its unique and extraordinary biological characteristics. A portion of the Proposed Action area (Alternative A) is within BLM's Arkansas Canyonlands Area of Environment Concern (ACEC), an area of nearly 24,000 acres recognized for outstanding recreation, scenic views, critical and valued species. Note Alternative C, the Alternative Sale Area, does not overlap with this ACEC.	As stated in Table 3.4 of the Draft EIS, the proposed mine expansion area under Alternative A avoids the Arkansas Canyonlands ACEC, such that there would be no effect to the Arkansas Canyonlands ACEC resulting from the proposed expansion of the Parkdale Quarry. While the southwest border of the proposed mining area under Alternative A borders the ACEC, it does not encroach on it, and mineral development would not occur within the ACEC. Therefore, no impacts to the ACEC would occur.
Public	21	3	The BLM must consider how granting the permit could impact the nearby McIntyre Hills and Grape Creek Wilderness Study Areas and proposed Wildernesses. Factors impairing the wilderness and wildlife value of the one area therefore could significantly affect the others. For example, the Bighorn Sheep Canyon herd of bighorn sheep range on both sides of the Arkansas River, which for much of the year does not present a substantial barrier to their movement.	The BLM does not agree that the Project would impact the McIntyre Hills and Grape Creek Wilderness Study Areas and proposed wilderness areas because they are both outside the area of analysis (the McIntyre Hills WSA is approximately 6 miles away from the Parkdale Quarry, while the Grape Creek WSA is approximately 10m miles away from the Parkdale Quarry). Impacts affecting bighorn sheep range are disclosed in Section 3.6: Terrestrial Wildlife.
Public	21	4	The BLM should defer consideration of the project until completion of the ongoing Eastern Colorado Resource Management Plan. With the RMP process nearing completion, we believe that the reasons for deferral are even stronger than previously stated. This does not need to be rushed. The existing quarry has sufficient materials to continue to operate for an additional 15 to 30 years.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
Public	21	5	While the environmental impacts of granting the permit application are clear and easily determinable, the economic and socioeconomic impacts of granting it are much less certain and ascertainable. It therefore would be improper to give them greater or conclusive weight when compared against the environmental impacts. The BLM is no more able to predict economic needs and conditions one hundred years from now than it would have been able to predict present conditions in 1919. If the materials to be mined from the BLM parcel are as essential as the public meeting presentation materials seem to indicate, the BLM must consider the likelihood that if the permit were to be denied, the materials would be obtained from other sources in other locations.	The Draft EIS does not give socioeconomic impacts greater weight than other environmental impacts, as the commenter suggests. The impacts to all resources were analyzed per NEPA guidance. If, in the future, the demand for aggregate decreases, Martin Marietta would begin the reclamation process earlier than anticipated. Throughout the life of mine, the proponent will be required to request contract renewals. During these renewal reviews, BLM will determine if the project, affected environment, and circumstances described in this EIS have changed sufficiently to invalidate the conclusions of the EIS. If this is the case, BLM will undertake additional coordination and NEPA analysis, as needed, as part of the permit renewal process.
U.S. EPA Region 8	22	1	We recommend the Final EIS specify what BLM's 10-year reviews will include. More specifically, we recommend BLM include a Determination of NEPA Adequacy (DNA in each 10-year review). It would be important to outline in the Final EIS of how the DNA process would work, identify the potential triggers for conducting additional NEPA analysis, and how and when the public would be engaged in the 10-year reviews. Examples of potential triggers could include: * monitoring results showing impacts outside of those anticipated in this EIS analysis; * results from the Analysis of the Management Situation preceding the next RMP revision showing degradation of, or lack of expected progress toward, Proper Functioning Conditions for resources in the analysis area; * relevant new requirements or stipulations from future Royal Gorge Field Office RMP revisions or regulatory changes relevant to the project; * a change in project context resulting from wildfire, flood, drought, etc. affecting the project or exacerbating the project's environmental impacts; and * a Threatened and Endangered Species review.	The BLM is allowed up to four inspections per year, so the reviews the commenter mentions are ongoing. The renewal of the contract relies on these inspections. Further, the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service also have regulatory authority over the mine. Furthermore, providing the specifics of the reviews and inspections are outside the scope of NEPA. Throughout the life of mine, the proponent will be required to request contract renewals. During these renewal reviews, BLM will determine if the project, affected environment, and circumstances described in this EIS have changed sufficiently to invalidate the conclusions of the EIS. If this is the case, BLM will undertake additional coordination and NEPA analysis, as needed, as part of the permit renewal process.
U.S. EPA Region 8	22	2	The proposed action results in the permanent removal of the aquifer-bearing geologic formation (fractured granite) and the associated storage potential it holds. The Draft EIS states "Alternative A would lower groundwater levels in the quarry area by up to about 300 feet…". The elevation of the pit floor (6,020 feet average, 5,940 minimum) [Whetstone 2019] and water level elevations (~6260 feet at Well 10) imply removal of approximately 320 feet of the aquifer at the location of Well 10. This information is based on the well with the highest groundwater level measured; however, groundwater levels are predicted to be even higher to the north or northeast in the planned cut area where there aren't wells and measured water level data (as shown in Appendix K, Figure SW-NE Cross Section: Computed (Calibrated) Water-Table Profile). We recommend the Final EIS calculate, based on the data used to generate this Figure, how much aquifer-bearing geologic formation will be removed at the highest estimated groundwater level.	The approximate elevation of the pit floor at the location of Well 10 under Alternative A would be between 6,020 and 6,040 feet. Therefore, between 220 and 240 feet of granite below the static water level in Well 10 (6,260 feet) would be removed, not 320 feet. Although the granite is saturated, testing data for the site indicates that it has very low hydraulic conductivity (0.0019 to 0.0065 ft/day). Therefore, the granite is not considered to be an aquifer under the standard definition because the hydraulic conductivity is too low to transmit economic quantities of water to a well bore. Bedrock with this range of hydraulic conductivity is generally considered to be an aquitard if located between two units with higher hydraulic conductivity. The planned pit floor would slope upward to the northeast in the general direction of increasing water level elevations, and 300 feet is considered to be the best estimate of the maximum drawdown for use in the impact assessment. No changes to the assessments in Appendices F and K are required based on the estimated maximum drawdown in the quarry.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	3	It should also be noted that according to the information provided in the Draft EIS, groundwater in the project area is an Underground Source of Drinking Water (USDW) as defined by the Safe Drinking Water Act. The Draft EIS indicates that "impacts to groundwater quality may include increased TDS, nitrate, and nitrite concentrations within the mining area." We recommend describing in the Final EIS the anticipated groundwater monitoring strategies to quickly identify and mitigate off-site development related impacts, including how those impacts may alter the quality of a USDW or impact surface water quality.	A detailed surface water and groundwater monitoring plan for the quarry expansion will be developed in cooperation CDPHE as a requirement of the ROD. Sections 3.5.2.1 of the EIS discuss the intent to develop the monitoring program and the overall objectives of the program. BLM notes that groundwater flow direction in the Sale Area is south to southeast toward Tallahassee Creek and the Arkansas River. The general flow direction will be the same under a lower gradient during and after mining and reclamation of the site. A potential solute transport direction from the quarry toward domestic wells located north and east of the Sale Area is not indicated.
U.S. EPA Region 8	22	4	Discussion of the effects of faults in the area, particularly the Parkdale fault and unnamed fault 2, do not seem to be consistent. Issue 2 discussion (P. 3-32, 3.5.2.1) suggests they will act as boundaries to the north and east when considering dewatering of the pit. Other discussions (P. 3-34, 3.5.2.1, Issue 3 and Appendix K, P. 8, 6.3) imply that higher hydraulic conductivity within the sedimentary rocks would have a muting effect on drawdown effects associated with the quarry (implying a connection between the sedimentary rocks and granite). It seems unlikely that both of these assumptions are true. In the Final EIS we recommend providing additional information which clarifies if both of these assumptions are valid.	The assumptions that the faults act as hydrologic boundaries and that the sedimentary rocks have higher hydraulic conductivity than the granite body are not mutually exclusive. Both are likely to be true, and both mechanisms, either singly or together, would result in lower drawdown than predicted in sedimentary rocks that are in fault contact with the granite body. The discussion in the EIS is accurately stated and implies that groundwater systems in the granite body and sedimentary rocks are poorly connected and that the granite body and sedimentary rocks have different hydrologic characteristics. Additional data regarding the hydrologic characteristics of the faults and sedimentary rock are not available to expand the discussion.
