

**NSR MINOR SOURCE PERMIT #3807M2
REVISION APPLICATION
FOR SUMMIT GOLD CORPORATION
SUMMIT MINE**

Virden, New Mexico

**PREPARED FOR
SUMMIT GOLD CORPORATION**

Dated May 4, 2026

**Prepared by
Onterris USA, Inc.**



Mail Application To: New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		For Department use only:
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Universal Air Quality Permit Application

Use this application for NOI, NSR, or Title V sources.

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well.

This application is submitted as (check all that apply): ☐ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☒ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ NOI 20.2.73 NMAC ☒ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☐ Title V (new) ☐ Title V renewal ☐ TV minor mod. ☐ TV significant mod. ☐ TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ Minor Modification to a PSD source ☐ a PSD major modification

Acknowledgements:

- ☒ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
- ☒ \$500 NSR application Filing Fee enclosed **OR** ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
- ☒ Check No.: **001246** in the amount of **\$500.**
- ☒ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.
- ☒ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.
- ☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full \$500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.72.219.D NMAC**
 (e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information		Updating
1	Facility Name: Summit Mine	AI # if known: 27659 Permit/NOI #: 3807M2
		Plant primary SIC Code (4 digits): 1041, 1044
		Plant NAIC code (6 digits): 212221, 212222
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): From Virden NM, proceed west on NM SH92/Virden Highway 6.5 miles to AZ SH75. Proceed NE on AZ SH75 0.7 mi to Carlisle Rd. Proceed NE on Carlisle Rd (changes to gravel at mi 0.6) for 13.5 mi to Summit Peak Rd. Continue on Summit Peak Rd 1.5 mi to the facility gate.	

2	Plant Operator Company Name: Summit Gold Corporation	Phone/Fax: (575) 313-3273
a	Plant Operator Address: PO Box 129, Lordsburg, NM 88045	
b	Plant Operator's New Mexico Corporate ID or Tax ID: NM Corp ID: 6420494	
3	Plant Owner(s) name(s): Summit Gold Corporation	Phone/Fax: (575) 313-3273
a	Plant Owner(s) Mailing Address(s): PO Box 129, Lordsburg, NM 88045	
4	Bill To (Company): Summit Gold Corporation	Phone/Fax: (575) 313-3273
a	Mailing Address: PO Box 129, Lordsburg, NM 88045	E-mail: alan.linden@summit-gold.com
5	☐ Preparer: ☒ Consultant: John Betz, Onterris USA, Inc.	Phone/Fax: 512-968-2244/505-830-9678
a	Mailing Address: 9100 2nd Street NW, Suite 200, Albuquerque, NM 87114-1664	E-mail: jobetz@onterris.com
6	Plant Operator Contact: Alan Linden	Phone/Fax: (575) 313-3273
a	Address: PO Box 129, Lordsburg, NM 88045	E-mail: alan.linden@summit-gold.com
7	Air Permit Contact: Alan Linden	Title: General Manager, Summit Gold Corp
a	E-mail: alan.linden@summit-gold.com	Phone/Fax: (575) 313-3273
b	Mailing Address: PO Box 129, Lordsburg, NM 88045	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☐ Yes ☒ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☒ Yes ☐ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☒ Yes ☐ No ☐ N/A	If yes, give month and year of shut down (MM/YY): 11/2013
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No ☐ N/A	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☒ Yes ☐ No ☐ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 3807M2
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: Generator: 480 hp; Compressor: 130 hp; Generator: 831 hp;	Daily: 11520 hp-hr; 3120 hp-hr; 19944 hp-hr	Annually: 4.2x10 ⁶ hp-hr; 1.14x10 ⁶ hp-hr; 7.28x10 ⁶ hp-hr
b	Proposed	Hourly: Generator: 577 bhp; Compressor: 350 bhp; Generator: 577 bhp; Generator: 577 bhp	Daily: 13848 bhp-hr; 8400 bhp-hr; 13848 bhp-hr; 13848 bhp-hr	Annually: 5.05x10 ⁶ bhp-hr; 3.07x10 ⁶ bhp-hr; 5.05x10 ⁶ bhp-hr; 5.05x10 ⁶ bhp-hr
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 29.2 tons 24 hr ave	Daily: 400 tons ave; 700 tons max	Annually: 146,000 tons

b	Proposed	Hourly: 29.2 tons 24 hr ave	Daily: 400 tons ave; 700 tons max	Annually: 146,000 tons
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Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 32.873577	Longitude (decimal degrees): -108.969151	County: Grant	Elevation (ft): 5585
2	UTM Zone: ☒ 12 or ☐ 13		Datum: ☒ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 690,000		UTM N (in meters, to nearest 10 meters): 3,639,100	
3	Name and zip code of nearest New Mexico town: Virden, NM 88045			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Virden NM, proceed west on NM SH92/Virden Highway 6.5 miles to AZ SH75. Proceed NE on AZ SH75 0.7 mi to Carlisle Rd. Proceed NE on Carlisle Rd (changes to gravel at mi 0.6) for 13.5 mi to Summit Peak Rd. Continue on Summit Peak Rd 1.5 mi to the facility gate.			
5	The facility is 12.9 miles north of Virden, NM.			
6	Land Status of facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military Facility includes both private and BLM land			
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: Grant County, NM; Hidalgo County NM; Greenlee County, AZ			
8	20.2.72 NMAC applications only: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☒ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: Gila Wilderness – 42.6 km; Arizona – 7.3 km			
9	Name nearest Class I area: Gila Wilderness			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 42.6 km			
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: NW 1.5 miles			
12	Method(s) used to delineate the Restricted Area: Combination of fencing and rugged terrain “Restricted Area” is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.			
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No (Temporary installation to operate underground mine fans while the underground mine is inspected.) A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.			
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?			

Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

1	Facility maximum operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start:		☐ AM ☐ PM	End: ☐ AM ☐ PM
3	Month and year of anticipated start of construction: already constructed			
4	Month and year of anticipated construction completion: already constructed			
5	Month and year of anticipated startup of new or modified facility: 09/2026			
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No			

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☒ No If yes, specify:		
a	If yes, NOV date or description of issue:	NOV Tracking No:	
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☒ No If Yes, provide the 1c & 1d info below:		
c	Document Title:	Date:	Requirement # (or page # and paragraph #):
d	Provide the required text to be inserted in this permit:		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☒ Yes ☐ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No		
a	If Yes, what type of source? ☐ Major (☐ ≥10 tpy of any single HAP OR ☐ ≥25 tpy of any combination of HAPS) OR ☒ Minor (☒ <10 tpy of any single HAP AND ☒ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☒ No		
a	If yes, include the name of company providing commercial electric power to the facility: _____ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

Section 1-G: Streamline Application (This section applies to 20.2.72.300 NMAC Streamline applications only)

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." ☒ N/A (This is not a Streamline application.)
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Section 1-H: Current Title V Information - Required for all applications from TV Sources

(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC):		Phone:
a	R.O. Title:	R.O. e-mail:	
b	R. O. Address:		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC):		Phone:
a	A. R.O. Title:	A. R.O. e-mail:	
b	A. R. O. Address:		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship):		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.):		
a	Address of Parent Company:		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.):		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations:		

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers:
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Section 1-I – Submittal Requirements

Each 20.2.73 NMAC (**NOI**), a 20.2.70 NMAC (**Title V**), a 20.2.72 NMAC (**NSR** minor source), or 20.2.74 NMAC (**PSD**) application package shall consist of the following:

Hard Copy Submittal Requirements:

- 1) One hard copy **original signed and notarized application package printed double sided 'head-to-toe' 2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be **head-to-head**. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. **Please include a copy of the check on a separate page.**
- 2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This **copy** should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.
- 3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two CD** copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a **single CD** submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☒ Secure electronic transfer. Air Permit Contact Name John Betz, Email jbetz@onterris.com Phone number (512) 968-2244.

a. If the file transfer service is chosen by the applicant, after receipt of the application, the Bureau will email the applicant with instructions for submitting the electronic files through a secure file transfer service. Submission of the electronic files through the file transfer service needs to be completed within 3 business days after the invitation is received, so the applicant should ensure that the files are ready when sending the hard copy of the application. The applicant will not need a password to complete the transfer. **Do not use the file transfer service for NOIs, any type of GCP, or technical revisions to NSR permits.**

- 4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.
- 5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling **summary report only** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.
- 6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
 - a. one additional CD copy for US EPA,
 - b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
 - c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

Electronic Submittal Requirements [in addition to the required hard copy(ies)]:

- 1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.
- 2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.
- 3) It is preferred that this application form be submitted as 4 electronic files (**3 MSWord docs**: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and **1 Excel file** of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.
- 4) The **electronic file names** shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the **core permit number** (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the **section #** (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the **header information** throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.	
							Date of Construction/Reconstruction ²	Emissions vented to Stack #					
1	Generator Set	Caterpillar	XQ300A G	OX3R00284	480 HP	480 HP	4/10/2006	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☒ To be Replaced	CI	N/A
							8/11/2008	1					
1a	Generator Set	Caterpillar	C13	X8H00109	577 HP	577 HP	4/13/2018	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☒ Replacement Unit ☐ To be Replaced	CI	1
							TBD	1a					
2	Compressor	Sullair	DPQ375 HAF	201003000024	130 HP	130 HP	10/30/2010	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☒ To be Replaced	CI	N/A
							2/1/2011	2					
2a	Air Compressor	Atlas Copco with CAT Engine	Compressor - 1150XAS T45 Engine-C9.3	Compressor - HOP091349 Engine - CS902504	350 HP	350 HP	2018	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☒ Replacement Unit ☐ To be Replaced	CI	2
							TBD	2a					
3a	Generator Set	Caterpillar	C-18	TBD	831 HP	831 HP	TBD	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☒ To be Replaced	CI	N/A
							TBD	3a					
3c	Generator Set	Caterpillar	C13	X8H00110	577 HP	577 HP	4/10/2018	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☒ Replacement Unit ☐ To be Replaced	CI	3a
							TBD	3c					
3b	Generator Set	Caterpillar	C-27	ODWB00373	924 HP	924 HP	3/22/2007	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☒ To be Replaced	CI	N/A
							TBD	3b					
3d	Generator Set	Caterpillar	C13	X8H00251	577 HP	577 HP	10/14/2019	N/A	2-02-001-02	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☒ Replacement Unit ☐ To be Replaced	CI	3b
							TBD	3d					
4	Mine Road (Mine to stockpile)	N/A	N/A	N/A	N/A	N/A	N/A	1	3-06-020-11	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	N/A					
5	Haul Road (Stockpile to County Road)	N/A	N/A	N/A	N/A	N/A	N/A	1	3-06-020-11	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	N/A					
6	Stockpile	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3-05-020-007	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	N/A					
										☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		

¹ Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.² Specify dates required to determine regulatory applicability.³ To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.⁴ "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Insignificant Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 20.2.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at <https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf>. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One		
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²			
T1	No. 2 Diesel Tank	TBD	TBD	5000	20.2.72.202.B.2a	TBD	☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
			TBD	Gallon		TBD	☒ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced
							☐ Existing (unchanged)	☐ To Be Removed	☐ Replacement Unit
							☐ New/Additional	☐ To Be Modified	☐ To Be Replaced

¹ Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

² Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

[illegible]

¹ List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-E: Requested Allowable Emissions

Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E⁻⁴).

Unit No.	NOx		CO		VOC		SOx		PM ¹		PM10 ¹		PM2.5 ¹		H ₂ S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1a	0.27	1.17	0.019	0.084	0.047	0.21	0.0059	0.026	0.019	0.084	0.019	0.084	0.019	0.084	-	-	3.48E-05	1.52E-04
2a	0.31	1.37	0.077	0.34	0.023	0.10	0.0038	0.017	0.0077	0.034	0.0077	0.034	0.0077	0.034	-	-	2.25E-05	9.85E-05
3c	0.27	1.17	0.019	0.084	0.047	0.21	0.0059	0.026	0.019	0.084	0.019	0.084	0.019	0.084	-	-	3.48E-05	1.52E-04
3d	0.27	1.17	0.019	0.084	0.047	0.21	0.0059	0.026	0.019	0.084	0.019	0.084	0.019	0.084	-	-	3.48E-05	1.52E-04
4	-	-	-	-	-	-	-	-	0.50	1.01	0.13	0.26	0.013	0.026	-	-	-	-
5	-	-	-	-	-	-	-	-	1.11	2.25	0.28	0.57	0.028	0.057	-	-	-	-
6	-	-	-	-	-	-	-	-	0.38	0.69	0.18	0.33	0.028	0.049	-	-	-	-
Totals	1.11	4.88	0.13	0.59	0.17	0.72	0.021	0.094	2.06	4.23	0.66	1.44	0.13	0.42	-	-	1.27E-04	5.55E-04

¹**Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-F: Additional Emissions during Startup, Shutdown, and Routine Maintenance (SSM)

X This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scheduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine or predictable startup, shutdown or scheduled maintenance (SSM)¹, including NOI applications, must include in this table the Maximum Emissions during routine or predictable startup, shutdown and scheduled maintenance (20.2.7 NMAC, 20.2.72.203.A.3 NMAC, 20.2.73.200.D.2 NMAC). In Section 6 and 6a, provide emissions calculations for all SSM emissions reported in this table. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/agb/permit/agb_pol.html) for more detailed instructions. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

[illegible]

¹ **For instance**, if the short term steady-state Table 2-E emissions are 5 lb/hr and the SSM rate is 12 lb/hr, enter 7 lb/hr in this table. If the annual steady-state Table 2-E emissions are 21.9 TPY, and the number of scheduled SSM events result in annual emissions of 31.9 TPY, enter 10.0 TPY in the table below.

² **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks

☒ I have elected to leave this table blank because this facility does not have any stacks/vents that split emissions from a single source or combine emissions from more than one source listed in table 2-A. Additionally, the emission rates of all stacks match the Requested allowable emission rates stated in Table 2-E.

Use this table to list stack emissions (requested allowable) from split and combined stacks. List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table 2-I. List all fugitives that are associated with the normal, routine, and non-emergency operation of the facility. Unit and stack numbering must correspond throughout the application package. Refer to Table 2-E for instructions on use of the “-” symbol and on significant figures.

[illegible]

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

Form Revision: 11/18/2016 Table 2-H: Page 1 Printed 5/8/2026 11:21 AM

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year. For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

[illegible]

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

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Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

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Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	Mechanical Shoe Seal	Liquid-mounted resilient seal	Vapor-mounted resilient seal	Seal Type	WH: White	Good
IF: Internal Floating Roof	A: Primary only	A: Primary only	A: Primary only	A: Mechanical shoe, primary only	AS: Aluminum (specular)	Poor
EF: External Floating Roof	B: Shoe-mounted secondary	B: Weather shield	B: Weather shield	B: Shoe-mounted secondary	AD: Aluminum (diffuse)	
P: Pressure	C: Rim-mounted secondary	C: Rim-mounted secondary	C: Rim-mounted secondary	C: Rim-mounted secondary	LG: Light Gray	
Note: 1.00 bbl = 0.159 M ³ = 42.0 gal					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: $1.00 \text{ bbl} = 0.159 \text{ M}^3 = 42.0 \text{ gal}$

[illegible]

Enter Continuous Emissions Measurement (CEM) Data in this table. If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in the Information Used to Determine Emissions attachment. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

[illegible]

Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

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Table 2-P: Greenhouse Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box.

☐ By checking this box, the applicant acknowledges the total CO₂e emissions are less than 75,000 tons per year.