U.S. EPA Region 8	22	5	Unlike the comparison of groundwater inflow estimates to the quarry provided in Issue 2 (P. 3-32, 3.5.2.1), a discussion of the level of drawdown estimated by each method is not included in the issues section. Appendix G estimates drawdowns upwards of 55 feet (Alternative A) and 65 feet (Alternative C) after 100 years. Appendix K estimates 16 feet for the linear flow solution and 10 feet for the radial flow solution. The differences between these two methods appear to be rather large. In the Final EIS we recommend including a discussion of the differences in these estimates to help in the evaluation of the methods of analysis and provide rationale for these differences.	The basis for this comment is not clear. Review of the drawdown analyses in Appendices K and F indicates that they predict similar drawdown near Highway 9 at the end of mining. Figures 5 and 6 of Appendix K (Linear Flow Drawdown and Radial Flow Drawdown, respectively) both indicate a drawdown of about 15 feet near Highway 9 at the end of mining and a maximum drawdown of about 300 feet at the quarry face. Figure 3 in Appendix F also indicates a drawdown of about 15 feet near Highway 9 at the end of mining with about 300 feet of drawdown in the quarry. Because the analyses in Appendix K and Appendix F provide very similar estimates of potential drawdown for wells located near Highway 9, they are discussed together on page 3-34 of the EIS. Call outs to Appendices K and F have been added to the section to improve the clarity of the discussion.
U.S. EPA Region 8	22	6	We recommend Chapter 3 of the Final EIS address the following discrepancies in the information provided: 1) for calculations in Appendices F and K, we suggest providing a literature reference for specific yield of granitic rocks. The appendix that is referenced simply identifies the value used as "reasonable;"	Reported literature values of specific yield in crystalline rocks including granite range from 0.0009 (Heath 1983) to 0.03 (Singhal and Gupta 2010). The analysis for the Parkdale Quarry uses a value of 0.01 which is near the center of the range and is assumed to be a reasonable value. The reference range and citations were added to Whetstone's drawdown scoping analysis memorandum (Appendix F). Appendix K, the preliminary hydrologic assessment prepared by ERM was not modified. Heath, R.C., 1983. Basic Ground-Water Hydrology, U.S. Geological Survey Water-Supply Paper 2220, 86p. Singhal, B.B and R.P. Gupta, 2010. Applied Hydrogeology of Fractured Rocks: 2nd ed. Springer, 408p.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	7	Issue 2 (P. 3-32, 5.3.2.1) identifies the thickness of permeable fractured bedrock as 500 feet, however Appendix F (Drawdown Scoping Analysis) simulates a 520 feet thick layer in the model. Please correct the discrepancy	The model layer is 520 feet thick based on the top elevation of 6,300 feet and the bottom elevation of 5,780 feet. However, the saturated thickness of the layer based on the modeled steady-state water level of 6,280 feet is 500 feet. The unsaturated portion of the layer above the modeled steady-state surface is not relevant to the model calculations, so in effect, the model is 500 feet thick. No correction of the model is required.
U.S. EPA Region 8	22	8	Issue 2 (P. 3-32, 5.3.2.1) identifies Whetstone's estimate of 35 gpm inflow rate to the quarry, however Appendix F (Drawdown Scoping Analysis) does not provide this value in the text. Please provide the source of this information.	This information has been added to the drawdown scoping analysis in Appendix F. A unit conversion error was discovered during the review of the mass balance information from the model. The corrected inflow estimates for Alternative A and Alternative C are 27 and 30 gpm, respectively. These estimates have been corrected in the EIS.
U.S. EPA Region 8	22	9	The Draft EIS in Chapter 3 assumes a groundwater recharge rate of 0.16 inches/year. However, this value was not evaluated in the MODFLOW-SURFACT simulation that analyzes the potential area that could be affected by groundwater drawdown related to passive dewatering of the Parkdale Quarry. The model would be more accurate and applicable if this factor was evaluated in the analysis. Additionally, the average value of the result of three single-well pumping tests was used for hydraulic conductivity in the model. We recommend in the Final EIS applying a conservative approach by using the max value to represent a worst-case scenario for dewatering rates.	The MODFLOW-SURFACT model is an uncalibrated scoping-level analysis that provides a conservative estimate of the potential extent of drawdown associated with Project development. Model conservatism is increased by not including recharge. Accurate simulation of recharge and the effect it would have on groundwater levels would require inclusion of topographic relief and the variable distribution of geology and other hydrologic parameters within the model. It would also require calibration of boundary conditions and simulation of other points of recharge and discharge including springs and streams. Current data are insufficient to support this expansion of the model. Please see the response to letter 22 comment 18 for additional discussion regarding uncertainty associated with the calibrated recharge value from ERM's one-dimensional cross section analysis in Appendix K. CEQ guidelines do not require that potential Project impacts be evaluate for the worst-case scenario. BLM considers the average of site-specific testing to be the appropriate hydraulic conductivity value for the evaluation, and notes that other factors discussed in the EIS and Appendix F contribute to the inherent conservatism of the MODFLOW-SURFACT analysis.
U.S. EPA Region 8	22	10	The modeling assumes the aquifer is fractured bedrock and the groundwater is well connected over a broad area that has consistent hydrogeologic properties. As noted, there is bedrock fracture flow, and the aquifer is not homogeneous. The model would be more applicable if these factors were evaluated in the analysis in order to evaluate the heterogeneity of the aquifer. Additionally, there are only three groundwater monitoring wells included in the Sale Area. We recommend additional wells be installed over the course of development to further refine the groundwater model and improve monitoring capabilities. This would allow improvements to the model by further evaluation of the heterogeneity over time, and additional monitoring points to evaluate accuracy of the model.	Available data do not support parameterization of the model to include fracture flow and spatial variations in hydrologic parameters over the extent of the analysis area. BLM notes that given the intrinsic low permeability of the igneous and metamorphic crystalline rocks that will be quarried and the irregular nature of fracture networks, completion of an extensive hydrologic characterization program is unlikely to develop information that would support detailed numerical modeling of groundwater flow in areas outside of the quarry footprint. The current-scoping level analysis is not intended to be realistic simulation of groundwater flow in the analysis area and does not provide a suitable framework that could be updated with new information as it becomes available. We note that the scoping-level analysis is highly conservative in its assessment of potential drawdown-related impacts, but it should not be interpreted as a prediction of probable impacts. Whetstone's assessment is that the MODFLOW-SURFACT simulation substantially over predicts groundwater drawdown in areas outside of the quarry compared to what may be realistically expected. A detailed surface water and groundwater monitoring plan for the quarry expansion will be developed in cooperation CDPHE as a requirement of the ROD. Sections 3.5.2.1 of the EIS discuss the intent to develop the monitoring program and the overall objectives of the program.

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U.S. EPA Region 8	22	11	The model sets the pit bottom elevation as the limit in the model representing the lowest elevation to which groundwater levels could be drawn down, and surface elevations below this level are areas into which the cone of depression cannot expand. If the groundwater surface is equal to the base of the pit, there would be direct contact with the aquifer for contaminants to enter. Given the discussion of the alteration of groundwater quality near the proposed quarry including increased concentrations of TDS, nitrate and nitrite due to active mining and controlled subsurface blasting, it would be helpful to understand the relationship of groundwater elevation to surface elevation when planning groundwater monitoring by identifying contaminant transfer pathways. In the Final EIS we recommend including an analysis of the revised groundwater gradient (which correlates to the cone of depression) from the new "maximum" groundwater elevation of the aquifer to the pit bottom, including a projection of the cone of depression onto a cross section, such as the one in Appendix K, Figure SW-NE Cross Section: Computed (Calibrated) Water-Table Profile.	Please see responses to Letter 22, comments 9 and 10 regarding the intended scope and nature of the MODFLOW SURFACT analysis. The model evaluates the theoretical expansion of a cone of depression in a flat-lying homogeneous aquifer with uniform thickness and does not provide a realistic basis to project groundwater gradients within the analysis area. BLM notes that publicly available data indicate groundwater levels are variable over relatively short distances indicating that local gradients are complex and that groundwater systems may not be well connected across the analysis area. For this reason, projection of the post-mining gradient on a generalized cross section through the analysis area would be speculative. Post-mining groundwater levels in the pit would be near ground surface and it is possible that one or more springs may occur in the area after final reclamation. The general direction of post-mining groundwater flow in the granite bedrock will be southeast toward Tallahassee Creek and the Arkansas River similar to the existing condition but at a lower overall gradient. Operational monitoring of groundwater will be required down gradient from the pit as a condition of the ROD, and should increase levels nitrate, nitrite, or other contaminants be detected, adaptive management practices will be implemented to mitigate the contamination. It is noted that BMPs and careful blasting practices are usually sufficient to prevent or minimize the release of nitrate and nitrite into groundwater and surface water.