		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²									Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWPs ¹	1	298	25	22,800	footnote 3										
1a	mass GHG	2760.5	0.022	0.11	-	-									2760.7	
	CO ₂ e	2760.5	6.45	2.77	-	-										2769.7
2a	mass GHG	1784.5	0.014	0.072	-	-									1784.6	
	CO ₂ e	1784.5	4.17	1.79	-	-										1790.4
3c	mass GHG	2760.5	0.022	0.11	-	-									2760.7	
	CO ₂ e	2760.5	6.45	2.77	-	-										2769.7
3d	mass GHG	2760.5	0.022	0.11	-	-									2760.7	
	CO ₂ e	2760.5	6.45	2.77	-	-										2769.7
	mass GHG															
	CO ₂ e															
	mass GHG															
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	mass GHG															
	CO ₂ e															
	mass GHG															
	CO ₂ e															
Total	mass GHG														10067	
	CO ₂ e															10100

¹ GWP (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

² For HFCs or PFCs describe the specific HFC or PFC compound and use a separate column for each individual compound.

³ For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

⁴ Green house gas emissions on a **mass basis** is the ton per year green house gas emission before adjustment with its GWP.

⁵ CO₂e means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions: Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

Summit Gold Corporation (Summit) operates the underground Summit Mine located in Grant County in SW New Mexico. The Summit Mine mines gold/silver ore. The Summit Mine facility currently operates under NSR Permit #3807M2 which covers three existing generator sets and an existing compressor. The primary use of the generators is to supply power to ventilation fans to improve the fresh air supply to the underground mining operation. This fresh air supply is necessary to provide for health and safety of workers in the underground mine. The compressor provides compressed air for the pneumatic mining equipment. Because of the replacement of the facility engines, Summit is applying for a 20.2.72.219.D NMAC significant revision to NSR Permit 3807M2.

All mining activity at the Summit Mine occurs underground. Run of mine ore is delivered to the surface by 10 to 22 ton load capacity haul trucks where it is stockpiled before being transferred to 25 to 60.6 ton load capacity highway trucks for delivery to ore stockpiles in Duncan, AZ. Existing permit limits are a maximum ore production rate is 700 tons per day with a daily average of 400 tons per day. The existing permit limit for annual production is 146,000 tons. There is no ore processing (i.e. no crushing, screening, conveying) at the mine site and all other mining related activities will occur underground.

Summit is proposing to replace the existing three generator sets with three new Caterpillar C13 generator sets rated at 430 kW (577 bhp) and replace the existing compressor with a new Atlas Copco 1150 cfm compressor with a Caterpillar C9.3 compressor engine rated at 350 hp. Each of the replacement engines are certified as EPA Tier 4 final engines. With this application, Summit is requesting that Permit 3807M2 Condition A804.B, Table 104 footnote 3, and Table 106 footnote 3 be removed. This will allow any of the 3 generator sets (Units 1a, 3c, and 3d) to operate simultaneously.

Routine or predictable emissions during Startup, Shutdown, and Maintenance (SSM)

No SSM emissions are predicted for this permit application. Maintenance will be performed during period with no production.

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

No process flow diagram is presented for this application. The replacement generators power the mine vent fans for personnel health and safety and the compressor provide compressed air for pneumatic mining equipment.

Section 5

Plot Plan Drawn to Scale

A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

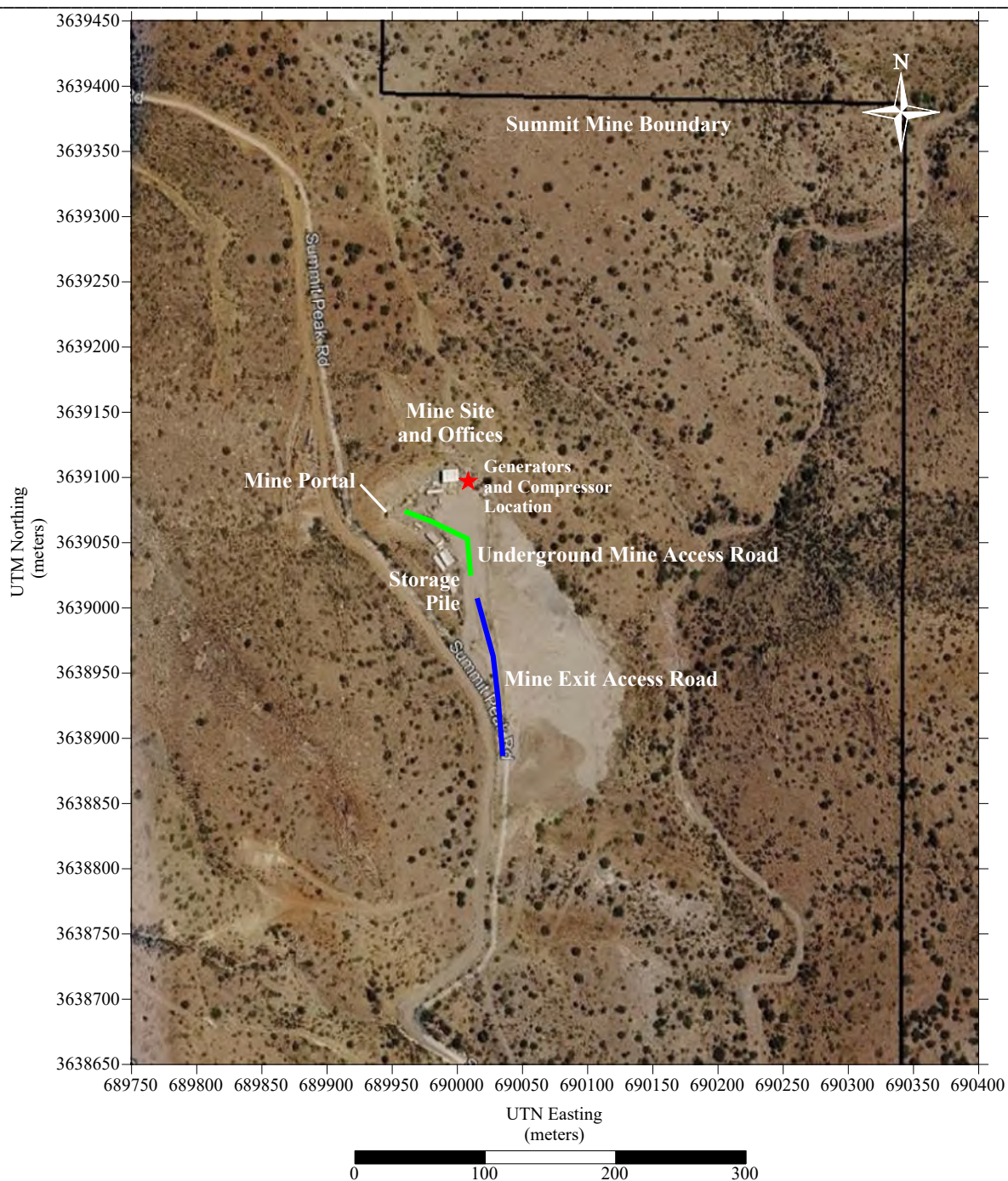


Figure 5-1: Summit Mine Site Location

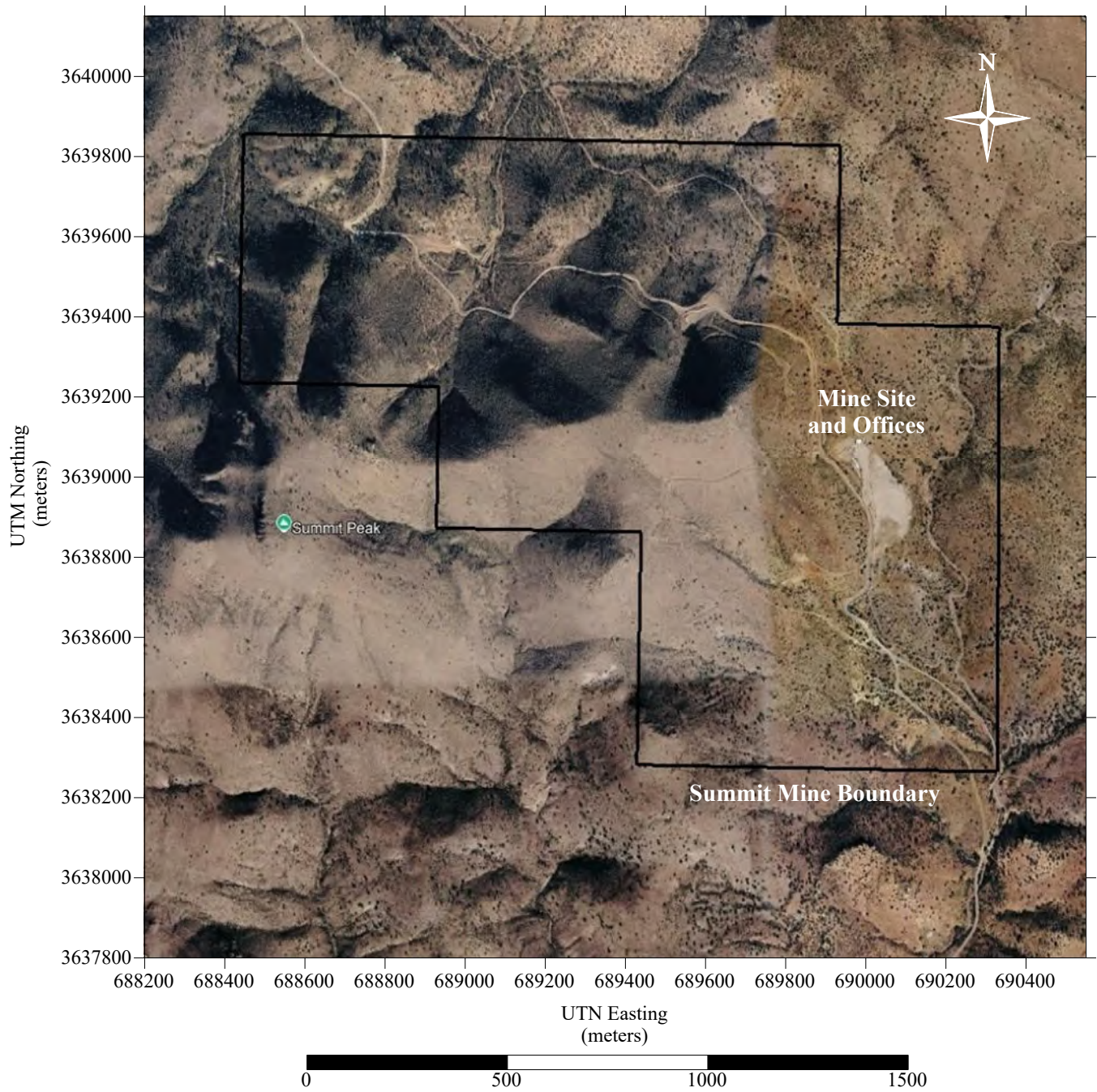


Figure 5-2: Location of Summit Mine Boundary and Surrounding Area

Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

- A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.
- B. At least 5 significant figures shall be retained in all intermediate calculations.
- C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:
 - (1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;
 - (2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**
 - (3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.
 - (4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Pre-Control Particulate Emission Rates

The changes requested for this permit modification include replacing all three generator sets and the compressor. For these emission source changes, the pre-controlled emissions are the same as the requested allowable emissions. No other changes in emission calculations are proposed for this permit revision application.

Section 6 will only address the controlled emissions that are summarized in Table 2-E.

Controlled Particulate Emission Rates

No controls or emission reductions for combustion emissions (NO_x, CO, SO₂, or VOC) are proposed for the three generator sets (Units 1a, 3c, 3d) and the compressor (Unit 2a). No controls or emission reductions are proposed from unloading underground mine trucks or loading off-site haul trucks (Unit 6). The only control will be watering or base course for haul road traffic reducing fugitive emissions by 60%.

Unit 1a

Estimates for 577 bhp (430 kW) Generator Diesel-Fired Engine (1a) (NO_x, CO, SO₂, VOC, PM, and CO₂)

A 577 brake horsepower (bhp), 430 kilowatt (kW) engine (Unit 1a) provides power to operate the underground mine vent fans to provide fresh air for the health and safety of mine personnel. Emission rates for NO_x, CO, PM and NMHC are based on manufacturer's emission factors and EPA tier 4 final certified emission rates (See Section 7). The highest emission factors were selected regardless of engine output for each pollutant. Sulfur dioxide (SO₂) emissions are estimated based on sulfur content of diesel fuel, not to exceed 15 ppm fuel content and a fuel usage rate of 28 gal/hr. CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (See Section 7). Annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year.

$$\text{Emission Rate (lbs/hr)} = \frac{\text{Emission factor (g-bhp)} * \text{bhp/hr}}{453.6 \text{ g/lb}}$$

Manufacturer's Emission Testing Specifications:

Pollutant	Manufacturer Emission Factor (g-bhp/hr)	Manufacturer Emission Factor + 50% Safety Factor (lbs/hr)
Nitrogen Oxide (NO _x)	0.14 (75% Load)	0.27
Carbon Monoxides (CO)	0.01 (110% Load)	0.019
Particulate (PM)	0.01 (110% Load)	0.019

EPA Tier 4f Certified Emission Factor:

Pollutant	Tier 4f Certified Emission Factor (g-bhp/hr)
Hydrocarbons (VOC)	0.05

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 28 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 15 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO₂).

$$\text{Emission Rate (lbs/hr)} = \text{Fuel (gal/hr)} * \text{Density lbs/gal} * \% \text{ Sulfur Content} * \text{Factor}$$

$$\text{Emission Rate (lbs/hr)} = \frac{28 \text{ gallons}}{\text{hr}} * \frac{7.0 \text{ lbs}}{\text{gallon}} * \frac{0.000015 \text{ lbs Sulfur}}{\text{lbs of fuel}} * \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}}$$

$$\text{Emission Rate (lbs/hr)} = 0.0059 \text{ lbs/hr}$$

CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).

$$\text{CO}_2 = 10.21 \text{ kg/gal (GWP} = 1)$$

$$\text{CH}_4 = 0.41 \text{ g/gal (GWP} = 25)$$

$$\text{N}_2\text{O} = 0.08 \text{ g/gal (GWP} = 298)$$

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{2000 \text{ lbs/ton}}$$

Table 6-1: Uncontrolled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (bhp/kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
1a	NO _x	577/430	0.27	1.17
	CO	577/430	0.019	0.084
	SO ₂	577/430	0.0059	0.026
	VOC	577/430	0.041	0.21
	PM	577/430	0.019	0.084

$$\text{GHG emission rate hourly (lbs/hr)} = \text{Emission Factor} * \text{gallon/hour} * \text{GWP} * 2.20462 \text{ lbs/kg or } 0.0020462 \text{ lbs/g}$$

$$\text{GHG emission rate annual (tons/yr)} = \text{lbs/hr} * \text{annual hours}/2000 \text{ lbs/ton}$$

Table 6-2: Uncontrolled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
1a	CO ₂	10.21 kg/gal	28	1	630.3	2760.5
	CH ₄	0.41 g/gal	28	25	0.63	2.77
	N ₂ O	0.08 g/gal	28	298	1.47	6.45
	GHG				632.4	2769.7

Unit 2a**Estimates for 350 bhp Compressor Diesel-Fired Engine (2a) (NO_x, CO, SO₂, VOC, PM, and CO₂)**

A 350 brake horsepower (bhp), engine (Unit 2a) provides power to the Atlas-Copco compressor (1150 cfm). Emission rates for NO_x, CO, PM and NMHC are based on manufacturer's emission factors and EPA tier 4 final certified emission rates (See Section 7). The highest emission factors were selected regardless of engine output for each pollutant. Sulfur dioxide (SO₂) emissions are estimated based on sulfur content of diesel fuel, not to exceed 15 ppm fuel content and a fuel usage rate of 18.1 gal/hr. CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (See Section 7). Annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year.

$$\text{Emission Rate (lbs/hr)} = \frac{\text{Emission factor (g-bhp)} * \text{bhp/hr}}{453.6 \text{ g/lb}}$$

Manufacturer's Emission Testing Specifications:

Pollutant	Manufacturer Emission Factor (g-bhp/hr)	Manufacturer Emission Factor + 50% Safety Factor (lbs/hr)
Nitrogen Oxide (NO _x)	0.27 (25% Load)	0.31
Hydrocarbons (VOC)	0.02 (25% Load)	0.023

EPA Tier 4f Certified Emission Factor:

Pollutant	Tier 4f Certified Emission Factor (g-bhp/hr)
Carbon Monoxides (CO)	0.10
Particulate (PM)	0.01

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 18.1 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 15 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO₂).

$$\text{Emission Rate (lbs/hr)} = \text{Fuel (gal/hr)} * \text{Density lbs/gal} * \% \text{ Sulfur Content} * \text{Factor}$$

$$\text{Emission Rate (lbs/hr)} = \frac{18.1 \text{ gallons}}{\text{hr}} * \frac{7.0 \text{ lbs}}{\text{gallon}} * \frac{0.00015 \text{ lbs Sulfur}}{\text{lbs of fuel}} * \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}}$$

$$\text{Emission Rate (lbs/hr)} = 0.0038 \text{ lbs/hr}$$

CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).