U.S. EPA Region 8	22	12	Table 2, Results of Pumping Tests, and the summary in Chapter 3, Table 3.13, are averages of values from calculations found in Appendix C of Appendix K, Hydraulic Analysis. These calculations are based on a variety of different methods which are applicable to different scenarios. We found no explanation for why it is appropriate to use these methods, or for why using one particular method over another is more appropriate. Additionally, there is no rationale provided for using the average of these values. To provide context and improve understanding of the analysis that was conducted in the Interim Hydrologic Assessment, we recommend the Final EIS include this information.	While different analysis methods were used that generated different values, the hydraulic conductivity (K) values for individual wells or between wells did not show much variation and were typically within a factor of about three. For testing at different locations in natural fractured crystalline rock, this variation is rather “tight.” It is more common for K to vary by orders-of-magnitude when testing different locations in this type of terrain. We were hesitant to make judgments on which tests (and analyses) should be considered for averaging and which should be thrown out, as this could be construed as being subjective in the evaluation. In the end, we applied equal weight to all of the analysis results and used an arithmetic average to arrive at a best-estimate K for granite. The arithmetic average tends to dampen the importance of outlier values and in a sense provides a screening of less reliable values. Had the analysis results varied by orders-or-magnitude, which is the more common experience in fractured rock, we would have performed some degree of screening and used a different averaging method such the geometric mean. However, given that the distribution of values was rather tight, it was our professional opinion that arithmetic averages were appropriate. We are unsure by what is meant by “scenarios.” It could mean different field-testing methods or it could mean different portions of the data plot associated with a single test. The appendix uses a number of different steady-state and transient analytical solutions to evaluate the tests performed. In most cases, the analysis methods were applied to different portions of water-level hydrograph associated with each pumping test. It is our opinion that that analytical solutions were appropriate to the testing method and, more importantly, to the specific data points for which the solutions were applied. Using different methods to analyze the same test provided a range of results that was valuable to the averaging process. It was conducive to the adage that there is “strength in numbers.”

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U.S. EPA Region 8	22	13	The Hvorslev test method is associated with data collected from a slug test, however the documentation in Appendix K only discusses a pump test. We recommend the Final EIS address this apparent discrepancy, providing a discussion of the slug test, including a rationale for utilizing the Hvorslev test method for this assessment in absence of a slug test.	When wellbore storage is considered, it can be shown theoretically, that the very early recovery of a pumping well can be analyzed using a semilog slug test analysis method (e.g., Hvorslev analysis). This covers the period when the recovery response is dominated by wellbore storage and the well is still pumping even though the pump has been turned off. The duration of this period can last from seconds to many minutes depending on the flow rate at the end of pumping and the effective free water surface inside the well (which may include the sand pack). It is our opinion that the slug test analysis method was appropriate for the data to which it was applied.
U.S. EPA Region 8	22	14	The Theis Recovery Analysis is noted as not feasible for Well 1 and that T (transmissivity) in the Hvorslev Analysis 2 for Well 1 is unrealistically low. The Theis Recovery Analysis result presented in the summary table Martin Marietta Parkdale Quarry Fall Field Investigation December 10 - 12, 2018 appears to be used in the average of Well 1 along with Hvorslev Analysis 1. Additionally, the Cooper-Jacob Analysis for Well 10 is noted as not likely to work due to flow rate variations during the pumping period. However, a result from that analysis appears to be used in the average of Well 10. We recommend in the Final EIS providing a rationale why the way in which these data were used is appropriate for this analysis or include appropriate corrections.	After reconsideration, we consider the Theis Recovery Analysis to be “marginally feasible” for this test. However, this analysis gave a test transmissivity that was very similar to the Early Recovery Hvorslev Analysis. Given the good correspondence between these two methods, it was our opinion that the Theis Recovery Analysis was acceptable for averaging of the results of Well 1. Application of the Cooper-Jacob method to all the pumping period data was judged to be in appropriate due to variable pumping rates that occurred during the test. However, for the early part of the pumping period (pumping time less than about 50 minutes), the pumping rate was reasonably constant, so it was appropriate to apply the method to early pumping time data. Some justification is provided by the fact that the early-time Cooper-Jacob analysis gave a transmissivity that was similar to the more complex Birsoy-Summers analysis that explicitly accounts for variable flow rate and was applied to all of the pumping period data.
U.S. EPA Region 8	22	15	Recharge (Appendix K) Calibration of recharge was found to be 0.16 inches/year based on cross section of Wells 3 and 10, and potentiometric head at Highway 9. Wells at Highway 9 appear to be installed in areas overlain by sedimentary rocks based on the geologic map. It is unclear if any wells are installed in the granite, and Appendix G does not supply this information. If the faults act as boundaries to the north and east, it does not seem appropriate to use potentiometric head at Highway 9 to develop assumptions as the aquifer is separated by the faults. In addition, comments on how the hydraulic conductivity was determined for the Sale Area are applicable to this calibration method given the calculated hydraulic conductivity was used in development of this recharge rate (0.16 inches/year). In the Final EIS we recommend that the calibrated recharge is recalculated once the hydraulic conductivity is corrected based on recommendations in the previous section. Furthermore, the solution could benefit from using spatially varying hydraulic conductivity (as recommended for the groundwater model as well). As noted in the calculation brief for this calibration method (Page 196 of the PDF), this type of work can be done to utilize spatially varying values across the area to improve the calculation accuracy.	Page 3-30 of the EIS states: “well records from the Colorado Division of Water Resources (DWR) were reviewed to identify other wells and groundwater users within the analysis area. The database search found 97 wells that were listed as either being constructed or replaced within the area of interest (Figure 3.5-5). The majority of wells are reported as being located east and northeast of the Sale Area in areas that are underlain by cretaceous-age sedimentary rocks (Figure 3.5-6). Eight of the wells are reported to be located within the granitic rocks on the north side of Cactus Mountain, but review of aerial photographs and well construction reports indicates that the locations are misreported and that the wells are actually completed in sedimentary rocks north of the Parkdale Fault (Figure 3.5-6). The exact locations of the wells are unknown, but with the exception of the three monitoring wells installed by the Proponent, no wells are located in the granite within the fault block defined by the Parkdale Fault and unnamed faults 1 and 2 (Figure 3.5-6).” Please see response to letter 22, comment 16 regarding Appendix K model limitations, assumptions for heads near Hwy 9, and uncertainty associated with the calibrated recharge. Data are not available to support modeling of spatially variable hydraulic conductivity.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	16	Appendix K, Section 5 states "The solution was calibrated by adjusting recharge until computed hydraulic heads matched Wells 3 and 10 measured water levels, which lie along the cross section, as well as potentiometric head at Highway 9, approximately 100 feet bgs, consistent with measured water levels in the area." In the Final EIS please provide the reference for setting the potentiometric head at Highway 9 at approximately 100 feet bgs. Additionally, we recommend using Well 1 also to complete calibration of recharge and other factors.	The one-dimensional calculation for the cross section presented in Appendix K should not be interpreted to be a prediction of the expected drawdown at specific locations along the section line. It is a conservative scoping-level analysis of potential drawdown given a number of simplifying assumptions. The calculation does not consider the progression of mining, heterogeneity in the distribution of hydraulic conductivity and storage, changes in geology, topography, or discharge from two springs (Parkdale and Cactus Mountain springs) which are located along the section line. Although the slope of the water table between wells 3 and 10 has been "calibrated" using recharge value of 0.16 inches per year, the estimated recharge should be considered to be approximate and is subject to a wide range of uncertainty. The water levels at the northeast end of the section line at Hwy. 9 are based on public records from DWR for wells with permit numbers 198155, 198713, and 194841. The wells have reported depths to water ranging from 25 to 70 feet below ground surface and water level elevations ranging from 6,278 to 6,323. The wells are completed in sedimentary rocks on the other side of the Parkdale Fault and are not within the granite body, therefore this part of the calibration should be considered to be approximate. Well 1 is located almost one mile east of the section line of the calculation. Given the relatively steep topography of the Sale Area and erratic nature of observed bedrock water levels, it's inclusion as a calibration point for calculation is not supported. We stress that this is a scoping-level calculation that is predicated on a number of conservative simplifying assumption. Current data do not support a more detailed analysis and the conclusions from this calculation should not be extended beyond what was originally intended.
U.S. EPA Region 8	22	17	The Draft EIS on p. 3-24 indicates "nine springs are located within the analysis area," but on p. 3-26 it states that "fifteen springs are located within the analysis area." We recommend the Final EIS correct the discrepancy.	Page 3-24 has been corrected to indicate that there are 15 springs within the analysis area and the names of the additional springs have been added to the text.