CO₂ = 10.21 kg/gal (GWP = 1)

CH₄ = 0.41 g/gal (GWP = 25)

N₂O = 0.08 g/gal (GWP = 298)

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{2000 \text{ lbs/ton}}$$

Table 6-3: Uncontrolled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (bhp)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
2a	NO _x	350	0.31	1.37
	CO	350	0.077	0.34
	SO ₂	350	0.0038	0.017
	VOC	350	0.023	0.10
	PM	350	0.0077	0.034

GHG emission rate hourly (lbs/hr) = Emission Factor * gallon/hour * GWP * 2.20462 lbs/kg or 0.0020462 lbs/g

GHG emission rate annual (tons/yr) = lbs/hr * annual hours/2000 lbs/ton

Table 6-4: Uncontrolled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
2a	CO ₂	10.21 kg/gal	18.1	1	407.4	1784.5
	CH ₄	0.41 g/gal	18.1	25	0.41	1.79
	N ₂ O	0.08 g/gal	18.1	298	0.95	4.17
	GHG				408.8	1790.4

Unit 3c**Estimates for 577 bhp (430 kW) Generator Diesel-Fired Engine (1a) (NO_x, CO, SO₂, VOC, PM, and CO₂)**

A 577 brake horsepower (bhp), 430 kilowatt (kW) engine (Unit 3c) provides power to operate the underground mine vent fans to provide fresh air for the health and safety of mine personnel. Emission rates for NO_x, CO, PM and NMHC are based on manufacturer's emission factors and EPA tier 4 final certified emission rates (See Section 7). The highest emission factors were selected regardless of engine output for each pollutant. Sulfur dioxide (SO₂) emissions are estimated based on sulfur content of diesel fuel, not to exceed 15 ppm fuel content and a fuel usage rate of 28 gal/hr. CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (See Section 7). Annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year.

$$\text{Emission Rate (lbs/hr)} = \frac{\text{Emission factor (g-bhp)} * \text{bhp/hr}}{453.6 \text{ g/lb}}$$

Manufacturer's Emission Testing Specifications:

Pollutant	Manufacturer Emission Factor (g-bhp/hr)	Manufacturer Emission Factor + 50% Safety Factor (lbs/hr)
Nitrogen Oxide (NO _x)	0.14 (75% Load)	0.27
Carbon Monoxides (CO)	0.01 (110% Load)	0.019
Particulate (PM)	0.01 (110% Load)	0.019

EPA Tier 4f Certified Emission Factor:

Pollutant	Tier 4f Certified Emission Factor (g-bhp/hr)
Hydrocarbons (VOC)	0.05

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 28 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 15 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO₂).

$$\text{Emission Rate (lbs/hr)} = \text{Fuel (gal/hr)} * \text{Density lbs/gal} * \% \text{ Sulfur Content} * \text{Factor}$$

$$\text{Emission Rate (lbs/hr)} = \frac{28 \text{ gallons}}{\text{hr}} * \frac{7.0 \text{ lbs}}{\text{gallon}} * \frac{0.000015 \text{ lbs Sulfur}}{\text{lbs of fuel}} * \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}}$$

$$\text{Emission Rate (lbs/hr)} = 0.0059 \text{ lbs/hr}$$

CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).

CO₂ = 10.21 kg/gal (GWP = 1)

CH₄ = 0.41 g/gal (GWP = 25)

N₂O = 0.08 g/gal (GWP = 298)

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{2000 \text{ lbs/ton}}$$

Table 6-5: Uncontrolled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (bhp/kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
3c	NO _x	577/430	0.27	1.17
	CO	577/430	0.019	0.084
	SO ₂	577/430	0.0059	0.026
	VOC	577/430	0.041	0.21
	PM	577/430	0.019	0.084

GHG emission rate hourly (lbs/hr) = Emission Factor * gallon/hour * GWP * 2.20462 lbs/kg or 0.0020462 lbs/g

GHG emission rate annual (tons/yr) = lbs/hr * annual hours/2000 lbs/ton

Table 6-6: Uncontrolled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
3c	CO ₂	10.21 kg/gal	28	1	630.3	2760.5
	CH ₄	0.41 g/gal	28	25	0.63	2.77
	N ₂ O	0.08 g/gal	28	298	1.47	6.45
	GHG				632.4	2769.7

Unit 3d**Estimates for 577 bhp (430 kW) Generator Diesel-Fired Engine (3d) (NO_x, CO, SO₂, VOC, PM, and CO₂)**

A 577 brake horsepower (bhp), 430 kilowatt (kW) engine (Unit 3d) provides power to operate the underground mine vent fans to provide fresh air for the health and safety of mine personnel. Emission rates for NO_x, CO, PM and NMHC are based on manufacturer's emission factors and EPA tier 4 final certified emission rates (See Section 7). The highest emission factors were selected regardless of engine output for each pollutant. Sulfur dioxide (SO₂) emissions are estimated based on sulfur content of diesel fuel, not to exceed 15 ppm fuel content and a fuel usage rate of 28 gal/hr. CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (See Section 7). Annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year.

$$\text{Emission Rate (lbs/hr)} = \frac{\text{Emission factor (g-bhp)} * \text{bhp/hr}}{453.6 \text{ g/lb}}$$

Manufacturer's Emission Testing Specifications:

Pollutant	Manufacturer Emission Factor (g-bhp/hr)	Manufacturer Emission Factor + 50% Safety Factor (lbs/hr)
Nitrogen Oxide (NO _x)	0.14 (75% Load)	0.27
Carbon Monoxides (CO)	0.01 (110% Load)	0.019
Particulate (PM)	0.01 (110% Load)	0.019

EPA Tier 4f Certified Emission Factor:

Pollutant	Tier 4f Certified Emission Factor (g-bhp/hr)
Hydrocarbons (VOC)	0.05

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 28 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 15 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO₂).

$$\text{Emission Rate (lbs/hr)} = \text{Fuel (gal/hr)} * \text{Density lbs/gal} * \% \text{ Sulfur Content} * \text{Factor}$$

$$\text{Emission Rate (lbs/hr)} = \frac{28 \text{ gallons}}{\text{hr}} * \frac{7.0 \text{ lbs}}{\text{gallon}} * \frac{0.000015 \text{ lbs Sulfur}}{\text{lbs of fuel}} * \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}}$$

$$\text{Emission Rate (lbs/hr)} = 0.0059 \text{ lbs/hr}$$

CO₂ emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).

CO₂ = 10.21 kg/gal (GWP = 1)

CH₄ = 0.41 g/gal (GWP = 25)

N₂O = 0.08 g/gal (GWP = 298)

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{2000 \text{ lbs/ton}}$$

Table 6-7: Uncontrolled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (bhp/kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
3d	NO _x	577/430	0.27	1.17
	CO	577/430	0.019	0.084
	SO ₂	577/430	0.0059	0.026
	VOC	577/430	0.041	0.21
	PM	577/430	0.019	0.084

GHG emission rate hourly (lbs/hr) = Emission Factor * gallon/hour * GWP * 2.20462 lbs/kg or 0.0020462 lbs/g

GHG emission rate annual (tons/yr) = lbs/hr * annual hours/2000 lbs/ton

Table 6-8: Uncontrolled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
3d	CO ₂	10.21 kg/gal	28	1	630.3	2760.5
	CH ₄	0.41 g/gal	28	25	0.63	2.77
	N ₂ O	0.08 g/gal	28	298	1.47	6.45
	GHG				632.4	2769.7

Material Handling (PM_{2.5}, PM₁₀, and PM)

Unit 6

No fugitive dust controls or emission reductions are proposed for loading the gold/silver ore storage pile or loading off-site trucks (Unit 6) with the exception of limiting annual production rates.

To estimate material handling particulate emission rates for aggregate handling operations (loading gold/silver ore storage pile and loading off-site aul trucks), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2004), where the k (PM = 0.74, PM₁₀ = 0.35, PM_{2.5} = 0.053), wind speed for determining the maximum hourly emission rate is the NMED default of 11 MPH, for determining annual emission rate is based on the average wind speed for Deming for the years of 2001 through 2011 of 8.5 mph, and the NMED default moisture content of 2 percent.

The average hourly ore production rate is 29.2 tons per hour (based on 700 tons/day / 24 hr/day). Annual emissions in tons per year (tpy) were calculated assuming an annual production throughput of 146,000 tons per year.

Gold/Silver Ore Storage Pile Loading and Truck Loading Emission Equation:

Maximum Hour Emission Factor

$$E \text{ (lbs/ton)} = k \times 0.0032 \times (U/5)^{1.3} / (M/2)^{1.4}$$

$$E_{PM} \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (11/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (11/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (11/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM} \text{ (lbs/ton)} = 0.00660 \text{ lbs/ton};$$

$$E_{PM10} \text{ (lbs/ton)} = 0.00312 \text{ lbs/ton}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.00047 \text{ lbs/ton}$$

Aggregate Storage Pile Loading and Truck Loading Emission Equation:

Annual Emission Factor

$$E \text{ (lbs/ton)} = k \times 0.0032 \times (U/5)^{1.3} / (M/2)^{1.4}$$

$$E_{PM} \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.5/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.5/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.5/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM} \text{ (lbs/ton)} = 0.00472 \text{ lbs/ton};$$

$$E_{PM10} \text{ (lbs/ton)} = 0.00223 \text{ lbs/ton}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.00034 \text{ lbs/ton}$$

Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM ₁₀ Emission Factor (lbs/ton)	PM _{2.5} Emission Factor (lbs/ton)
Uncontrolled Gold/Silver Ore Storage Pile, Truck Loading Max Hourly	0.00660	0.00312	0.00047
Uncontrolled Gold/Silver Ore Storage Pile, Truck Loading Annual	0.00472	0.00223	0.00034

The following equation was used to calculate the hourly emission rate for each process unit:

$$\text{Emission Rate (lbs/hour)} = \text{Process Rate (tons/hour)} * \text{Emission Factor (lbs/ton)}$$

The following equation was used to calculate the annual emission rate for each process unit:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Factor (lbs/ton)} * \text{Annual Throughput (tons/year)}}{2000 \text{ lbs/ton}}$$

Table 6-9 summarizes the controlled emission rates for material handling.

Table 6-9 Controlled Material Handling Emission Rates

Unit #	Process Unit Description	Average Process Rate (tph)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM ₁₀ Emission Rate (lbs/hr)	PM ₁₀ Emission Rate (tons/yr)	PM _{2.5} Emission Rate (lbs/hr)	PM _{2.5} Emission Rate (tons/yr)
6	Gold/Silver Ore Pile Handling	29.2	0.19	0.34	0.091	0.16	0.014	0.025
	Truck Loading	29.2	0.19	0.34	0.091	0.16	0.014	0.025
TOTALS			0.38	0.69	0.18	0.33	0.028	0.049

Mine Exit and Off-Site Haul Truck Travel (PM_{2.5}, PM₁₀, and PM)**Units 4 and 5**

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission equation. The haul road is unpaved and will be controlled with base course or watering. Haul road traffic emission rates controlled by base course or watering have applied a control efficiency of 60%. See Figure 5-1 for identification of haul road. Table 6-10 summarizes the emission rate for each haul truck category.

Unpaved Roads Plant HMA

AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads"

$$E = k * (s/12)^a * (W/3)^b * [(365 - p)/365] * VMT$$

Where k = constant PM_{2.5} = 0.15
 PM₁₀ = 1.5
 PM = 4.9

s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)

W = 10 ton capacity vehicle weight mine truck (17.0 tons – 12.0 tons truck, 10.0 tons load)

W = 22 ton capacity vehicle weight mine truck (31.0 tons – 20.0 tons truck, 20.0 tons load)

W = 25 ton capacity vehicle weight off-site truck (27.5 tons – 15.0 tons truck, 25.0 tons load)

W = 60.6 ton capacity vehicle weight off-site truck (78.6 tons – 48.3 tons truck, 60.6 tons load)

p = number of days with at least 0.01 in of precip. (70 days)

a = Constant PM_{2.5} = 0.9
 PM₁₀ = 0.9
 PM = 0.7

b = Constant PM_{2.5} = 0.45
 PM₁₀ = 0.45
 PM = 0.45

Vehicle Dust Control 60%

Trucks per Hour

10 ton capacity vehicle mine truck = 2.92 truck per hour average

22 ton capacity vehicle mine truck = 1.33 truck per hour average

25 ton capacity vehicle off-site truck = 1.17 truck per hour average

60.6 ton capacity vehicle off-site truck = 0.48 truck per hour average

Trucks per Year (Controlled)

10 ton capacity vehicle mine truck = 14,600 truck per year

22 ton capacity vehicle mine truck = 6,636 truck per year

25 ton capacity vehicle off-site truck = 5,840 truck per year

60.6 ton capacity vehicle off-site truck = 2,409 truck per year

VMT = Vehicle Miles Traveled

10 ton capacity vehicle mine truck Unpaved – 0.100436 miles per vehicle

22 ton capacity vehicle mine truck Unpaved – 0.100436 miles per vehicle

25 ton capacity vehicle off-site truck Unpaved – 0.340909 miles per vehicle

60.6 ton capacity vehicle off-site truck Unpaved – 0.340909 miles per vehicle

VMT = Vehicle Miles Traveled

10 ton capacity vehicle mine truck 0.22096 mph; 1106 mile/yr

22 ton capacity vehicle mine truck 0.10044 mph; 503 mile/yr

25 ton capacity vehicle off-site truck 0.39773 mph; 1991 mile/yr

60.6 ton capacity vehicle off-site truck 0.16408 mph; 821 mile/yr

Reduction in emissions due to precipitation was only accounted for in the annual emission rate. Particulate emission rate per vehicle mile traveled for each particle size category is:

10 ton capacity vehicle mine truck

Hourly Emission Rate Factor – 60% Control

PM = 2.25266 lbs/VM

PM10 = 0.57412 lbs/VM

PM2.5 = 0.05741 lbs/VM

Annual Emission Rate Factor – 60% Control

PM = 1.82064 lbs/VM

PM10 = 0.46401 lbs/VM

PM2.5 = 0.04640 lbs/VM

22 ton capacity vehicle mine truck

Hourly Emission Rate Factor – 60% Control

PM = 2.95193 lbs/VM

PM10 = 0.75234 lbs/VM

PM2.5 = 0.07523 lbs/VM

Annual Emission Rate Factor – 60% Control

PM = 1.18077 lbs/VM

PM10 = 0.30094 lbs/VM

PM2.5 = 0.03009 lbs/VM

25 ton capacity vehicle off-site truck

Hourly Emission Rate Factor – 60% Control

PM = 2.79700 lbs/VM

PM10 = 0.71285 lbs/VM

PM2.5 = 0.07129 lbs/VM

Annual Emission Rate Factor – 60% Control

PM = 2.26059 lbs/VM

PM10 = 0.57614 lbs/VM

PM2.5 = 0.05761 lbs/VM

60.6 ton capacity vehicle off-site truck

Hourly Emission Rate Factor – 60% Control

PM = 4.48677 lbs/VM

PM10 = 1.14351 lbs/VM

PM2.5 = 0.11435 lbs/VM

Annual Emission Rate Factor – 60% Control

PM = 3.62629 lbs/VM

PM10 = 0.92421 lbs/VM

PM2.5 = 0.09242 lbs/VM

Table 6-10: Controlled Haul Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM ₁₀ Emission Rate (lbs/hr)	PM ₁₀ Emission Rate (tons/yr)	PM _{2.5} Emission Rate (lbs/hr)	PM _{2.5} Emission Rate (tons/yr)
10 ton capacity vehicle mine truck	0.22096 miles/hr; 1106 miles/yr	0.50	1.01	0.13	0.26	0.013	0.026
22 ton capacity vehicle mine truck	0.10044 miles/hr; 503 miles/yr	0.30	0.60	0.076	0.15	0.0076	0.015
Maximum Unit 4 10 ton capacity trucks		0.50	1.01	0.13	0.26	0.013	0.026
25 ton capacity vehicle off-site truck	0.39773 miles/hr; 1991 miles/yr	1.11	2.25	0.28	0.57	0.028	0.057
60.6 ton capacity vehicle off-site truck	0.16408 miles/hr; 821 miles/yr	0.74	1.49	0.19	0.38	0.019	0.038
Total Unit 5 25 ton capacity trucks		1.11	2.25	0.28	0.57	0.028	0.057

Table 6-11 below summarizes the allowable emission rates.