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U.S. EPA Region 8	22	18	According to the Draft EIS on p. 3-34 (italics added for emphasis): "Alternative A would lower groundwater levels in the quarry area and would result in the elimination of flows from Parkdale South, Cactus Mountain, and Cactus Mountain South Springs, which would be in, or immediately adjacent to the pit. BLM holds federal reserved water rights on Cactus Mountain Spring and Parkdale Spring, would cease to flow and the water rights would be affected. This impact would be permanent and major but could be mitigated by development of surface water impoundment(s) or the installation of groundwater wells for wildlife and livestock watering within the Sale Area as the impacts are observed to occur. Drawdown of groundwater levels outside of Sale Area under Alternative A also has the potential to reduce or interrupt flows from springs located within the zone of potential impacts shown on (Figure 3.5-6) which would affect the associated water rights. The impacts would be permanent and major but could be mitigated by the installation of wells or construction of surface water impoundments should the occur." The Draft EIS contains two proposed mitigation measures to offset impacts to these resources. Mitigation Measure W1 is the development of the water monitoring plan, and states "mitigation of impacts to stream flow and surface water and groundwater quality would include monitoring to detect changes to allow for adaptive management of mining practices if adverse impacts are observed." It also includes "if monitoring indicates that reductions in spring flows or stream flows are occurring and that these reductions are probably caused by mine induced drawdown, then the proponent would be responsible for preparing a mitigation plan." Mitigation Measure W2, which only applies to the loss of springs and Federal Water Right, includes the development of alternative sources of water within the reclaimed quarry footprint including the creation of small surface water impoundments that could be used by wildlife. The Draft EIS identifies the elimination of 3 springs in the quarry area, and that BLM's associated federal reserved water rights will be eliminated. Therefore, we recommend the Final EIS and Record of Decision (ROD) include a specific commitment to the proposed mitigation for those resources. We also recommend identifying anticipated locations of the surface impoundments or installation of groundwater wells for watering stations.	A commitment to monitor and mitigate impacts to springs will be included as a requirement of the ROD. Although a number of potential mitigation measures are discussed in the EIS, BLM will retain flexibility to adaptively monitor, mitigate, and manage impacts should they occur.
U.S. EPA Region 8	22	19	The Draft EIS also identifies the potential for impacts to groundwater levels and interruption of flows to springs outside the Sale Area. We recommend the Final EIS include a specific monitoring plan with a monitoring schedule for those springs so that impacts are timely identified. We also recommend that specific mitigation is identified and assured in the Final EIS to offset any realized impacts to these water resources.	A detailed surface water and groundwater monitoring plan for the quarry expansion will be developed in cooperation CDPHE as a requirement of the ROD. Sections 3.5.2.1 of the EIS discuss the intent to develop the monitoring program and the overall objectives of the program.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	20	Table 3.3 on p. 3-54 indicates the U.S. Army Corps of Engineers (USACE) is responsible for determining whether wetlands in the project area are jurisdictional but it is not clear on whether the USACE has made that determination. We recommend affirming in the Final EIS if the USACE has completed this jurisdictional determination. If they have not yet done so, we recommend such a determination be completed for wetlands and springs prior to publishing the Final EIS to ensure that a Clean Water Act (CWA) Section 404 permit will not be needed for the project. Under the current and proposed regulations, seasonal and/or intermittent waters and some ephemeral/non seasonal waters are subject to jurisdiction under the CWA. USACE is the authority for determining the scope of Waters of the United States and should also be consulted when describing perennial, ephemeral, and intermittent waters in and near the planning area that would experience dredge or fill activity. We recommend the Final EIS note the USACE's determination for each potentially impacted wetland, spring or other aquatic resource. We also recommend the Final EIS include maps indicating the location of wetlands in the project area.	BLM would required the operator to obtain jurisdictional determinations for any potential wetland areas that could be effected within the materials sale area during the BLM contract development process and also as part of the CDRMS permit amendment process that would occur post-EIS. In the event jurisdictional aquatic features would be impacted by fill or removal, the BLM would also require the operator to obtain appropriate permits under Section 404 of the CWA.
U.S. EPA Region 8	22	21	Table 3.16 identifies that the project will result in the loss of 5.29 miles of intermittent stream and 12.6 acres of associated riverine wetlands. Executive Order 11990 - Protection of Wetlands directs agencies "to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands" on federal lands. Given the magnitude of aquatic resources impact from this project, in the Final EIS and ROD we recommend BLM consider measures to offset those impacts. For example, there appears to a stream crossing on the current mine site where loaded trucks drive directly through the streambed, increasing turbidity and sediment load to Tallahassee Creek. Installing a bridge in this location along with stormwater controls would reduce the project's stream and riparian impacts. In addition, the Tallahassee Creek riparian area through the project area appears to be degraded compared to upstream reaches and there may be opportunities here for improving habitat in this reach (e.g. perhaps by planing cottonwood and willow to stabilize stream banks and shade the stream).	BLM would required the operator to obtain jurisdictional determinations for any potential wetland areas that could be effected within the materials sale area during the BLM contract development process and also as part of the CDRMS permit amendment process that would occur post-EIS.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	22	The Draft EIS states "the stormwater run-off modeling (Whetstone 2020, Appendix F) indicates that the reduction of slopes in the quarry area and change in vegetation after reclamation could increase the volume of runoff reporting to the creeks by 160% for the 100-year precipitation event and by 220% for the 10-year precipitation event and could consequently decrease evapotranspiration and infiltration of precipitation and snowmelt to groundwater." In the Final EIS please describe how the frequency and intensity of 100- and 10- year precipitation events may change as a result of changes in climate. We are concerned that these large-magnitude increases in run-off in decomposed granite soils will result in significant rill and gully erosion. Such erosion would be expected to result in sediment and nutrient loads to Current Creek, Tallahassee Creek and the Arkansas River. This will be a larger concern if the project area experiences climate shifts with more frequent, intense storm events as projected. We recommend the Final EIS describe the potential impacts related to nutrient and sediment loading associated with larger storm events to Currant and Tallahassee Creeks (both designated Class 1 Coldwater Aquatic Life, Existing Recreation, Agriculture, and Water Supply), as well as the associated impacts to riparian wetlands and riparian areas.	The consensus of projections from about 35 different global climate models compiled for the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report (2013) is that the Intermountain West will warm by +2°F to +6.5°F by mid-century, relative to the 1971–2000 baseline. The range of projections reflects both the different greenhouse gas emission scenarios and differences among the models in how future climate will unfold under a given emissions scenarios. The projections show summers warming more than winters, and typical summer temperatures by 2050 will be as warm as or warmer than the hottest 10% of summers that occurred in the 20th century. Temperature regimes will effectively shift upslope and northwards as the climate warms. There is much less consensus among the models about the direction of projected precipitation change for Colorado than for temperature. The projections range from -5% to +8 percent change in statewide annual precipitation by mid-century, with a slight majority of projections showing an increase (Colorado Water Conservation Board 2014). Given this assessment it is unclear if climate change will increase or decrease the intensity of the 100- and 10-year precipitation events or cause increased sediment and nutrient loading to adjacent streams. Additional text regarding potential uncertainty related to climate change has been added to the surface water modeling discussion in section 3.5.2.1 of the EIS. Monitoring and mitigation of sediment and nutrients in stormwater runoff are addressed in sections 3.5.2.1 and 3.5.2.3 of the EIS. References Colorado Water Conservation Board, 2014. Climate Change in Colorado, A Synthesis to Support Water Resources Management and Adaptation. 114p. Intergovernmental Panel on Climate Change, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp
U.S. EPA Region 8	22	23	Please also consider how the decreased infiltration and evapotranspiration will impact hydrologically connected surface water resources and contribute to the success or failure of re-seeding during reclamation. If conditions are such that plants are unable to survive, in the Final EIS please describe how soil stabilization will be achieved to prevent impacts to down-gradient water resources.	The quarry would be reclaimed using a vegetative mixture suited to the site and reclamation standards would be such that infiltration rates would approximate pre-disturbance conditions. The overall reclamation portfolio includes rocky exposures, establishment of grass and shrubs, and stabilization of runoff pathways. Surface water controls to prevent erosion and sediment transport would be left in place until revegetation is successful and are no longer needed for long term stability of the area. In addition, the reclaimed drainages would be designed for the new hydrologic regime and, if needed, engineering controls such as rip rap, large boulders, large woody debris, or other measures would be utilized as needed to minimize erosion and prevent head cutting. Failure to revegetate the site would not be accepted and the bond would not be released until reclamation is successful.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	24	Using BLM's experience gained in recent fire restoration projects on similar soils, we recommend in the Final EIS and ROD including water management design features in the reclamation plan to increase infiltration, slow water velocities, and reduce the potential for mass soil movement. Additionally, the Draft EIS describes a planned shift from the pre-mining piñon-juniper landscape to a post-restoration grass-forb landscape and anticipates that community shift will reduce evapotranspiration and increase surface runoff. We also recommend including piñon-juniper and shrub-scrub plants in the restoration mix to help stabilize soils and reduce sedimentation impacts to streams.	The revised FEIS and Appendix E provide further detail on the Reclamation Plan and process regarding BLM and CDRMS coordination with the operator and finalization of the reclamation plan post-EIS during the BLM materials contract development process and CDRMS permit amendment process. The revised FEIS does discuss the goals for vegetative communities post mining which now include a shrub strata component. Reclamation will be primarily structural, and secondarily vegetative. Most of the vegetative reclamation will occur on the private lands under the existing permit that will not apply to BLM.
U.S. EPA Region 8	22	25	We recommend including in the Final EIS an assessment of whether the permanent removal of the aquifer materials and mountainous terrain and restoration to a broad, gently sloping valley with increased run-off may impact the temperatures of water running into receiving streams; particularly because those streams are designated Class 1 Coldwater Aquatic Life. If BLM determines there could be adverse temperature impacts, in the Final EIS and ROD we recommend including a temperature monitoring requirement with sample locations above and below the mine to assess impacts.	BLM concurs that mining and reclamation of the site has the potential to affect the temperature of runoff reporting to adjacent streams. Text disclosing this potential impact has been added to Sections 3.5.2.1 and 3.5.2.3 of the EIS. The removal of mountainous terrain by the proposed quarry and restoration of the land to a broad, gently sloping valley may affect the temperature of runoff reporting to Currant and Tallahassee Creek. This effect would be permanent, but is expected to be insignificant to minor because the disturbed area of the quarry would represent less than 1.4 percent of the total watershed area for the Tallahassee Creek-Currant Creek Watershed. Monitoring of stream temperatures above and below the mineral sale area on Currant and Tallahassee creeks will be specified in the water monitoring plan as a requirement of the ROD.
U.S. EPA Region 8	22	26	The Draft EIS uses emission totals presented in Table 3-5 to disclose potential impacts to air quality. While this information describes the output (emissions), it does not assess the outcome (impacts to air quality) in terms that are easily understood. We recommend that the calculations and assumptions used to generate the emission totals be presented with the Final EIS or appendices. As part of that recommendation, we recommend that the text of the EIS include a description of the activity and equipment that is captured by the emission estimates, including: * the equipment roster assumed for open pit mining; * annual fuel consumption or hours of operation used to generate emissions estimates; * type and quantity of explosives used in bench mining (Colorado Department of Public Health and the Environment (CDPHE) permit documents list ammonium nitrate fuel oil as the blasting method) and emission estimation method; * the distance of haul via truck and train that BLM chose to include with the Table 3-5 emissions estimates; * the total disturbed acreage included in the calculation of wind erosion emissions; and * the emission points included in the stationary source emissions estimates.	The requested information will be provided in an appendix to the EIS.
U.S. EPA Region 8	22	27	The current description of the stationary sources in the Draft EIS identifies rock conveyors, crushers, and screening but does not identify stationary combustion sources beyond the potential for some level of diesel-powered engines to generate electricity. We recommend including this information in the Final EIS because it will help the public understand what equipment would be operating and assist them with interpreting the emission totals. Since the CDPHE permit is relied upon to present stationary source permitted emission points, we recommend that the emission calculations either presented to CDPHE or completed by CDPHE be included in the Final EIS and that the New Source Review permits be attached as an appendix to disclose the limitations that are likely to be imposed on the operation of the mine into the future.	A list of the permitted sources will be added to the EIS. CDPHE air quality permits are publicly available information and accordingly are not included in the EIS.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	28	The emission estimates in Table 3-5 include a row for emissions from purchased electricity. These estimates only include NOx emissions. Since purchased electricity would likely be from a nearby regional power plant, we recommend including in the Final EIS estimates for the other pollutants in a manner consistent with the method used to present NOx emissions.	The utility electric grid comprises multiple interconnected power plants across a large region, and emissions associated with the project cannot be identified with a specific power plant. Emissions were calculated with the EPA eGRID model for the eGRID subdivision (Western Electricity Coordinating Council/Rockies) corresponding to the project area. eGRID provides emissions only for NOx, SO2, and GHGs.
U.S. EPA Region 8	22	29	Although the quarry is not classified as a major source of Hazardous Air Pollutants (HAPS) based on permitted stationary sources, this classification does not account for emissions from mobile sources which are the primary source of HAPS at the quarry. We recommend the Final EIS include estimates of HAPS including formaldehyde, benzene, acetaldehyde, toluene, xylenes, and any other HAPS BLM determines are of interest. Emission factors are available to facilitate this estimation.	Based on the provisions of its CDPHE air quality permit, the Parkdale Quarry is not a major HAP source. Mobile source HAP emission rates are expected to be low compared to levels that could lead to elevated health risks in the community. Given these factors, HAP emissions associated with the quarry would not be expected to lead to adverse health impacts in the community. Accordingly, HAP emissions were not quantified.
U.S. EPA Region 8	22	30	We recommend the Final EIS include additional description of existing conditions that would include design values for all the criteria pollutants. PM10 information is provided, but information for the remaining criteria pollutants is lacking. We recommend that BLM coordinate with CDPHE to determine the most representative design values available for the area and for comparison to the National Ambient Air Quality Standards (NAAQS).	The project is located in an area that CDPHE has designated as attainment area for all criteria pollutants, which suggests that existing ambient pollutant concentrations would be less than the NAAQS and the Colorado AAQS. Other than the PM10 monitor in Cañon city, the nearest CDPHE monitor to the project site is Manitou Springs (AIRS code 08-041-0016), about 36 miles away. All other monitors are located at greater distances form the project. Because of the relatively long distances from monitors other than Cañon City to the project, measured data from other sites may not be representative of the project area. Given these factors, and that measured ambient data are used in the EIS only to disclose existing conditions, the EIS does not include design values for pollutants other than PM10.
U.S. EPA Region 8	22	31	The Draft EIS states "because criteria pollutant concentrations under Alternative A are not expected to exceed the NAAQS, and regional emissions reductions are expected, no protective/mitigation measures for criteria pollutants are proposed." We recommend that as BLM finalizes the EIS and ROD it considers the following measures to reduce pollutant emissions. First, we recommend considering whether mined material could be transported from active pits to the processing facility by enclosed conveyor to reduce tailpipe emissions from haul trucks and fugitive dust from the haul road. Second, we recommend that the acreage of disturbed land at any particular time be limited to minimize impacts from wind erosion and reduce the area that may need to be watered to prevent excessive wind erosion.	The Plan of Operations states that a conveyor system could be implemented in the expansion areas to haul ore to the processing station. According to Martin Marietta, a future decision to install a conveyor system would depend on the economics of the system and future market conditions. Best practices and the proposed design features described in Table 2.2 of the EIS, e.g., ongoing reclamation, would reduce fugitive emissions from disturbed earth surfaces.