Table 6-11 Summary of Requested Allowable NOx, CO, SO2, and PM Emission Rates

Allowable Emission Totals															
Unit #	Description	NOx		CO		SO₂		VOC		PM		PM₁₀		PM_{2.5}	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
1a	Generator Set	0.27	1.17	0.019	0.084	0.0059	0.026	0.047	0.21	0.019	0.084	0.019	0.084	0.019	0.084
2a	Compressor	0.31	1.37	0.077	0.34	0.0038	0.017	0.023	0.10	0.007 7	0.034	0.007 7	0.034	0.0077	0.034
3c	Generator Set	0.27	1.17	0.019	0.084	0.0059	0.026	0.047	0.21	0.019	0.084	0.019	0.084	0.019	0.084
3d	Generator Set	0.27	1.17	0.019	0.084	0.0059	0.026	0.047	0.21	0.019	0.084	0.019	0.084	0.019	0.084
4	Mine Road (Mine to Stockpile)	---	---	---	---	---	---	---	---	0.50	1.01	0.13	0.26	0.013	0.026
5	Haul Road (Stockpile to County Road)	---	---	---	---	---	---	---	---	1.11	2.25	0.28	0.57	0.028	0.057
6	Ore Stockpile (Truck Unloading and Loading)	---	---	---	---	---	---	---	---	0.38	0.69	0.18	0.33	0.028	0.049
Total		1.11	4.88	0.13	0.59	0.021	0.094	0.17	0.72	2.06	4.23	0.66	1.44	0.13	0.42

Estimates for Federal HAPs Air Pollutants

The Generators and Compressor diesel-fired engines (Units 1a, 2a, 3c, 3d), are sources of HAPs as it appears in Section 112 (b) of the 1990 CAAA. Emissions of HAPs were determined for the engines using AP-42 Sections 1.3 and 3.3.

The following tables summarize the HAPs emission rates from the four engines. Total combined HAPs emissions from Summit Mine are 0.092 pounds per hour and 0.40 tons per year.

Table 6-12: HAPs Emission Rates from the Generator Engine (Unit 1a)

Horsepower Rating: 577 horsepower
 Fuel Usage: 28 gallons/hr
 MMBtu/hr: 3.864 Btu (based on 138000 Btu/gallon)
 Btu x 10⁻¹²/hr: 0.000003864 Btu x10⁻¹² (based on 138000 Btu/gallon)
 Yearly Operating Hours: 8760 hours per year

Type of Fuel: Diesel
 Emission Factors AP-42 Section 3.3 and Section 1.3

Non-PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.002964	0.012981
Acrolein	107-02-8	9.25E-05	0.000357	0.001565
Benzene	71-43-2	9.33E-04	0.003605	0.015790
1,3-Butadiene	106-99-0	3.91E-05	0.000151	0.000662
Formaldehyde	50-00-0	1.18E-03	0.004560	0.019971
Propylene	115-07-1	2.58E-03	0.009969	0.043665
Toluene	108-88-3	4.09E-04	0.001580	0.006922
Xylene	1330-20-7	2.85E-04	0.001101	0.004823
Total Non-PAH HAPS		6.29E-03	0.024288	0.106380

PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000005	0.000024
Acenaphthylene	208-96-8	5.06E-06	0.000020	0.000086
Anthracene	120-12-7	1.87E-06	0.000007	0.000032
Benzo(a)anthracene	56-55-3	1.68E-06	0.000006	0.000028
Benzo(a)pyrene	50-32-8	1.88E-07	0.000001	0.000003
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000002
Benzo(a)pyrene	192-97-2	1.55E-07	0.000001	0.000003
Benzo(g,h,i)perylene	191-24-2	4.89E-07	0.000002	0.000008
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000001	0.000003
Dibenz(a,h)anthracene		5.83E-07	0.000002	0.000010
Chrysene	218-01-9	3.53E-07	0.000001	0.000006
Fluoranthene	206-44-0	7.61E-06	0.000029	0.000129
Fluorene	86-73-7	2.92E-05	0.000113	0.000494
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000001	0.000006
Naphthalene	91-20-3	8.48E-05	0.000328	0.001435
Phenanthrene	85-01-8	2.94E-05	0.000114	0.000498
Pyrene	129-00-0	4.78E-06	0.000018	0.000081
Total PAH HAPS		1.68E-04	0.000650	0.002847

		Emission Factor (lbs/Btu ¹²)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
HAPS Metals				
Arsenic		4	0.000015	0.000068
Beryllium		3	0.000012	0.000051
Cadmium		3	0.000012	0.000051
Chromium		3	0.000012	0.000051
Lead		9	0.000035	0.000152
Manganese		6	0.000023	0.000102
Mercury		3	0.000012	0.000051
Nickel		3	0.000012	0.000051
Selenium		15	0.000058	0.000254
Total Metals HAPS		49	0.000189	0.000829
Total HAPS			0.02513	0.11006

Table 6-13: HAPs Emission Rates from the Generator Engine (Unit 2a)

Horsepower Rating:	350	horsepower	
Fuel Usage:	18.1	gallons/hr	
MMBtu/hr:	2.4978	Btu	(based on 138000 Btu/gallon)
Btu x 10 ⁻¹² /hr:	2.4978E-06	Btu x10 ⁻¹²	(based on 138000 Btu/gallon)
Yearly Operating Hours:	8760	hours per year	

Type of Fuel:	Diesel
Emission Factors	AP-42 Section 3.3 and Section 1.3

Non-PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.001916	0.008391
Acrolein	107-02-8	9.25E-05	0.000231	0.001012
Benzene	71-43-2	9.33E-04	0.002330	0.010207
1,3-Butadiene	106-99-0	3.91E-05	0.000098	0.000428
Formaldehyde	50-00-0	1.18E-03	0.002947	0.012910
Propylene	115-07-1	2.58E-03	0.006444	0.028226
Toluene	108-88-3	4.09E-04	0.001022	0.004475
Xylene	1330-20-7	2.85E-04	0.000712	0.003118
Total Non-PAH HAPS		6.29E-03	0.015700	0.068767

PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000004	0.000016
Acenaphthylene	208-96-8	5.06E-06	0.000013	0.000055
Anthracene	120-12-7	1.87E-06	0.000005	0.000020
Benzo(a)anthracene	56-55-3	1.68E-06	0.000004	0.000018
Benzo(a)pyrene	50-32-8	1.88E-07	0.000000	0.000002
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000001
Benzo(a)pyrene	192-97-2	1.55E-07	0.000000	0.000002
Benzo(g,h,i)perylene	191-24-2	4.89E-07	0.000001	0.000005
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000000	0.000002
Dibenz(a,h)anthracene		5.83E-07	0.000001	0.000006
Chrysene	218-01-9	3.53E-07	0.000001	0.000004
Fluoranthene	206-44-0	7.61E-06	0.000019	0.000083
Fluorene	86-73-7	2.92E-05	0.000073	0.000319
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000001	0.000004
Naphthalene	91-20-3	8.48E-05	0.000212	0.000928
Phenanthrene	85-01-8	2.94E-05	0.000073	0.000322
Pyrene	129-00-0	4.78E-06	0.000012	0.000052
Total PAH HAPS		1.68E-04	0.000420	0.001840

		Emission Factor (lbs/Btu ¹²)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
HAPS Metals				
Arsenic		4	0.000010	0.000044
Beryllium		3	0.000007	0.000033
Cadmium		3	0.000007	0.000033
Chromium		3	0.000007	0.000033
Lead		9	0.000022	0.000098
Manganese		6	0.000015	0.000066
Mercury		3	0.000007	0.000033
Nickel		3	0.000007	0.000033
Selenium		15	0.000037	0.000164
Total Metals HAPS		49	0.000122	0.000536
Total HAPS			0.01624	0.07114

Table 6-14: HAPs Emission Rates from the Generator Engine (Unit 3c)

Horsepower Rating:	577	horsepower	
Fuel Usage:	28	gallons/hr	
MMBtu/hr:	3.864	Btu	(based on 138000 Btu/gallon)
Btu x 10 ⁻¹² /hr:	0.000003864	Btu x10 ⁻¹²	(based on 138000 Btu/gallon)
Yearly Operating Hours:	8760	hours per year	

Type of Fuel:	Diesel
Emission Factors	AP-42 Section 3.3 and Section 1.3

Non-PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.002964	0.012981
Acrolein	107-02-8	9.25E-05	0.000357	0.001565
Benzene	71-43-2	9.33E-04	0.003605	0.015790
1,3-Butadiene	106-99-0	3.91E-05	0.000151	0.000662
Formaldehyde	50-00-0	1.18E-03	0.004560	0.019971
Propylene	115-07-1	2.58E-03	0.009969	0.043665
Toluene	108-88-3	4.09E-04	0.001580	0.006922
Xylene	1330-20-7	2.85E-04	0.001101	0.004823
Total Non-PAH HAPS		6.29E-03	0.024288	0.106380

PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000005	0.000024
Acenaphthylene	208-96-8	5.06E-06	0.000020	0.000086
Anthracene	120-12-7	1.87E-06	0.000007	0.000032
Benzo(a)anthracene	56-55-3	1.68E-06	0.000006	0.000028
Benzo(a)pyrene	50-32-8	1.88E-07	0.000001	0.000003
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000002
Benzo(a)pyrene	192-97-2	1.55E-07	0.000001	0.000003
Benzo(g,h,i)perylene	191-24-2	4.89E-07	0.000002	0.000008
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000001	0.000003
Dibenz(a,h)anthracene		5.83E-07	0.000002	0.000010
Chrysene	218-01-9	3.53E-07	0.000001	0.000006
Fluoranthene	206-44-0	7.61E-06	0.000029	0.000129
Fluorene	86-73-7	2.92E-05	0.000113	0.000494
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000001	0.000006
Naphthalene	91-20-3	8.48E-05	0.000328	0.001435
Phenanthrene	85-01-8	2.94E-05	0.000114	0.000498
Pyrene	129-00-0	4.78E-06	0.000018	0.000081
Total PAH HAPS		1.68E-04	0.000650	0.002847

HAPS Metals	Emission Factor (lbs/Btu¹²)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic	4	0.000015	0.000068
Beryllium	3	0.000012	0.000051
Cadmium	3	0.000012	0.000051
Chromium	3	0.000012	0.000051
Lead	9	0.000035	0.000152
Manganese	6	0.000023	0.000102
Mercury	3	0.000012	0.000051
Nickel	3	0.000012	0.000051
Selenium	15	0.000058	0.000254
Total Metals HAPS	49	0.000189	0.000829
Total HAPS		0.02513	0.11006

Table 6-15: HAPs Emission Rates from the Generator Engine (Unit 3d)

Horsepower Rating:	577	horsepower	
Fuel Usage:	28	gallons/hr	
MMBtu/hr:	3.864	Btu	(based on 138000 Btu/gallon)
Btu x 10 ⁻¹² /hr:	0.000003864	Btu x10 ⁻¹²	(based on 138000 Btu/gallon)
Yearly Operating Hours:	8760	hours per year	

Type of Fuel:	Diesel
Emission Factors	AP-42 Section 3.3 and Section 1.3

Non-PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.002964	0.012981
Acrolein	107-02-8	9.25E-05	0.000357	0.001565
Benzene	71-43-2	9.33E-04	0.003605	0.015790
1,3-Butadiene	106-99-0	3.91E-05	0.000151	0.000662
Formaldehyde	50-00-0	1.18E-03	0.004560	0.019971
Propylene	115-07-1	2.58E-03	0.009969	0.043665
Toluene	108-88-3	4.09E-04	0.001580	0.006922
Xylene	1330-20-7	2.85E-04	0.001101	0.004823
Total Non-PAH HAPS		6.29E-03	0.024288	0.106380

PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000005	0.000024
Acenaphthylene	208-96-8	5.06E-06	0.000020	0.000086
Anthracene	120-12-7	1.87E-06	0.000007	0.000032
Benzo(a)anthracene	56-55-3	1.68E-06	0.000006	0.000028
Benzo(a)pyrene	50-32-8	1.88E-07	0.000001	0.000003
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000002
Benzo(a)pyrene	192-97-2	1.55E-07	0.000001	0.000003
Benzo(g,h,i)perylene	191-24-2	4.89E-07	0.000002	0.000008
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000001	0.000003
Dibenz(a,h)anthracene		5.83E-07	0.000002	0.000010
Chrysene	218-01-9	3.53E-07	0.000001	0.000006
Fluoranthene	206-44-0	7.61E-06	0.000029	0.000129
Fluorene	86-73-7	2.92E-05	0.000113	0.000494
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000001	0.000006
Naphthalene	91-20-3	8.48E-05	0.000328	0.001435
Phenanthrene	85-01-8	2.94E-05	0.000114	0.000498
Pyrene	129-00-0	4.78E-06	0.000018	0.000081
Total PAH HAPS		1.68E-04	0.000650	0.002847

		Emission Factor (lbs/Btu¹²)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
HAPS Metals				
Arsenic		4	0.000015	0.000068
Beryllium		3	0.000012	0.000051
Cadmium		3	0.000012	0.000051
Chromium		3	0.000012	0.000051
Lead		9	0.000035	0.000152
Manganese		6	0.000023	0.000102
Mercury		3	0.000012	0.000051
Nickel		3	0.000012	0.000051
Selenium		15	0.000058	0.000254
Total Metals HAPS		49	0.000189	0.000829
Total HAPS			0.02513	0.11006

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO₂e emissions from your facility.
2. GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the global warming potentials (GWPs). GHG CO₂e emissions are the sum of the mass emissions of each individual GHG multiplied by its GWP found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.
3. Emissions from routine or predictable start up, shut down, and maintenance must be included.
4. Report GHG mass and GHG CO₂e emissions in Table 2-P of this application. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).
5. All Title V major sources, PSD major sources, and all power plants, whether major or not, must calculate and report GHG mass and CO₂e emissions for each unit in Table 2-P.
6. For minor source facilities that are not power plants, are not Title V, and are not PSD there are three options for reporting GHGs in Table 2-P: 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHGs as a second separate unit; 3) or check the following ☐ By checking this box, the applicant acknowledges the total CO₂e emissions are less than 75,000 tons per year.

Sources for Calculating GHG Emissions:

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at <http://www.epa.gov/ttn/chief/ap42/index.html>
- EPA's Internet emission factor database WebFIRE at <http://cfpub.epa.gov/webfire/>
- 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at <http://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases>:

Global Warming Potentials (GWP):

Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO₂ over a specified time period.