U.S. EPA Region 8	22	32	The Draft EIS states "reclamation of the site will be completed according to the existing Reclamation Plan and as required by the Parkdale Quarry Regular Operation 112 and Reclamation Permit #M-97-054 approved by the State of Colorado Division of Reclamation, Mining and Safety (Division). Reclamation of the currently authorized facilities is guaranteed by Martin Marietta's existing reclamation bond." The Division's website indicates Martin Marietta is permitted for 513.2 acres, requiring $1,145,736.00 in surety. Given this expansion will add 698 acres of disturbed land requiring reclamation, we recommend the Final EIS discuss if the Division assessed a new cost estimate to direct the value of the bonding, as required by the State of Colorado.	BLM anticipates an amendment to the existing permit, and the amendment would include assessment of the surety bonding, to ensure completion of reclamation. This would be assessed by the Division and BLM, and attach it to the contract as a condition of approval, post decision. The amount of the financial guarantee or a long-term trust is not subject to NEPA analysis, but is part of the enforcement program for the 43 CFR 3600 regulations. BLM has a regulatory oversight role in the mining and reclamation process. Therefore, the BLM will work in coordination with DRMS on establishing an appropriate bond.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	33	Our review identified a number of apparent inconsistencies in the Draft EIS's description of project reclamation that we recommend be clarified in the Final EIS. The Draft EIS includes conflicting language regarding pre development and restoration goals (italics indicate emphasis added). For instance, Appendix D states that "reclamation activities proposed for the Mineral Materials Sale Area will result in the replacement of the current pinion-juniper plant community which has encroached on the area with plant communities that more closely resemble predevelopment conditions in the area." The main body of the Draft EIS states "reclamation activities would aim to revegetate the study area predominantly with grassland species, resulting in a loss of sagebrush-steppe and shrubland vegetation communities with which most of these plant species are associated," which "would likely create a visual contrast with the vegetation immediately adjacent to the proposed Sale Area" because "the surrounding terrain consists of rugged pinyon-juniper dominated hillsides." The Draft EIS also notes that "potential impacts to stream flows in Currant and Tallahassee creeks could decrease over time as vegetation returns to native pinyon-juniper canopy." These statements result in confusion regarding what predevelopment habitat and vegetation conditions are and imply that native piñon-juniper habitat has encroached on the area while at the same time is reflective of native, pre-development conditions. The statements imply vegetation will return to native piñon juniper even though according to the Draft EIS, there is no intention of restoring piñon-juniper vegetation. The return of piñon-juniper will enhance soil stabilization, which is important for maintaining surface water quality. We recommend the Final EIS resolve this conflicting language and discuss the benefits to soil stabilization and water quality that returning to native piñon-juniper provides.	Comment Noted. The new Appendix E, which is now the BLM RGFO Solid Minerals Reclamation Standards and Reclamation Plan Supplemental Information, states that " The applicant has committed to test an a mixture of fine grained material produced from processing and topsoil. The results from such tests will be reviewed jointly by the applicant and the Division of Wildlife [this will also include CDRMS and BLM]. If appropriate and suitable, the applicant will then augment the available topsoil with such fines but only if it will be successful as a growth media" (Item 4-G in the Supplementation Information document). Therefore, the appropriate seed mixture and other reclamation activities related to soil stabilization will be approved by BLM and CDRMS prior to reclamation.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
U.S. EPA Region 8	22	34	The Draft EIS notes the "primary goal for reclamation of the mining area will be to create a topographic and ecological setting that is similar to that of Webster Park and the hillsides surrounding Webster Park" which is "south of the Parkdale Quarry and the Arkansas River. The landscape of Webster Park is shortgrass prairie on the lowland areas, bordered by hillside/montane areas on mountain scrubland dominated by sagebrush and mountain mahogany." In addition, "the reclamation of the Alternative Sale Area would result in the replacement of the current pinion-juniper plant community with grassland and shrub plant communities." In order to understand the Parkdale reclamation objective to mimic the conditions in Webster Park, we recommend the Final EIS include: * clarification on whether the EIS is referring to Webster Park, or South Webster Park which is south of the Arkansas River; * local and regional aerial/photo maps that identify Webster Park; * a discussion of sediment run-off and loading, downstream water conditions, and wildlife habitat/use at Webster Park compared to the project area; * a discussion regarding the soil type and quality in Webster Park vs. post development soils at the Parkdale quarry, including whether the Parkdale conditions are appropriate for propagation of the vegetation at Webster Park and if the Webster Park area serves the same ecological function as Parkdale. For instance, Figure 3.6-5 (Appendix D) indicates the project area serves as severe winter range for bighorn sheep, but the portion of Webster Park included in the map does not; * if the remediation goal is to create a valley that mimics the Webster Park area, we recommend updating the Fact Sheet, Competitive Mineral Materials Sale (COC-078119) at Parkdale Environmental Impact Statement which identifies the intent to create "a landscape that substantially mimics the topographic and ecological setting present in the surrounding hillsides and to the south of Parkdale Quarry;" and * the rationale for the target vegetation community in the Reclamation Plan.	The text in the EIS has been revised to read "Vegetation cover would consist of native species that closely resemble existing undisturbed vegetation that substantially mimics the topographic and ecological setting present in the surrounding hillsides and to the south of Parkdale Quarry. The landscape to the south of Parkdale Quarry is shortgrass prairie on the lowland areas..." Further discussion of the reclamation of the area is provided in Appendix F and E. The fact sheet that the commenter refers to is not a NEPA document, and does not supersede this EIS.
Public	23	1	I urge you to defer any action until after completion of the Eastern Colorado Resource Management Plan.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved.
Public	24	1	Alternative A has a proposed expansion area that entirely overlaps with BLM's greater 31,918 acre Echo Canyon Lands with Wilderness Characteristics (LWC) and a portion of BLM's nearly 24,000 acre Arkansas Canyonlands Area of Critical Environmental Concern. That is far too much land to expose to development, particularly with the Wilderness Characteristics and the Critical environments in the Echo Canyon and Arkansas Canyonlands.	Thank you for your comment. As stated in Table 2.4 of the EIS, approximately 6% of lands with wilderness characteristics would be eliminated from the Echo Canyon Unit under Alternative A. The Arkansas River Canyonlands ACEC is bordered by the proposed project boundary under Alternative A, but does not encroach on the ACEC, and therefore would not be directly affected by mining operations. Further analysis for lands with wilderness characteristics is presented in Section 3.7 of the EIS. The BLM understands the importance of these environments and this has been considered in the decision making process.

Organization Name	Letter #	Comment #	Comment Text	Comment Response
The Wilderness Society	25	1	The BLM must give proper weight to the fact that the quarry expansion would take place within BLM's Echo Canyon Lands with Wilderness Characteristics, which has been proposed numerous times as the Table Mountain Proposed Wilderness Area in the Colorado Wilderness Act. As stated in our scoping comments, BLM is obligated to prevent "unnecessary or undue degradation of the lands." See 43 U.S.C. 1732(b). As the court found in Mineral Policy Center v. Norton, "in enacting FLPMA, Congress's intent was clear: Interior is to prevent, not only unnecessary degradation, but also degradation that, while necessary to mining, is undue or excessive." 292 F.Supp.2d 30 (D.D.C. 2003). The ongoing proposal to expand the Parkdale Quarry within identified LWC that is currently being proposed for wilderness designation is not necessary and excessive. Representative Diana DeGette's Colorado Wilderness Act, H.R. 2546, was recently passed by the House of Representatives and is currently before the U.S. Senate. Previous versions of H.R. 2546 (as recently as the Colorado Wilderness Act of 2018) have historically included this area in the Table Mountain proposed Wilderness. However, due to the current quarry expansion proposed, a portion of the proposed Wilderness has been excluded from the current legislation. We maintain our request that the developer and BLM prioritize alternative locations for mineral materials sampling and sales due to conflict with BLM identified LWC and proposed Wilderness designation. BLM's proposed action of removing 1,996 acres (6%) of identified LWC from the Echo Canyon unit is a start, but not sufficient to properly protect these resources.	The BLM understands the importance of the Echo Canyon lands with wilderness characteristics but would like to note that the removal of 6 percent of the Echo Canyon lands with wilderness characteristics would not disqualify the remainder of the area to be managed as lands with wilderness characteristics. As noted, the most recent proposal in the Colorado Wilderness Act, H.R. 2546, does not overlap with the proposed project area. The BLM is not required to manage proposed areas to prevent unnecessary and undue degradation. Ultimately, there is no management decision in effect now to manage these lands as lands with wilderness characteristics. Temporarily impacting lands with wilderness characteristics is not considered unnecessary and undue degradation, and analyzing pending legislation is not required under NEPA.
The Wilderness Society	25	2	We maintain that BLM is required to further analyze additional impacts to wilderness character resulting from the proposed expansion, because such impacts undoubtedly exist. The agency simply acknowledging that "[l]ands within the proposed mine expansion area would no longer qualify as lands with wilderness characteristics once mining activities commence" is not sufficient. See DEIS p. 3-8 (see also p. 3-59 of the DEIS, acknowledging that Alternative A would result in elimination of 1,298 acres that would otherwise be included in the potential designation as lands with wilderness characteristics). BLM must protect against those impacts by analyzing a range of alternatives that go further as to not cause unnecessary or undue degradation to wilderness characteristics and the ecological value of the area.	Thank you for your comment. Suggestions for the analysis of additional impacts are welcome. The removal of 1,298 acres of lands with wilderness characteristics represents 6 percent of the total area; the remainder of which would still be managed to maintain wilderness characteristics. As noted, the most recent proposal in the Colorado Wilderness Act, H.R. 2546, does not overlap with the proposed project area. The BLM is not required to manage proposed areas to prevent unnecessary and undue degradation. Ultimately, there is no management decision in effect now to manage these lands as lands with wilderness characteristics. Temporarily impacting lands with wilderness characteristics is not considered unnecessary and undue degradation, and analyzing pending legislation is not required under NEPA.