"Greenhouse gas" for the purpose of air permit regulations is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7 NMAC, 20.2.74.7 NMAC)**. You may also find GHGs defined in 40 CFR 86.1818-12(a).

Metric to Short Ton Conversion:

Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.

1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

Section 7

Information Used to Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☐ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
 - ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
 - ☒ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
 - ☐ If an older version of AP-42 is used, include a complete copy of the section.
 - ☒ If an EPA document or other material is referenced, include a complete copy.
 - ☐ Fuel specifications sheet.
 - ☒ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.
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A-3807-7-AP42S1-3
A-3807-7-AP42S3-3
A-3807-7-AP42S13-2-2
A-3807-7-AP42S13-2-4
A-3807-7-WindspeedsNewMexico
A-3807-7-GHG
A-3807-7-SummitMineEI.xls
A-3807-7-Unit_1a
A-3807-7-Unit_2a
A-3807-7-Unit_3c
A-3807-7-Unit_3d

Diesel-Fired Engine HAPs Emission Factors
Diesel-Fired Engine HAPs Emission Factors
Unpaved Road Emission Factors
Material Handling Emission Factors
Deming Wind Speed Annual Average 2001 to 2011
EPA Greenhouse Gas Inventory Emission Factors
Summit Mine Emissions Spreadsheet (Electronic File)
Unit 1a Generator Engine Manufacturer Specification
Unit 2a Compressor Engine Manufacturer Specification
Unit 3c Generator Engine Manufacturer Specification
Unit 3d Generator Engine Manufacturer Specification

1.3 Fuel Oil Combustion

1.3.1 General¹⁻³

Two major categories of fuel oil are burned by combustion sources: distillate oils and residual oils. These oils are further distinguished by grade numbers, with Nos. 1 and 2 being distillate oils; Nos. 5 and 6 being residual oils; and No. 4 being either distillate oil or a mixture of distillate and residual oils. No. 6 fuel oil is sometimes referred to as Bunker C. Distillate oils are more volatile and less viscous than residual oils. They have negligible nitrogen and ash contents and usually contain less than 0.3 percent sulfur (by weight). Distillate oils are used mainly in domestic and small commercial applications, and include kerosene and diesel fuels. Being more viscous and less volatile than distillate oils, the heavier residual oils (Nos. 5 and 6) may need to be heated for ease of handling and to facilitate proper atomization. Because residual oils are produced from the residue remaining after the lighter fractions (gasoline, kerosene, and distillate oils) have been removed from the crude oil, they contain significant quantities of ash, nitrogen, and sulfur. Residual oils are used mainly in utility, industrial, and large commercial applications.

1.3.2 Firing Practices⁴

The major boiler configurations for fuel oil-fired combustors are watertube, firetube, cast iron, and tubeless design. Boilers are classified according to design and orientation of heat transfer surfaces, burner configuration, and size. These factors can all strongly influence emissions as well as the potential for controlling emissions.

Watertube boilers are used in a variety of applications ranging from supplying large amounts of process steam to providing space heat for industrial facilities. In a watertube boiler, combustion heat is transferred to water flowing through tubes which line the furnace walls and boiler passes. The tube surfaces in the furnace (which houses the burner flame) absorb heat primarily by radiation from the flames. The tube surfaces in the boiler passes (adjacent to the primary furnace) absorb heat primarily by convective heat transfer.

Firetube boilers are used primarily for heating systems, industrial process steam generators, and portable power boilers. In firetube boilers, the hot combustion gases flow through the tubes while the water being heated circulates outside of the tubes. At high pressures and when subjected to large variations in steam demand, firetube units are more susceptible to structural failure than watertube boilers. This is because the high-pressure steam in firetube units is contained by the boiler walls rather than by multiple small-diameter watertubes, which are inherently stronger. As a consequence, firetube boilers are typically small and are used primarily where boiler loads are relatively constant. Nearly all firetube boilers are sold as packaged units because of their relatively small size.

A cast iron boiler is one in which combustion gases rise through a vertical heat exchanger and out through an exhaust duct. Water in the heat exchanger tubes is heated as it moves upward through the tubes. Cast iron boilers produce low pressure steam or hot water, and generally burn oil or natural gas. They are used primarily in the residential and commercial sectors.

Another type of heat transfer configuration used on smaller boilers is the tubeless design. This design incorporates nested pressure vessels with water in between the shells. Combustion gases are fired into the inner pressure vessel and are then sometimes recirculated outside the second vessel.

Table 1.3-10. EMISSION FACTORS FOR TRACE ELEMENTS FROM DISTILLATE FUEL OIL COMBUSTION SOURCES^a

EMISSION FACTOR RATING: E

Firing Configuration (SCC)	Emission Factor (lb/10 ¹² Btu)										
	As	Be	Cd	Cr	Cu	Pb	Hg	Mn	Ni	Se	Zn
Distillate oil fired (1-01-005-01, 1-02-005-01, 1-03-005-01)	4	3	3	3	6	9	3	6	3	15	4

^a Data are for distillate oil fired boilers, SCC codes 1-01-005-01, 1-02-005-01, and 1-03-005-01. References 29-32, 40-44 and 83. To convert from lb/10¹² Btu to pg/J, multiply by 0.43.

3.3 Gasoline And Diesel Industrial Engines

3.3.1 General

The engine category addressed by this section covers a wide variety of industrial applications of both gasoline and diesel internal combustion (IC) engines such as aerial lifts, fork lifts, mobile refrigeration units, generators, pumps, industrial sweepers/scrubbers, material handling equipment (such as conveyors), and portable well-drilling equipment. The three primary fuels for reciprocating IC engines are gasoline, diesel fuel oil (No.2), and natural gas. Gasoline is used primarily for mobile and portable engines. Diesel fuel oil is the most versatile fuel and is used in IC engines of all sizes. The rated power of these engines covers a rather substantial range, up to 250 horsepower (hp) for gasoline engines and up to 600 hp for diesel engines. (Diesel engines greater than 600 hp are covered in Section 3.4, "Large Stationary Diesel And All Stationary Dual-fuel Engines".) Understandably, substantial differences in engine duty cycles exist. It was necessary, therefore, to make reasonable assumptions concerning usage in order to formulate some of the emission factors.

3.3.2 Process Description

All reciprocating IC engines operate by the same basic process. A combustible mixture is first compressed in a small volume between the head of a piston and its surrounding cylinder. The mixture is then ignited, and the resulting high-pressure products of combustion push the piston through the cylinder. This movement is converted from linear to rotary motion by a crankshaft. The piston returns, pushing out exhaust gases, and the cycle is repeated.

There are 2 methods used for stationary reciprocating IC engines: compression ignition (CI) and spark ignition (SI). This section deals with both types of reciprocating IC engines. All diesel-fueled engines are compression ignited, and all gasoline-fueled engines are spark ignited.

In CI engines, combustion air is first compression heated in the cylinder, and diesel fuel oil is then injected into the hot air. Ignition is spontaneous because the air temperature is above the autoignition temperature of the fuel. SI engines initiate combustion by the spark of an electrical discharge. Usually the fuel is mixed with the air in a carburetor (for gasoline) or at the intake valve (for natural gas), but occasionally the fuel is injected into the compressed air in the cylinder.

CI engines usually operate at a higher compression ratio (ratio of cylinder volume when the piston is at the bottom of its stroke to the volume when it is at the top) than SI engines because fuel is not present during compression; hence there is no danger of premature autoignition. Since engine thermal efficiency rises with increasing pressure ratio (and pressure ratio varies directly with compression ratio), CI engines are more efficient than SI engines. This increased efficiency is gained at the expense of poorer response to load changes and a heavier structure to withstand the higher pressures.¹

3.3.3 Emissions

Most of the pollutants from IC engines are emitted through the exhaust. However, some total organic compounds (TOC) escape from the crankcase as a result of blowby (gases that are vented from the oil pan after they have escaped from the cylinder past the piston rings) and from the fuel tank and carburetor because of evaporation. Nearly all of the TOCs from diesel CI engines enter the

Table 3.3-2. SPECIATED ORGANIC COMPOUND EMISSION
FACTORS FOR UNCONTROLLED DIESEL ENGINES^a

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (Fuel Input) (lb/MMBtu)
Benzene ^b	9.33 E-04
Toluene ^b	4.09 E-04
Xylenes ^b	2.85 E-04
Propylene 	2.58 E-03
1,3-Butadiene ^{b,c}	<3.91 E-05
Formaldehyde ^b	1.18 E-03
Acetaldehyde ^b	7.67 E-04
Acrolein ^b	<9.25 E-05
Polycyclic aromatic hydrocarbons (PAH)	
Naphthalene ^b	8.48 E-05
Acenaphthylene	<5.06 E-06
Acenaphthene	<1.42 E-06
Fluorene	2.92 E-05
Phenanthrene	2.94 E-05
Anthracene	1.87 E-06
Fluoranthene	7.61 E-06
Pyrene	4.78 E-06
Benzo(a)anthracene	1.68 E-06
Chrysene	3.53 E-07
Benzo(b)fluoranthene	<9.91 E-08
Benzo(k)fluoranthene	<1.55 E-07
Benzo(a)pyrene	<1.88 E-07
Indeno(1,2,3-cd)pyrene	<3.75 E-07
Dibenz(a,h)anthracene	<5.83 E-07
Benzo(g,h,i)perylene	<4.89 E-07
TOTAL PAH	1.68 E-04

^a Based on the uncontrolled levels of 2 diesel engines from References 6-7. Source Classification Codes 2-02-001-02, 2-03-001-01. To convert from lb/MMBtu to ng/J, multiply by 430.

^b Hazardous air pollutant listed in the *Clean Air Act*.

^c Based on data from 1 engine.

13.2.2 Unpaved Roads

13.2.2.1 General

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The particulate emission factors presented in the previous draft version of this section of AP-42, dated October 2001, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material²⁵. EPA included these sources in the emission factor equation for unpaved public roads (equation 1b in this section) since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the unpaved public road emission factor equation only estimates particulate emissions from resuspended road surface material^{23, 26}. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOBILE6.2²⁴. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOBILE6.2 to estimate particulate emissions from vehicle traffic on unpaved public roads. It also incorporates the decrease in exhaust emissions that has occurred since the unpaved public road emission factor equation was developed. The previous version of the unpaved public road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.2.2 Emissions Calculation And Correction Parameters¹⁻⁶

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic. Characterization of these source parameters allow for "correction" of emission estimates to specific road and traffic conditions present on public and industrial roadways.

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers [μm] in diameter) in the road surface materials.¹ The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200-mesh screen, using the ASTM-C-136 method. A summary of this method is contained in Appendix C of AP-42. Table 13.2.2-1 summarizes measured silt values for industrial unpaved roads. Table 13.2.2-2 summarizes measured silt values for public unpaved roads. It should be noted that the ranges of silt content vary over two orders of magnitude. Therefore, the use of data from this table can potentially introduce considerable error. Use of this data is strongly discouraged when it is feasible to obtain locally gathered data.

Since the silt content of a rural dirt road will vary with geographic location, it should be measured for use in projecting emissions. As a conservative approximation, the silt content of the parent soil in the area can be used. Tests, however, show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Other variables are important in addition to the silt content of the road surface material. For example, at industrial sites, where haul trucks and other heavy equipment are common, emissions are highly correlated with vehicle weight. On the other hand, there is far less variability in the weights of cars and pickup trucks that commonly travel publicly accessible unpaved roads throughout the United States. For those roads, the moisture content of the road surface material may be more dominant in determining differences in emission levels between, for example a hot, desert environment and a cool, moist location.

The PM-10 and TSP emission factors presented below are the outcomes from stepwise linear regressions of field emission test results of vehicles traveling over unpaved surfaces. Due to a limited amount of information available for PM-2.5, the expression for that particle size range has been scaled against the result for PM-10. Consequently, the quality rating for the PM-2.5 factor is lower than that for the PM-10 expression.

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL
ON INDUSTRIAL UNPAVED ROADS^a

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

^aReferences 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

$$E = k (s/12)^a (W/3)^b \quad (1a)$$

and, for vehicles traveling on publicly accessible roads, dominated by light duty vehicles, emissions may be estimated from the following:

$$E = \frac{k (s/12)^a (S/30)^d}{(M/0.5)^c} - C \quad (1b)$$

where k , a , b , c and d are empirical constants (Reference 6) given below and

- E = size-specific emission factor (lb/VMT)
- s = surface material silt content (%)
- W = mean vehicle weight (tons)
- M = surface material moisture content (%)
- S = mean vehicle speed (mph)
- C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

The source characteristics s , W and M are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

$$1 \text{ lb/VMT} = 281.9 \text{ g/VKT}$$

The constants for Equations 1a and 1b based on the stated aerodynamic particle sizes are shown in Tables 13.2.2-2 and 13.2.2-4. The PM-2.5 particle size multipliers (k -factors) are taken from Reference 27.

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a AND 1b

Constant	Industrial Roads (Equation 1a)			Public Roads (Equation 1b)		
	PM-2.5	PM-10	PM-30*	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9	0.18	1.8	6.0
a	0.9	0.9	0.7	1	1	1
b	0.45	0.45	0.45	-	-	-
c	-	-	-	0.2	0.2	0.3
d	-	-	-	0.5	0.5	0.3
Quality Rating	B	B	B	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)

“-“ = not used in the emission factor equation

Table 13.2.2-2 also contains the quality ratings for the various size-specific versions of Equation 1a and 1b. The equation retains the assigned quality rating, if applied within the ranges of source conditions, shown in Table 13.2.2-3, that were tested in developing the equation:

Table 13.2.2-3. RANGE OF SOURCE CONDITIONS USED IN DEVELOPING EQUATION 1a AND 1b

Emission Factor	Surface Silt Content, %	Mean Vehicle Weight		Mean Vehicle Speed		Mean No. of Wheels	Surface Moisture Content, %
		Mg	ton	km/hr	mph		
Industrial Roads (Equation 1a)	1.8-25.2	1.8-260	2-290	8-69	5-43	4-17 ^a	0.03-13
Public Roads (Equation 1b)	1.8-35	1.4-2.7	1.5-3	16-88	10-55	4-4.8	0.03-13

^a See discussion in text.

As noted earlier, the models presented as Equations 1a and 1b were developed from tests of traffic on unpaved surfaces. Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall or watering, because of traffic-enhanced natural evaporation. (Factors influencing how fast a road dries are discussed in Section 13.2.2.3, below.) The quality ratings given above pertain to the mid-range of the measured source conditions for the equation. A higher mean vehicle weight and a higher than normal traffic rate may be justified when performing a worst-case analysis of emissions from unpaved roads.

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (C) was obtained from EPA's MOBILE6.2 model ²³. The emission factor also varies with aerodynamic size range

13.2.4 Aggregate Handling And Storage Piles

13.2.4.1 General

Inherent in operations that use minerals in aggregate form is the maintenance of outdoor storage piles. Storage piles are usually left uncovered, partially because of the need for frequent material transfer into or out of storage.

Dust emissions occur at several points in the storage cycle, such as material loading onto the pile, disturbances by strong wind currents, and loadout from the pile. The movement of trucks and loading equipment in the storage pile area is also a substantial source of dust.

13.2.4.2 Emissions And Correction Parameters

The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on 3 parameters of the condition of a particular storage pile: age of the pile, moisture content, and proportion of aggregate fines.

When freshly processed aggregate is loaded onto a storage pile, the potential for dust emissions is at a maximum. Fines are easily disaggregated and released to the atmosphere upon exposure to air currents, either from aggregate transfer itself or from high winds. As the aggregate pile weathers, however, potential for dust emissions is greatly reduced. Moisture causes aggregation and cementation of fines to the surfaces of larger particles. Any significant rainfall soaks the interior of the pile, and then the drying process is very slow.

Silt (particles equal to or less than 75 micrometers [μm] in diameter) content is determined by measuring the portion of dry aggregate material that passes through a 200-mesh screen, using ASTM-C-136 method.¹ Table 13.2.4-1 summarizes measured silt and moisture values for industrial aggregate materials.

Table 13.2.4-1. TYPICAL SILT AND MOISTURE CONTENTS OF MATERIALS AT VARIOUS INDUSTRIES^a

Industry	No. Of Facilities	Material	Silt Content (%)			Moisture Content (%)		
			No. Of Samples	Range	Mean	No. Of Samples	Range	Mean
Iron and steel production	9	Pellet ore	13	1.3 - 13	4.3	11	0.64 - 4.0	2.2
		Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.0	5.4
		Coal	12	2.0 - 7.7	4.6	11	2.8 - 11	4.8
		Slag	3	3.0 - 7.3	5.3	3	0.25 - 2.0	0.92
		Flue dust	3	2.7 - 23	13	1	—	7
		Coke breeze	2	4.4 - 5.4	4.9	2	6.4 - 9.2	7.8
		Blended ore	1	—	15	1	—	6.6
		Sinter	1	—	0.7	0	—	—
		Limestone	3	0.4 - 2.3	1.0	2	ND	0.2
Stone quarrying and processing	2	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
		Various limestone products	8	0.8 - 14	3.9	8	0.46 - 5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.0	0.9
		Tailings	2	ND	11	1	—	0.4
Western surface coal mining	4	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
		Overburden	15	3.8 - 15	7.5	0	—	—
		Exposed ground	3	5.1 - 21	15	3	0.8 - 6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5
Municipal solid waste landfills	4	Sand	1	—	2.6	1	—	7.4
		Slag	2	3.0 - 4.7	3.8	2	2.3 - 4.9	3.6
		Cover	5	5.0 - 16	9.0	5	8.9 - 16	12
		Clay/dirt mix	1	—	9.2	1	—	14
		Clay	2	4.5 - 7.4	6.0	2	8.9 - 11	10
		Fly ash	4	78 - 81	80	4	26 - 29	27
		Misc. fill materials	1	—	12	1	—	11

^a References 1-10. ND = no data.

13.2.4.3 Predictive Emission Factor Equations

Total dust emissions from aggregate storage piles result from several distinct source activities within the storage cycle:

1. Loading of aggregate onto storage piles (batch or continuous drop operations).
2. Equipment traffic in storage area.
3. Wind erosion of pile surfaces and ground areas around piles.
4. Loadout of aggregate for shipment or for return to the process stream (batch or continuous drop operations).

Either adding aggregate material to a storage pile or removing it usually involves dropping the material onto a receiving surface. Truck dumping on the pile or loading out from the pile to a truck with a front-end loader are examples of batch drop operations. Adding material to the pile by a conveyor stacker is an example of a continuous drop operation.

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:¹¹

$$E = k(0.0016) \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (kg/megagram [Mg])}$$

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor

k = particle size multiplier (dimensionless)

U = mean wind speed, meters per second (m/s) (miles per hour [mph])

M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 µm	< 15 µm	< 10 µm	< 5 µm	< 2.5 µm
0.74	0.48	0.35	0.20	0.053 ^a

^a Multiplier for < 2.5 µm taken from Reference 14.

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as follows. Note that silt content is included, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the 2 was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced 1 quality rating level if the silt content used in a particular application falls outside the range given:

Ranges Of Source Conditions For Equation 1			
Silt Content (%)	Moisture Content (%)	Wind Speed	
		m/s	mph
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

To retain the quality rating of the equation when it is applied to a specific facility, reliable correction parameters must be determined for specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site-specific values for

correction parameters cannot be obtained, the appropriate mean from Table 13.2.4-1 may be used, but the quality rating of the equation is reduced by 1 letter.

For emissions from equipment traffic (trucks, front-end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 13.2.2). For vehicle travel between storage piles, the silt value(s) for the areas among the piles (which may differ from the silt values for the stored materials) should be used.

Worst-case emissions from storage pile areas occur under dry, windy conditions. Worst-case emissions from materials-handling operations may be calculated by substituting into the equation appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 hours. The treatment of dry conditions for Section 13.2.2, vehicle traffic, "Unpaved Roads", follows the methodology described in that section centering on parameter p. A separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity also may be justified for the worst-case averaging period.

13.2.4.4 Controls¹²⁻¹³

Watering and the use of chemical wetting agents are the principal means for control of aggregate storage pile emissions. Enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions. Watering is useful mainly to reduce emissions from vehicle traffic in the storage pile area. Watering of the storage piles themselves typically has only a very temporary slight effect on total emissions. A much more effective technique is to apply chemical agents (such as surfactants) that permit more extensive wetting. Continuous chemical treating of material loaded onto piles, coupled with watering or treatment of roadways, can reduce total particulate emissions from aggregate storage operations by up to 90 percent.¹²

References For Section 13.2.4

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NEW MEXICO

STATION	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
ALBUQUERQUE INTL SUNPORT AP (KABQ)	2001-2011	7.0	7.7	8.8	10.4	9.7	9.2	8.1	7.7	7.5	7.3	7.1	6.7	8.1
CARLSBAD-CAVERN CITY AP (KCNM)	2001-2011	8.7	9.7	10.6	11.4	10.1	9.7	7.9	7.2	7.6	8.1	8.3	8.4	9.0
CLAYTON MUNICIPAL AIRPARK AP (KCAO)	2001-2011	11.8	12.3	13.0	14.5	13.4	12.8	11.5	11.1	11.7	12.0	12.4	11.9	12.4
CLINES CORNERS (KCQC)	2001-2011	15.9	15.9	15.7	16.7	14.3	13.0	10.0	10.1	11.2	13.4	14.8	16.3	14.0
DEMING MUNICIPAL AIRPORT (KDMN)	2001-2011	8.1	9.0	9.8	11.0	10.0	9.3	7.9	7.1	7.4	7.4	7.6	7.7	8.5
FARMINGTON-FOUR CORNERS AP (KFMN)	2001-2011	6.6	7.6	8.6	9.8	9.0	8.7	8.1	7.5	7.4	7.3	7.2	7.0	7.9
GALLUP MUNICIPAL AIRPORT (KGUP)	2001-2011	5.1	6.6	8.1	10.5	9.2	8.6	6.6	5.9	6.1	6.1	5.8	5.5	7.0
GRANTS-MILAN MUNI AIRPORT (KGNT)	2001-2011	7.6	8.3	9.2	10.6	9.6	9.0	7.7	6.9	7.4	7.7	7.9	7.5	8.3
LAS VEGAS MUNICIPAL ARPT (KLVS)	2001-2011	10.2	11.6	12.0	14.0	12.5	11.6	9.2	9.1	10.0	10.3	10.7	10.6	11.0
RATON MUNI/CREWS FIELD APT (KRTN)	2001-2011	8.1	9.0	9.9	11.9	10.9	10.0	8.0	7.8	8.2	8.7	8.4	8.1	9.1
ROSWELL INTERNATIONAL AP (KROW)	2001-2011	7.2	8.5	9.5	10.6	9.9	10.0	8.3	7.5	7.7	7.6	7.4	7.0	8.4
SANTA FE MUNICIPAL AIRPORT (KSAF)	2001-2011	8.7	8.7	9.4	10.6	10.3	9.6	8.4	8.1	8.1	8.3	8.3	8.3	8.9
TRUTH OR CONSEQUENCES AP (KTCS)	2001-2011	7.1	8.4	9.6	10.6	10.0	9.2	7.4	7.1	7.0	7.6	7.5	6.9	8.2
TUCUMCARI MUNICIPAL ARPT (KTCC)	2001-2011	9.7	10.4	11.4	13.1	11.8	11.6	9.5	9.2	9.7	9.9	10.3	10.1	10.6



Emission Factors for Greenhouse Gas Inventories

Last Modified: February 13, 2024

Blue text indicates an update from the 2023 version of this document.

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO₂e). Gases are converted to CO₂e by multiplying by their global warming potential (GWP). In most cases, the emission factors listed in this document generally have not been converted to CO₂e. To do so, multiply the emissions by the corresponding GWP listed in the table below.

Gas	100-Year GWP
CH ₄	28
N ₂ O	265

Source: Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report (AR5), 2013. See the source note to Table 11 for further explanation.

Notes:

These GWP values represent a change from the previous version of this document. In alignment with the U.S. Inventory of U.S. GHG Emissions and Sinks 1990-2021 Inventory Report, the recommended GWP values have been updated to Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report (AR5) values.

Table 1 Stationary Combustion

Fuel Type	Heat Content (HHV) mmBtu per short ton	CO ₂ Factor kg CO ₂ per mmBtu	CH ₄ Factor g CH ₄ per mmBtu	N ₂ O Factor g N ₂ O per mmBtu	CO ₂ Factor kg CO ₂ per short ton	CH ₄ Factor g CH ₄ per short ton	N ₂ O Factor g N ₂ O per short
Coal and Coke							
Anthracite	25.09	103.69	11	1.6	2,602	276	40
Bituminous	24.93	93.28	11	1.6	2,325	274	40
Sub-bituminous	17.25	97.17	11	1.6	1,676	190	28
Lignite	14.21	97.72	11	1.6	1,389	156	23
Mixed (Commercial Sector)	21.39	94.27	11	1.6	2,016	235	34
Mixed (Electric Power Sector)	19.73	95.52	11	1.6	1,885	217	32
Mixed (Industrial Coking)	26.28	93.90	11	1.6	2,488	289	42
Mixed (Industrial Sector)	22.35	94.67	11	1.6	2,116	246	36
Coal Coke	24.80	113.67	11	1.6	2,819	273	40
Other Fuels - Solid							
Municipal Solid Waste	9.95	90.70	32	4.2	902	318	42
Petroleum Coke (Solid)	30.00	102.41	32	4.2	3,072	960	126
Plastics	38.00	75.00	32	4.2	2,850	1,216	160
Tires	28.00	85.97	32	4.2	2,407	896	118
Biomass Fuels - Solid							
Agricultural Byproducts	8.25	118.17	32	4.2	975	264	35
Peat	8.00	111.84	32	4.2	895	256	34
Solid Byproducts	10.39	105.51	32	4.2	1,096	332	44
Wood and Wood Residuals	17.48	93.80	7.2	3.6	1,640	126	63
Natural Gas							
Natural Gas	0.001026	53.06	1.0	0.10	0.05444	0.00103	0.00010
Other Fuels - Gaseous							
Blast Furnace Gas	0.000092	274.32	0.022	0.10	0.02534	0.000002	0.000009
Coke Oven Gas	0.000599	46.85	0.48	0.10	0.02806	0.000288	0.000060
Fuel Gas	0.001388	59.00	3.0	0.60	0.08189	0.004164	0.000833
Propane Gas	0.002516	61.46	3.0	0.60	0.15463	0.007548	0.001510
Biomass Fuels - Gaseous							
Landfill Gas	0.000485	52.07	3.2	0.63	0.025254	0.001552	0.000306
Other Biomass Gases	0.000655	52.07	3.2	0.63	0.034106	0.002096	0.000413
Petroleum Products							
Asphalt and Road Oil	0.158	75.36	3.0	0.60	11.91	0.47	0.09
Aviation Gasoline	0.120	69.25	3.0	0.60	8.31	0.36	0.07
Butane	0.103	64.77	3.0	0.60	6.67	0.31	0.06
Butylene	0.105	69.72	3.0	0.60	7.22	0.32	0.06
Crude Oil	0.138	74.54	3.0	0.60	10.29	0.41	0.08
Distillate Fuel Oil No. 1	0.139	73.25	3.0	0.60	10.18	0.42	0.08
Distillate Fuel Oil No. 2	0.138	73.96	3.0	0.60	10.21	0.41	0.08
Distillate Fuel Oil No. 4	0.146	75.04	3.0	0.60	10.96	0.44	0.09
Ethane	0.068	59.60	3.0	0.60	4.05	0.20	0.04
Ethylene	0.058	65.96	3.0	0.60	3.83	0.17	0.03
Heavy Gas Oils	0.148	74.92	3.0	0.60	11.09	0.44	0.09
Isobutane	0.099	64.94	3.0	0.60	6.43	0.30	0.06
Isobutylene	0.103	68.86	3.0	0.60	7.09	0.31	0.06
Kerosene	0.135	75.20	3.0	0.60	10.15	0.41	0.08
Kerosene-Type Jet Fuel	0.135	72.22	3.0	0.60	9.75	0.41	0.08
Liquefied Petroleum Gases (LPG)	0.092	61.71	3.0	0.60	5.88	0.28	0.06
Lubricants	0.144	74.27	3.0	0.60	10.69	0.43	0.09
Motor Gasoline	0.125	70.22	3.0	0.60	8.78	0.38	0.08
Naphtha (<401 deg F)	0.125	68.02	3.0	0.60	8.50	0.38	0.08
Natural Gasoline	0.110	66.88	3.0	0.60	7.36	0.33	0.07
Other Oil (>401 deg F)	0.139	76.22	3.0	0.60	10.59	0.42	0.08
Pentanes Plus	0.110	70.02	3.0	0.60	7.70	0.33	0.07
Petrochemical Feedstocks	0.125	71.02	3.0	0.60	8.88	0.38	0.08
Propane	0.091	62.87	3.0	0.60	5.72	0.27	0.05
Propylene	0.091	67.77	3.0	0.60	6.17	0.27	0.05
Residual Fuel Oil No. 5	0.140	72.93	3.0	0.60	10.21	0.42	0.08
Residual Fuel Oil No. 6	0.150	75.10	3.0	0.60	11.27	0.45	0.09
Special Naphtha	0.125	72.34	3.0	0.60	9.04	0.38	0.08
Unfinished Oils	0.139	74.54	3.0	0.60	10.36	0.42	0.08
Used Oil	0.138	74.00	3.0	0.60	10.21	0.41	0.08
Biomass Fuels - Liquid							
Biodiesel (100%)	0.128	73.84	1.1	0.11	9.45	0.14	0.01
Ethanol (100%)	0.084	68.44	1.1	0.11	5.75	0.09	0.01
Rendered Animal Fat	0.125	71.06	1.1	0.11	8.88	0.14	0.01
Vegetable Oil	0.120	81.55	1.1	0.11	9.79	0.13	0.01
Biomass Fuels - Kraft Pulp Liqueur, by Wood Furnish							
North American Softwood		94.4	1.9	0.42			
North American Hardwood		93.7	1.9	0.42			
Bagasse		95.5	1.9	0.42			
Bamboo		93.7	1.9	0.42			
Straw		95.1	1.9	0.42			

Source:

Federal Register EPA: 40 CFR Part 98; e-CFR, (see link below), Table C-1 and Table C-2 (78 FR 71950, Nov. 29, 2013, as amended at 81 FR 89252, Dec. 9, 2016), Table AA-1 (78 FR 71965, Nov. 29, 2013).
<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98>

Notes:

Emission factors are per unit of heat content using higher heating values (HHV). If heat content is available from the fuel supplier, it is preferable to use that value. If not, default heat contents are provided.

All CO₂ emission factors assume that 100 percent of the carbon content of the fuel is oxidized to CO₂, as is recommended by the Intergovernmental Panel on Climate Change (IPCC).

The CH₄ and N₂O emission factors provided represent emissions in terms of fuel type and by end-use sector (i.e., residential, commercial, industrial, electricity generation).

The factors represented in the table above represent combustion emissions only and do not represent upstream emissions.