The Wilderness Society	25	3	The BLM must take into account the ecological value of managing the Table Mountain area to maintain its unique and extraordinary biological characteristics. FLPMA requires BLM to "give priority to the designation and protection of areas of critical environmental concern." 43 U.S.C. § 1712(c)(3) (emphasis added). The DEIS fails to give proper priority to the protection of the Arkansas Canyonlands ACEC. At minimum, BLM should adopt management prescriptions in Alternative C that include 65 fewer acres of surface disturbance and shift development 0.4 miles east of the border of the Arkansas Canyonlands ACEC. See DEIS 3-54. However, these management prescriptions still fail to properly protect the entirety of the ACEC, including bighorn sheep and their habitat, as well as other unique and extraordinary biological characteristics in the area. As noted in our scoping comments, Table Mountain also includes the High mesa Grassland Research Natural Area, also known as Sommerville Table, an Instant Study Area.	As stated in section 3.7.2.3 of the EIS, "If Alternative C were to be selected by the BLM, development in the eastern portion of the proposed Echo Canyon lands with wilderness characteristics unit would eliminate 893 acres from possessing wilderness characteristic and likely an additional isolated 340 acres to the east of the Sales Area for a total of 1,233 acres. This represents approximately four percent of the total Echo Canyon acreage. The remaining acreage of the Echo Canyon unit would not be affected, and the inventoried wilderness characteristics would still apply. Once the area has been successfully reclaimed it is likely that the Sale Area would not meet LWC criteria but the area would be re-inventoried by the BLM at that time to determine if it meets the criteria for lands with wilderness characteristics." As stated in Table 3.4 of the Draft EIS, the proposed mine expansion area under Alternative A avoids the Arkansas Canyonlands ACEC, such that there would be no effect to the Arkansas Canyonlands ACEC resulting from the proposed expansion of the Parkdale Quarry. While the southwest border of the proposed mining area under Alternative A borders the ACEC, it does not encroach on it, and mineral development would not occur within the ACEC. Therefore, no impacts to the ACEC would occur.

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The Wilderness Society	25	4	The BLM must consider how granting the permit could impact the McIntyre Hills and Grape Creek Wilderness Study Areas. BLM is mandated to manage and protect Wilderness Study Areas (WSAs) to preserve wilderness characteristics so as to not impair the suitability of such designation by Congress as a Wilderness area. The proposed quarry expansion lies within a short distance of two designated WSAs, the McIntyre Hills and Lower Grape Creek. The McIntyre Hills WSA is located across the Arkansas River from Table Mountain, with only a unused rail land and US 50 separating them. The Lower Grape Creek WSA lies to the south and east of the McIntyre Hills, with only the Copper Gulch road separating them. The proposed quarry expansion would undoubtedly affect nearby wilderness and WSAs. For example, herd of bighorn sheep range on both sides of the Arkansas River, which for much of the year does not present a substantial barrier to their movement.	Thank you for your comment. The BLM recognizes the importance of the area for its wilderness and biological characteristics. Impacts related to wilderness and biological characteristics from the proposed expansion are disclosed in Section 3.7 and 3.6, respectively, to aid in the decision making process. The BLM does not agree that the Project would impact the McIntyre Hills and Grape Creek Wilderness Study Areas and proposed wilderness areas because they are both outside the area of analysis (the McIntyre Hills WSA is approximately 6 miles away from the Parkdale Quarry, while the Grape Creek WSA is approximately 10m miles away from the Parkdale Quarry).
The Wilderness Society	25	5	BLM must utilize the full mitigation hierarchy in evaluating the proposed action. Simply identifying mitigation measures, without analyzing the effectiveness of the measures, violates NEPA. Agencies must "analyze the mitigation measures in detail [and] explain how effective the measures would be . . . A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." Nw. Indian Cemetery Protective Ass'n v. Peterson, 764 F.2d 581, 588 (9th Cir. 1985), rev'd on other grounds, 485 U.S. 439 (1988). General statements that BLM will conduct monitoring are not an appropriate form of mitigation. Simply monitoring for expected damage does not actually reduce or alleviate any impacts. The DEIS fails to adequately analyze mitigation measures to various impacts. For several resource issues, including special status plants and species, lands with wilderness characteristics, and impacts to air quality and ground water, the protective/mitigation measures identified are not sufficient. As proposed in the DEIS, a timing limitation from November 1 to April 15 is necessary to minimize disturbance to bighorn sheep and mule deer during critical winter periods. See DEIS 3-49. This timing limitation should be extended for the life of the plan, not simply the first year of mine expansion activity as proposed.	The BLM has coordinated with Colorado Parks and Wildlife for the Parkdale Quarry expansions project. It was Colorado Parks and Wildlife's direction to institute the November 1 to April 15 limitation for the first year. Big horn sheep become acclimated after the first year of operations and disturbance. The effectiveness of this mitigation is discussed in Section 3.6.2.1 of the EIS. Regarding monitoring, most of the monitoring protocols are being conducted within the requirements of permits regulated by other agencies. Therefore, those permits account for required mitigation, as needed, based on the anticipated impacts from mining.

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The Wilderness Society	25	6	The BLM should consider deferring consideration of the project until completion of the ongoing Eastern Colorado Resource Management Plan. As stated previously in our comments, BLM should defer consideration of this project while the Eastern Colorado Resource Management Plan (ECRMP) is being developed. This should not be an issue, as the existing quarry has sufficient materials to continue to operate for an addition 15 to 30 years. Waiting until completion of the ECRMP would also make the proposed quarry expansion's cumulative impacts analysis more accurate, as required by NEPA. See DEIS 3-6. NEPA dictates that BLM take a "hard look" at the environmental consequences of a proposed action and the requisite environmental analysis "must be appropriate to the action in question." Metcalf v. Daley, 214 F.3d 1135, 1151 (9th Cir. 2000); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 348 (1989). To satisfy NEPA's hard look requirement, the cumulative impacts assessment must do two things. First, BLM must catalogue the past, present, and reasonably foreseeable projects in the area that might impact the environment. Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 809-10 (9th Cir. 1999). Second, BLM must analyze these impacts considering the proposed action. Id. If BLM determines that certain actions are not relevant to the cumulative impacts analysis, it must "demonstrat[e] the scientific basis for this assertion." Sierra Club v. Bosworth, 199 F.Supp.2d 971, 983 (N.D. Ca. 2002). A failure to include a cumulative impact analysis of actions within a larger region will render NEPA analysis insufficient. See, e.g., Kern v. U.S. Bureau of Land Management, 284 F.3d 1062, 1078 (9th Cir. 2002) (analysis of root fungus on cedar timber sales was necessary for an entire area). Additionally, the BLM analysis must include the most recent information developed during the ongoing ECRMP process. This is particularly important in the case of Table Mountain. During the LWC inventory phase of the development of the ECRMP, Table Mountain was initially not considered to have LWCs. However, as a result of additional information provided by Wild Connections, it has since been added to BLM's LWC inventory. An accurate and comprehensive inventory of LWC is necessary to inform management alternatives, impact analysis, and decision-making.	Per guidance provided in the BLM Land Use Planning Handbook, "A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment" (page 47). The preferred alternative in this Parkdale Quarry EIS is not considering a different land use allocation for the proposed mine expansion. Further, the mine expansion is permissible within the current Royal Gorge Resource Area Resource Management Plan. Under the requirements of the BLM Land Use Planning Handbook, existing land use plan decisions remain in effect during an amendment or revision until the amendment or revision is completed or approved. Furthermore, the best available data and inventory was used to inform the analysis in the EIS including the most recent lands with wilderness characteristics inventory.
The Wilderness Society	25	7	The BLM should recognize that the economic and socioeconomic impacts of denying the application are speculative and should not be given undue weight. As previously stated in our scoping comments, the economic and socioeconomic impacts of the proposed mine expansion are much less certain and ascertainable than the environmental impacts. As such, the economic and socioeconomic impacts are speculative and should not be given undue weight. If the representations made in the applicant's socioeconomic analysis is accurate, the proposed mine is particularly vulnerable to changed economic circumstances that might lead to abandonment of its transportation lifeline. The BLM is under no obligation to approve the proposal simply because it would be profitable, convenient, or most expedient for the applicant. As the court found in Mineral Policy Center v. Norton, 292 F.Supp.2d 20 (D.D.C. 2003) "FLPMA, by its plain terms, vests the Secretary of the Interior with the authority-and indeed the obligation-to disapprove of an otherwise permissible mining operation because the operation though necessary for mining, would unduly harm or degrade the public land."	The Draft EIS does not give socioeconomic impacts greater weight than other environmental impacts, as the commenter suggests. The impacts to all resources were analyzed per NEPA guidance. If, in the future, the demand for aggregate decreases, Martin Marietta would begin the reclamation process earlier than anticipated. Throughout the life of mine, the proponent will be required to request contract renewals. During these renewal reviews, BLM will determine if the project, affected environment, and circumstances described in this EIS have changed sufficiently to invalidate the conclusions of the EIS. If this is the case, BLM will undertake additional coordination and NEPA analysis, as needed, as part of the permit renewal process.