Unit 1a Engine Specification

Eng Certification Status [NF300158]

March 03,2026

(NF300158)-Engine (CBC147135A)-CEM (BGK01739)-
Generator (X8H00109)-Genset (PET048997M)-PETU

For Help Desk Phone Numbers [Click here](#)

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Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request portal
[Click here](#) to be directed to ERC's new customer request portal. ***Notice this portal is not CWS
authenticated, a one time sign up for JIRA will be required.***

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an
emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	NF300158
Generator Number	CBC14713
Genset Number	X8H00109
Sales Model	C13
Regulatory Build Date	13-APR-2018
As Shipped Data	
Engine Arrangement Number	5194400
Certification Arrangement	
Test Spec Number	4150523
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2018
EPA Family Code	JCPXL12.5HTF
EPA Emissions Level	EPA TIER 4f
As-Shipped Flash File	5175573
CORR FL Power at RPM	577 HP (430.0 KW)1800 RPM
Advertised Power	518 HP 1,800RPM
Total Displacement	12.5 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the
best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or
validity of the information and is not liable for any errors or omissions contained therein. All information
provided should be independently verified and confirmed, including by examining the emissions label
located on the engine.

[Need emission replacement label? Click here!](#)

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL12.5HTF	12.5	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.05	0.26	--	0.02	0.01	--	--	--

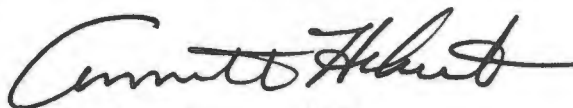
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT 1 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesel only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL12.5HTF	Cert Test 1	C13	519@2100	263	186	1752@1400	338	159	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	Cert Test 2	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	01	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	02	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	03	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	04	C13	375@2000	196.9	132.5	1575@1300	302.3	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	05	C13	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	06	C13	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	07	C13	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	08	C13	473@2100	239.1	168.9	1601@1400	308.6	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	09	C13	519@2100	262.7	185.6	1752@1400	338.2	159.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	10	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11a	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	12	C13	416@2100	216.4	152.9	1612@1200	310.3	125.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	13	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	14	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	15	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	16	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	17	C13	363@2000	190.1	127.9	1351@1000	268.4	90.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

ATTACHMENT 2 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193
JCPXL12.5HTF	18	C13	307@1850	174.5	108.5	1194@1200	233.8	94.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	19	2206	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	20	2206	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	21	2206	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	22	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	23	C13	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	24	2206	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	25	2206	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	26	2206	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	27	C13	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	28	C13	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	29	C13	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	30	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	31	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	32*	C13	425@1800	245.2	148.4	1609@1200	312.7	128.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	33*	2206	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	34*	2206	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

* New engine code

Perf No: EM0676

Change Level: 03

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SALES MODEL:	C13	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	518	FAN POWER (HP):	34.9
GEN POWER WITH FAN (EKW):	340.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	PRIME	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB4594 T256C .84 A/R 70/30
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,854.3
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (IN):	5		
MAX OPERATING ALTITUDE (FT):	3,999		

INDUSTRY
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Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
374.0	110	563	325	0.352	0.349	28.0	27.7	0.530	0.525
340.0	100	515	297	0.346	0.343	25.2	24.9	0.525	0.520
306.0	90	466	269	0.344	0.341	22.6	22.4	0.524	0.519
272.0	80	418	241	0.344	0.340	20.2	20.0	0.528	0.523
255.0	75	394	227	0.344	0.341	19.1	18.9	0.531	0.526
238.0	70	370	213	0.345	0.341	18.0	17.8	0.535	0.530
204.0	60	322	186	0.347	0.344	15.8	15.6	0.548	0.543
170.0	50	275	158	0.352	0.349	13.6	13.5	0.570	0.564
136.0	40	228	132	0.361	0.357	11.6	11.5	0.605	0.600
102.0	30	182	105	0.375	0.372	9.6	9.5	0.668	0.662
85.0	25	158	91	0.387	0.383	8.6	8.5	0.720	0.713
68.0	20	134	77	0.404	0.400	7.6	7.6	0.797	0.789
34.0	10	85.3	49	0.470	0.466	5.7	5.6	1.181	1.169
GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
374.0	110	563	67.8	122.5	1,299.0	78.6	998.8	71	405.5
340.0	100	515	62.4	122.4	1,221.1	70.2	942.2	65	377.9
306.0	90	466	56.5	122.3	1,164.2	62.1	904.3	59	352.9
272.0	80	418	50.3	122.2	1,113.5	54.5	872.7	52	328.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
255.0	75	394	47.1	122.2	1,090.7	50.8	859.2	49	315.8
238.0	70	370	43.9	122.2	1,068.2	47.2	846.2	46	302.7
204.0	60	322	37.5	122.2	1,022.6	40.5	819.7	39	276.9
170.0	50	275	31.3	120.8	972.2	34.2	789.7	33	251.1
136.0	40	228	25.6	113.2	912.2	28.6	751.5	27	225.8
102.0	30	182	20.3	105.4	840.6	24.1	702.6	21	200.3
85.0	25	158	17.8	102.1	800.1	22.3	674.0	19	187.5
68.0	20	134	15.6	99.6	753.3	21.0	637.8	17	176.2
34.0	10	85.3	13.0	98.0	630.4	22.0	527.3	14	164.1

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE WET EXH VOL FLOW RATE	OUTLET WET INLET GAS FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM		LB/HR	LB/HR	FT3/MIN	FT3/MIN
374.0	110	563	871.2	1,746.3		3,788.5	3,986.8	588.7	523.4
340.0	100	515	826.5	1,638.0		3,573.7	3,752.3	574.5	513.3
306.0	90	466	776.5	1,537.5		3,338.5	3,498.7	554.2	497.1
272.0	80	418	722.2	1,438.0		3,088.0	3,231.4	530.7	477.3
255.0	75	394	692.2	1,382.9		2,952.1	3,087.3	515.5	464.2
238.0	70	370	661.6	1,326.4		2,814.0	2,941.3	499.4	450.1
204.0	60	322	600.6	1,211.7		2,541.5	2,653.3	465.7	420.6
170.0	50	275	542.7	1,097.6		2,285.2	2,382.0	431.9	391.3
136.0	40	228	493.0	989.2		2,066.9	2,149.2	401.6	365.6
102.0	30	182	451.7	881.4		1,889.6	1,957.7	372.8	341.9
85.0	25	158	434.1	827.3		1,816.0	1,877.1	358.8	330.5
68.0	20	134	423.8	779.4		1,772.9	1,827.1	349.2	323.4
34.0	10	85.3	442.0	724.0		1,850.2	1,890.4	360.6	339.5

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTER COOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
374.0	110	563	13,383	2,729	19,984	11,217	2,937	4,294	23,891	60,808	64,776
340.0	100	515	12,526	2,516	17,308	9,576	2,753	3,653	21,853	54,736	58,308
306.0	90	466	11,683	2,364	15,079	8,320	2,586	3,095	19,769	49,180	52,389
272.0	80	418	10,776	2,213	13,375	7,219	2,397	2,576	17,714	43,998	46,869
255.0	75	394	10,235	2,102	12,764	6,708	2,266	2,322	16,696	41,501	44,209
238.0	70	370	9,668	1,983	12,161	6,217	2,125	2,075	15,677	39,042	41,590
204.0	60	322	8,499	1,733	10,988	5,293	1,831	1,612	13,659	34,278	36,515
170.0	50	275	7,356	1,491	9,846	4,433	1,550	1,190	11,655	29,682	31,619
136.0	40	228	6,353	1,290	8,741	3,632	1,330	848	9,684	25,243	26,891
102.0	30	182	5,354	1,093	7,682	2,885	1,118	570	7,704	20,901	22,264
85.0	25	158	4,847	992	7,167	2,531	1,013	455	6,704	18,751	19,974
68.0	20	134	4,323	886	6,706	2,175	903	360	5,692	16,604	17,688
34.0	10	85.3	3,218	660	6,108	1,363	672	246	3,619	12,306	13,109

Emissions Data [Top](#)

Units Filter All Units ▼

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER	BHP	563	515	394	275	158	85.3
PERCENT LOAD	%	110	100	75	50	25	10
NON-ETHANE HC	(CORR 15% O2) PPM	4.737572	3.6651466	2.7610962	2.2077477	1.9159158	3.73961
TOTAL NOX (AS NO2)	G/HR	31	42	57	13	5	24
TOTAL CO	G/HR	4	2	1	1	1	1
TOTAL HC	G/HR	9	6	3	2	2	2
TOTAL CO2	KG/HR	287	258	196	140	89	58
PART MATTER	G/HR	2.8	0.6	0.4	0.3	0.3	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	24.8	37.7	64.2	22.3	15.3	109.9
TOTAL CO	(CORR 5% O2) MG/NM3	3.4	2.2	1.6	1.0	1.7	2.7

GENSET POWER WITH FAN		EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER		BHP	563	515	394	275	158	85.3
PERCENT LOAD		%	110	100	75	50	25	10
TOTAL HC	(CORR 5% O2)	MG/NM3	6.1	4.4	3.2	2.8	3.6	8.5
PART MATTER	(CORR 5% O2)	MG/NM3	1.8	0.5	0.3	0.4	0.6	0.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	9.2	14.0	23.8	8.3	5.7	40.8
TOTAL CO	(CORR 15% O2)	MG/NM3	1.2	0.8	0.6	0.4	0.6	1.0
TOTAL HC	(CORR 15% O2)	MG/NM3	2.3	1.6	1.2	1.0	1.3	3.2
PART MATTER	(CORR 15% O2)	MG/NM3	0.6	0.2	0.1	0.2	0.2	0.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	12	18	31	11	7	54
TOTAL CO	(CORR 5% O2)	PPM	3	2	1	1	1	2
TOTAL HC	(CORR 5% O2)	PPM	11	8	6	5	7	16
ACROLEIN	(CORR 5% O2)	PPM	0.02	0.00	0.03	0.34	1.08	0.48
ACETALDEHYDE	(CORR 5% O2)	PPM	2.63	2.58	2.18	2.50	2.38	4.29
METHANOL	(CORR 5% O2)	PPM	0.07	0.02	0.00	0.00	0.00	0.13
NON-METHANE HC	(CORR 5% O2)	PPM	12.00	8.97	6.68	5.14	4.40	9.05
NON-ETHANE HC	(CORR 5% O2)	PPM	12.77	9.88	7.44	5.95	5.16	10.08
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	4	7	12	4	3	20
TOTAL CO	(CORR 15% O2)	PPM	1	1	0	0	1	1
TOTAL HC	(CORR 15% O2)	PPM	4	3	2	2	3	6
TOTAL NOX (AS NO2)		G/HP-HR	0.06	0.08	0.14	0.05	0.03	0.28
TOTAL CO		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.02	0.01	0.01	0.01	0.01	0.03
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		G/KW-HR	0.07	0.11	0.19	0.07	0.04	0.37
TOTAL CO		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL HC		G/KW-HR	0.02	0.02	0.01	0.01	0.01	0.04
PART MATTER		G/KW-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.07	0.09	0.13	0.03	0.01	0.05
TOTAL CO		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.01	0.00	0.00	0.01
TOTAL CO2		LB/HR	632	569	432	310	196	129
PART MATTER		LB/HR	0.01	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	5.1	5.8	7.1	8.1	10.9	14.2

Regulatory Information [Top](#)

EPA TIER 4 FINAL

2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)

ALTITUDE (FT)

	50	60	70	80	90	100	110	120	130	140	NORMAL
0	518	518	518	518	516	513	513	513	495	468	518
1,000	518	518	518	517	513	512	511	504	482	455	518
2,000	518	518	516	513	512	510	506	485	460	431	516
3,000	517	515	513	510	508	506	488	461	436	409	513
4,000	513	511	509	505	499	485	461	438	414	390	510
5,000	508	507	500	492	481	460	438	417	395	371	507
6,000	502	497	487	476	460	439	420	404	386	365	500
7,000	489	478	467	453	438	424	410	395	381	364	484
8,000	468	460	448	433	422	410	395	383	369	355	468
9,000	449	439	428	416	403	390	378	368	357	346	449
10,000	428	418	407	396	383	374	365	355	346	336	431
11,000	409	400	390	380	370	361	352	344	335	325	415
12,000	391	382	372	362	352	343	333	325	318	312	401
13,000	375	365	355	345	335	327	321	313	307	301	386
14,000	363	354	344	333	326	320	313	306	300	293	375

Unit 2a Engine Specifications

XAS1150 CD8 ***UNMATCHED VERSATILITY*** ***AND OUTPUT***

www.atlascopco.com

Sustainable Productivity

Atlas Copco



ATLAS COPCO XAS1150 CD8 COMPACT, VERSATILE AND POWERFUL

Need Air? The Atlas Copco XAS1150 CD8 air compressor is three machines built into one. With variable flow and pressure settings as standard, the XAS1150 CD8 truly is the most versatile machine in its class. Increasing the versatility creates a machine that is ready for a wider range of applications, in turn increasing your return on investment.

VERSATILITY

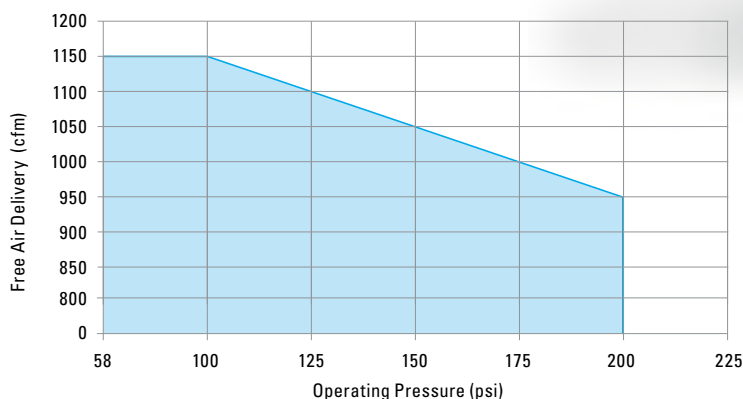
USER-FRIENDLY CONTROLS

The Xc3003 controller has a full color LCD screen that displays all the necessary information to get the job done quickly, efficiently and safely. The regulation system utilizes a single pneumatic regulator which the operator can easily dial in the desired pressure, and the controller will automatically adjust the output to deliver the flow while still maintaining industry leading fuel efficiency.

THREE MACHINES IN ONE

The all new XAS1150CD8 has taken three previous models and rolled them into a single machine, making it the most versatile machine in the industry. The variable flow and pressure allows for operation in a wider range of applications.

XAS 1150 CD8 Variable Flow and Pressure

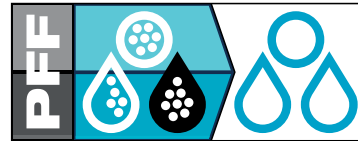


EFFICIENT AIR

The CAT C9.3 Tier 4 Final engine is mounted with an Atlas Copco C190 air element. The single stage C190 element is one of the most efficient screw compressor designs on the market today. This translates to less energy loss in the system and equates to lower fuel consumption per CFM.

SIMPLIFIED MAINTENANCE

Servicing through large oversized doors provides quick access to components, including the air end, engine maintenance and electrical components. Drains for water and oil are easy to reach and are plumbed outside of the containment basin for draining. Atlas Copco extended life filters with 500 hour service intervals make this engine the workhorse of your fleet



PORTABLE FULL FEATURE (PFF)

Atlas Copco's PFF system ensures cool, clean and dry air. The PFF system is plumbed through a secondary outlet so you can isolate the hoses and hardware requiring this purity of air. The PFF system comes standard with a three way valve the operator can select various air quality levels and optimal cold weather configuration.



COOL - High efficiency aftercooler reduces compressed air temperature.



DRY - Compact WSD condensate removal in combination with the aftercooler removes liquid water from the compressed air.



CLEAN - Dedicated Atlas Copco DD+PD filters remove oil aerosol content to 0.01mg/m³ and particles down to 0.01 micron at the industry's lowest pressure drop.

EFFICIENT AIR



HEAVY DUTY ENCLOSURE

The XAS1150 CD8 is a newly designed compact tandem axle platform that is built tough with heavy gauge, powder coated galvanealed steel. The base frame is built with a rigid structure and incorporates 100% fluid containment as a standard feature on all machines. The superior fit and finish on the enclosure provides sound attenuation, as well as protection from the elements. The footprint is reduced by 8% from our previous comparable iT4 models, allowing more flexibility during transport and operation on site.