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The Wilderness Society	25	8	Additionally, BLM should evaluate the economic benefits of protecting lands with wilderness characteristics. The DEIS fails to present a thorough total economic valuation framework (TEV) to accurately account for the full array of market and nonmarket wildland benefits. See Peterson, G. L., Swanson, C. Sorg., Rocky Mountain Forest and Range Experiment Station (Fort Collins, C. (1987). Toward the measurement of total economic value. Fort Collins, Colo.: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. By taking only a narrow "regional accounting stance," the DEIS ignores the benefits and costs that accrue to Americans outside the region from management of public land. The agencies should instead take a national accounting stance when estimating the benefits and costs of the management alternatives presented in the DEIS.	The BLM concurs that lands with wilderness characteristics have nonmarket values that should be captured in the EIS. Additional text has been added to Section 3.9. However, conducting a cost/benefit analysis is not required as part of the NEPA process.
The Wilderness Society	25	9	These and additional concerns are outlined and detailed in our August 2019 scoping EIS comments. In addition to these overlapping concerns with Alternatives A and C, the BLM must also take into consideration and evaluate the visual impacts that the Alternative Sale Area (Alternative C) will have on area recreation and tourism. Both Alternative A and Alternative C are in BLM's Visual Resource Class II, however at BLM's public meeting, BLM stated the Alternative Sale Area (Alternative C) would have the greatest visual impact to BLM public lands and Bighorn Sheep Canyon of any of the alternatives due to the steeper topography that would be quarried. The mining and extraction of rock materials would be more visible from US 50 and the Arkansas River corridor.	Thank you for your comment. As stated in 3.8.1, "The VRM class ... for the proposed Sale Area is Class II. The objective for Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer." As discussed in 3.8.2, visual impacts of mining from a vantage point for recreationists gathering at the Arkansas Headwaters Recreation Area and in-river would not be visible until approximately Phase 3 through 5. The areas disturbed would be concurrently reclaimed as mining progresses, maintaining the VRM Class II status of the proposed Sale Area. Appendix H presents the visual simulations in KOPs 3 and 4 and thus what the impacts are expected to be. As this is a short section of river in which people kayak and raft, visual impacts of mining will only be noticeable for the short amount of time that recreators either float by or put in personal watercrafts. Due to the short amount of time that visual impacts of mining will be visible, it is not expected to have a significant impact on recreation and/or tourism.
Public	26	1	Our concern lies with the damage to the esthetics of our area and the long-term visual effect it would have on those of us who frequent the Hwy 50 corridor, not to mention the negative impact it would have on one of our areas largest industries, tourism. From what we have been able to gather, there has been little mention of how the expansion would minimize what we visually experience as we pass by the quarry area or how the company would maintain the beauty of the region, during and after aggregate is removed.	Impacts to visual resources have been analyzed and can be found in section 3.8.2. From KOPs 1, 3, and 4, much of the mining activity would not be visible, due to the "mine from behind" approach (see the visual simulations presented in Appendix H). Furthermore, the duration of visual impacts to rafters and paddlers on the Arkansas River would be negligible, considering the length of the Arkansas Headwaters Recreation Area and the amount of time that the impacts from the expanded mining would be visible to passing rafters and paddlers. The phased approach to reclamation would also mitigate these impacts, because areas of the mined area would be reclaimed concurrently, resulting in a diversity of vegetative communities representative of the surrounding area.

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Public	27	1	The EIS's evaluation of socioeconomic impacts is heavy on the supposed economic benefits to Canon City and Fremont County. Nothing is said about the cumulative impacts to the community, county and state from the increased and continued heavy use of haul trucks on the areas local, county, state and federal roads and highways. Nothing is mentioned about the increased air pollution associated with the truck traffic through and around Canon City. Nothing is mentioned regarding the impact of rail traffic through Canon City of 5 to 10, 100 car gravel trains travelling though Canon City each week, including the increased wait times for locals, visitors and emergency vehicles at rail road crossings for a 100 car gravel train travelling 15 mph to pass. A recent GAO study found that road damage from one fully loaded haul truck is equivalent to the impact of 9,600 cars. A fully loaded tractor.trailer weighs 20 times more than a typical passenger car at 4,000 pounds, but the wear and tear caused by the truck is exponentially greater. And when the trucks are overloaded, "as quite a few of them are, the damage is exponentially worse," a story in Governing magazine noted. "Increasing a fully loaded truck's legal weight by 10,000 pounds results in a 42 percent increase in road wear. Pavement designed to last 20 years wears out in seven." Based on their study, the GAO concluded that "[h]heavy and overweight trucks are a major cause of highway deterioration." Their damaging effects make it clear that trucks are the principle cause of traffic related deterioration of the highways. Because of the disproportionate impact of heavier loads on the roadways, just a small percentage of overweight trucks would significantly decrease the useful lifespan of U.S. highways. Another analysis contends large trucks and the loads that they haul cause 99 percent of wear·and·tear on US roads, but only pay for 35 percent of the maintenance. Big trucks take a toll even on interstate highways designed to handle heavy loads, but the far bigger damage comes to federal, state and local roads that aren't designed for the massive impact of the huge trucks. One study estimated the average traffic by large trucks on non-arterial rural roads in the U.S. increased 16% from 2000 to 2019 and the increased wear and tear has become increasingly obvious. Since the trucking industry doesn't pay the true cost of its road usage, it benefits relative to rail and other forms of transport. Freight rail lines are privately owned and maintained in the US, so they don't receive a similar subsidy. As a result, more truck traffic ends up on highways than the market would dictate, leaving the taxpayers poorer, the air dirtier, and the roads more congested, not to mention seriously degraded and riddled with potholes. This EIS needs to discuss the tax impacts on the local and state population by having to maintain the roads destroyed by this truck traffic.	Thank you for your comment. As stated in 3.9.2, there is no anticipated additional truck traffic. As a result, there is no anticipated increase in truck traffic nor air pollution associated with the truck traffic from the proposed sale area. Regarding cumulative impacts, as stated in 3.4.2, "Under Alternative A, the Parkdale Quarry would meet the regional demand for ballast, and to the extent that it would do so with rail shipment, truck volumes from other quarries would be decreased. This displacement of truck trips by rail would lead to additional emissions reductions. Information is not available to quantify regional emissions reductions ... However, such reductions are expected to reduce the potential regional impacts of Alternative A on air quality, visibility, and acid deposition." Regarding the rail traffic through Canon City, please see the additional text in Section 3.9.2.
Public	27	2	In addition to road damage, air pollution is also an impact that was not mentioned in the EIS. In a two year University ofToronto Engineering study, it was revealed that large trucks were the greatest contributors to black carbon emissions close to major roadways. The study was recently published in the journal Environmental Science & Technology.	Air quality impacts are analyzed in detail in Section 3.4 of the DEIS.

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Public	27	3	Road damage and air pollution, when considered in light of the heavy haul traffic coming from the Tezak gravel pit next to highway SO, the gravel haul traffic coming from the Martin-Marietta gravel pit near State Road 115 in Fremont County and the estimated future haul traffic from the proposed Zephyr Dawson gold mine of 20 haul trucks a day, should also be discussed under cumulative impacts.	Under the Proposed Action the Parkdale quarry would generate a maximum of 48 heavy truck trips per day. Emissions from these truck trips, when combined with existing traffic on U.S. Route 50 and State Route 115 including truck trips generated by Tezak Heavy Equipment and the Zephyr Dawson mine (if constructed), are not expected to lead to air pollutant concentrations that could exceed the NAAQS. Regarding cumulative impacts, as stated in 3.4.2, "Under Alternative A, the Parkdale Quarry would meet the regional demand for ballast, and to the extent that it would do so with rail shipment, truck volumes from other quarries would be decreased. This displacement of truck trips by rail would lead to additional emissions reductions. Information is not available to quantify regional emissions reductions ... However, such reductions are expected to reduce the potential regional impacts of Alternative A on air quality, visibility, and acid deposition."
Public	27	4	Whatever the BLM's position might be regarding climate change, it is nonetheless occurring due to man's actions. This EIS takes no note of mining's role in climate change. There should be extensive discussion in this regard.	Climate change is addressed in Sections 3.4.3, and 3.5.2, of the EIS.