Technical data

Model		XAS 1150 CD8		
Actual free air delivery (Standard air)	CFM*	950	1050	1150
Actual free air delivery (Aftercooled air)	CFM*	900	1000	1100
Working pressure	psi (Bar)	200	150	100
Working pressure range	psi (Bar)	58-225		
Discharge outlet quantity	#	2 (1 standard / 1 aftercooled)		
Discharge outlet size	inches	2"NPT		
Regulation system		Pneumatic		

Engine - CAT				
Model	Caterpillar	C9.3		
Displacement	L	9.3		
Cylinders	#	6		
Tier	US EPA	Tier 4 Final		
Exhaust after-treatment		CEM / DOC / DP / SCR		
HP		350		
Rated speed (High)	RPM	2100		
Rated speed (Low)	RPM	1300		
Fuel tank capacity	Gal (L)	116 (439)		
Fuel consumption @ 100% load	Gal/hr (L/hr)	14.0 (53)	14.0 (53)	14.0 (53)
Fuel autonomy @ 100% load	Hours	8.4	8.4	8.6
DEF tank capacity	Gal (L)	8.7 (33.6)		
DEF consumption @ 100% load**	Gal/hrs	0.33 (1.25)		
DEF autonomy @ 100% load	Hours	24		

Unit dimensions - LxWxH				
Tandem trailer	Inches	198 x 82.75 x 102.5		
Weight (Wet)	lbs (kg)	12,000 (5,443)		
Support mounted	Inches	TBA		
Weight (Wet)	lbs (kg)	TBA		

* measured according to ISO 1217, 2009 annex D. Dependant on ambient conditions and temperature.

** Based on estimate of 3.5% of fuel consumption. Actual amount will vary based on environmental conditions, DEF age and quality.

Photos and illustrations contained herein might depict products with optional and/or extra components which are not included with the standard version of the product and, therefore, are not included in a purchase of such product unless the customer specifically purchases such optional/extra components. We reserve the right to change the specifications and design of products described in this literature without notice. Not all products are available in all markets.



STANDARD FEATURES

- Compact, sound attenuated, corrosion resistant enclosure
- Variable operating pressure and flow settings
- Designed with environmental protection in mind
- FuelXpert
- 100% Fluid containment and Tier 4 Final emissions
- External fuel connections

BENEFITS

- Extremely durable, portable and designed to be used for everything from oil patch applications to bridge remediation.
- The versatility of the Xc3003 controller gives you the flexibility to tune your machine to a wider range of applications. The machine will match the air flow with the desired operating pressure to maximize output and keep the engine as fuel efficient as possible. In turn it will increase your utilization rate and ROI as it is adaptable to many more applications than a standard machine.
- Unit comes standard with 100% fluid containment and meets Tier 4 Final emissions for strict environmental sites.

OPTIONS

- Refinery equipment
- Support mounted base frame
- Portable Full Feature (filtered air)

ISO STANDARDS

Atlas Copco's fully implemented Quality Management and Environmental Management systems in the design and manufacturing of these units fulfill the requirements of ISO 9001 and ISO 14001.

The range has also been tested / given the certificate tested according to ISO 1217.

Tier⁺4 Final

Print



Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our EPRC (Emissions and Power Systems Regulatory Compliance) Request portal [Click here](#) to be directed to EPRC's (Emissions and Power Systems Regulatory Compliance) new customer request portal. ***Notice this portal is not CWS authenticated, a one time sign up for JIRA will be required.***

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	CS902504
Sales Model	C9.3
Regulatory Build Date	10-OCT-2018
As Shipped Data	
Engine Arrangement Number	3857699
Certification Arrangement	3611820
Test Spec Number	4150274
Regulatory Status	EPA / ARB / EU / R120 / MLIT / S. Korea
Labeled Model Year	2018
EPA Family Code	JCPXL09.3HTF
EPA Emissions Level	EPA TIER 4f
EU Emissions Level	EU STAGE IV
Japan Emissions Level	STEP 4 FINAL
EU Type Approval	e11*97/68QA*2012/46*2581*02
Korea Type Approval	C9.3(CE9.3C6)//15EN*CA*01
UN R120 Type Approval	120R-011015
As-Shipped Flash File	5563083
CORR FL Power at RPM	351 HP (262.0 KW)2200 RPM
Advertised Power	350 HP 2,200RPM
Total Displacement	9.3 L

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL09.3HTF	9.3	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.02	0.12	--	0.1	0.01	--	--	--

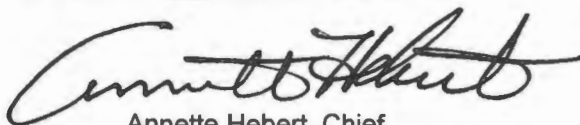
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day of September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL09.3HTF	Cert Test 1	C9.3	325@1800	192	116.3	1260@1200	243	98.1	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	1	C9.3	268@2150	138.3	100.0	881@1400	172.4	81.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	2	C9.3	299@2200	148.5	109.9	1006@1400	187.8	88.4	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	3	C9.3	325@2200	161.7	119.7	1090@1400	206.6	97.3	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	4	C9.3	349@2200	175.5	129.9	1174@1400	223.8	105.4	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	5	C9.3	388@2200	192.5	142.5	1269@1400	240.2	113.1	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	6	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	6A	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	6B	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7A	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7B	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7C	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	8	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	8A	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	8B	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	9	C9.3	295@2000	155.9	104.9	1090@1000	211.6	71.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	10	C9.3	296@2200	154.3	114.2	1166@1200	219.8	88.7	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	11	C9.3	299@2200	156.5	115.8	1261@1200	238.7	96.4	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	12	C9.3	303@2050	158.7	109.4	1263@1200	240.5	97.1	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	13	C9.3	314@1800	183.4	111.0	1154@1300	221.0	96.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX

R/c 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL09.3HTF	14	C9.3	221@2000	123.7	83.2	1022@1100	201.1	74.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	14A	C9.3	221@2000	123.7	83.2	1022@1100	201.1	74.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	15	C9.3	311@1800	181.7	110.0	1029@1400	199.3	93.9	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	15A	C9.3	311@1800	181.7	110.0	1029@1400	199.3	93.9	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	16	C9.3	325@1800	191.0	115.6	1262@1200	241.3	97.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	17	C9.3	325@1800	191.0	115.6	1262@1200	241.3	97.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	18	C9.3	221@2000	123.7	83.2	1022@1100	201.0	74.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	19	C9.3	224@2200	111.6	82.6	1103@1200	211.7	85.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	20	C9.3	325@2000	168.5	113.3	1094@1400	208.1	98.0	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	21	C9.3	311@1800	181.7	110.0	1029@1400	199.3	93.9	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	22*	C9.3	307@2050	166.5	114.8	1712@1200	241.0	97.3	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	23*	C9.3	299@2200	156.5	115.8	1710@1200	238.7	96.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX

* New engine code

Perf No: EM0274

Change Level: 03

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[View PDF](#)

SALES MODEL:	C9.3	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	2,200
MACHINE SALES MODEL:		PEAK TORQUE SPEED (RPM):	1,400
ENGINE POWER (BHP):	350	TORQUE RISE (%):	41
PEAK TORQUE (FT-LB):	1,177.9	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	INDUSTRIAL C - INTERMITTENT	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB3782 0.66 A/R
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,150.9
INJECTOR TYPE:	CR		
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	8,901		

INDUSTRY	SubIndustry	APPLICATION
INDUSTRIAL	FORESTRY	INDUSTRIAL
OIL AND GAS	WELL SERVICING	INDUSTRIAL
INDUSTRIAL	MATERIAL HANDLING	INDUSTRIAL
INDUSTRIAL	AGRICULTURE	INDUSTRIAL
INDUSTRIAL	CONSTRUCTION	INDUSTRIAL
INDUSTRIAL	GENERAL INDUSTRIAL	INDUSTRIAL
OIL AND GAS	LAND PRODUCTION	INDUSTRIAL

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Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
2,200	350	836	222	0.364	0.357	18.1	17.7
2,100	350	875	233	0.357	0.350	17.8	17.4
2,000	350	919	245	0.349	0.343	17.4	17.1
1,900	350	968	257	0.341	0.335	17.0	16.6
1,800	350	1,021	272	0.335	0.329	16.7	16.3
1,700	342	1,056	281	0.332	0.326	16.1	15.8
1,600	334	1,096	292	0.329	0.322	15.6	15.3
1,500	325	1,136	302	0.327	0.321	15.1	14.8
1,400	314	1,177	313	0.324	0.317	14.5	14.2

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
1,300	278	1,121	298	0.328	0.322	12.9	12.7
1,200	243	1,062	283	0.326	0.320	11.3	11.1
1,100	211	1,005	268	0.325	0.319	9.8	9.6
1,000	174	916	244	0.326	0.320	8.1	8.0
900	143	837	223	0.334	0.328	6.8	6.7
800	114	748	199	0.340	0.334	5.6	5.5
700	83.1	624	166	0.350	0.343	4.2	4.1
600	57.7	505	134	0.355	0.348	2.9	2.9

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,200	350	61.6	122.0	1,106.0	90.1	803.1	65	375.3
2,100	350	61.5	122.0	1,109.7	86.0	810.8	65	372.5
2,000	350	60.9	122.0	1,117.0	80.2	822.6	64	368.9
1,900	350	60.0	122.0	1,123.3	75.6	832.9	63	364.6
1,800	350	60.0	122.0	1,131.7	73.3	841.1	63	364.5
1,700	342	58.4	122.0	1,140.8	68.7	856.4	61	359.9
1,600	334	57.3	122.0	1,164.2	66.5	883.3	59	358.9
1,500	325	55.0	122.0	1,189.1	59.4	912.1	57	351.9
1,400	314	51.8	122.0	1,227.1	54.8	951.1	53	345.6
1,300	278	46.7	122.0	1,230.5	47.7	967.2	48	328.6
1,200	243	40.1	122.0	1,222.4	39.9	976.9	41	305.8
1,100	211	32.5	122.0	1,208.4	30.8	983.5	33	275.2
1,000	174	27.2	122.0	1,169.4	27.1	967.4	28	253.9
900	143	19.9	122.0	1,160.8	18.7	977.5	20	217.8
800	114	13.7	122.0	1,137.8	12.4	971.6	14	185.8
700	83.1	8.0	122.0	1,036.8	7.4	900.7	8	150.1
600	57.7	4.3	122.0	893.0	4.5	799.6	4	130.0

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,200	350	683.8	1,198.1	2,980.2	3,108.6	466.5	422.4
2,100	350	662.9	1,182.0	2,883.8	3,009.7	457.5	413.7
2,000	350	634.9	1,163.3	2,756.0	2,879.4	446.1	402.5
1,900	350	608.2	1,140.6	2,634.2	2,754.8	433.8	390.6
1,800	350	595.7	1,140.2	2,578.1	2,696.3	431.0	387.9
1,700	342	562.4	1,112.1	2,428.8	2,543.2	415.4	373.0
1,600	334	532.0	1,094.6	2,292.6	2,403.6	400.7	359.0
1,500	325	497.3	1,061.3	2,138.2	2,245.1	380.4	339.7
1,400	314	440.5	1,000.8	1,887.6	1,990.3	348.8	308.8
1,300	278	396.5	938.1	1,695.0	1,786.8	323.3	286.3
1,200	243	347.4	850.3	1,482.1	1,562.2	291.0	258.0
1,100	211	290.9	738.2	1,238.6	1,307.8	251.5	222.2
1,000	174	260.4	659.5	1,107.5	1,165.3	227.2	202.1
900	143	205.9	540.8	875.3	923.8	185.0	163.5
800	114	159.1	423.4	675.6	715.2	145.4	127.8
700	83.1	120.2	308.6	510.5	540.2	111.5	98.1
600	57.7	93.7	222.2	397.2	417.8	86.8	77.1

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ENGINE SPEED	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE	HIGH HEAT VALUE
RPM	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
2,200	350	10,059	1,928	12,196	5,971	2,096	3,143	14,843	39,344	41,911
2,100	350	9,664	1,851	11,967	5,886	1,974	2,961	14,843	38,606	41,125
2,000	350	9,389	1,773	11,646	5,786	1,934	2,821	14,843	37,830	40,298

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
2,000	350	109.2	74.8	71.5	77.4	84.8	83.4	87.8	92.4	92.1	95.1	95.5
1,900	350	109.5	74.3	72.1	77.2	85.7	83.6	87.7	94.9	91.1	94.6	94.9
1,800	350	110.1	72.1	72.6	76.7	83.6	85.0	87.2	93.2	90.8	93.7	94.5
1,700	342	110.0	68.0	73.1	76.2	82.3	83.5	86.2	91.7	90.3	92.5	94.0
1,600	334	110.1	65.0	73.5	75.7	81.5	80.8	85.4	90.9	90.3	92.0	94.4
1,500	325	111.0	68.8	73.1	75.4	81.8	80.9	86.3	91.1	91.3	93.2	95.3
1,400	314	111.2	72.6	73.1	74.1	81.3	80.8	86.5	91.0	92.0	93.2	95.6
1,300	278	109.5	70.4	72.2	72.4	80.1	80.9	84.4	88.8	90.0	91.7	94.4
1,200	243	107.2	67.6	71.2	70.3	79.4	80.4	81.8	87.3	87.3	90.2	93.2
1,100	211	105.4	65.7	69.6	69.0	76.9	79.4	80.4	86.4	86.1	89.1	92.2
1,000	174	104.3	63.4	65.8	68.0	73.9	78.1	80.2	85.9	84.8	87.9	91.2
900	143	103.0	61.3	61.2	67.4	71.4	77.1	78.5	85.2	82.9	85.7	89.2

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

ENGINE SPEED	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,200	350	99.9	101.0	104.0	103.4	101.9	101.2	99.0	98.5	97.5	97.3	93.9
2,100	350	98.9	101.1	102.4	101.7	101.1	99.8	98.3	97.5	96.9	96.7	93.5
2,000	350	97.0	99.4	100.5	100.7	99.5	98.1	97.1	96.3	96.4	96.3	93.4
1,900	350	97.0	100.8	100.8	100.9	100.6	98.4	96.9	95.5	96.0	95.9	93.2
1,800	350	96.7	101.3	101.7	103.0	101.2	98.8	97.0	95.8	96.4	95.8	93.7
1,700	342	96.6	100.8	101.4	102.7	101.4	99.0	97.2	95.6	96.0	95.8	95.1
1,600	334	97.2	100.6	101.5	102.8	102.1	99.4	97.6	95.7	95.6	95.8	95.4
1,500	325	98.8	101.0	103.0	103.7	102.8	100.2	97.8	96.1	95.9	95.4	96.1
1,400	314	99.9	100.9	103.4	103.9	102.9	100.7	97.9	96.4	96.1	95.1	97.2
1,300	278	97.8	99.0	101.2	102.0	101.2	98.7	96.0	94.8	94.7	94.0	95.3
1,200	243	95.6	97.1	98.5	99.9	99.2	96.1	93.8	92.8	93.2	93.1	92.8
1,100	211	94.1	95.4	96.8	97.4	96.8	93.8	92.0	91.2	92.0	93.4	89.0
1,000	174	93.1	94.4	95.5	95.5	95.8	93.0	90.3	90.1	91.0	94.1	85.0
900	143	92.1	93.5	93.8	93.5	95.0	92.2	89.4	89.6	90.7	92.4	83.2

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Units Filter All Units 

DIESEL

RATED SPEED NOMINAL DATA: 2200 RPM

ENGINE POWER	BHP	350	263	175	87.5	35.0
PERCENT LOAD	%	100	75	50	25	10
TOTAL NOX (AS NO2)	G/HR	42	50	26	24	45
TOTAL CO	G/HR	1	1	1	1	1
TOTAL HC	G/HR	2	1	1	2	3
TOTAL CO2	KG/HR	187	138	100	64	40
PART MATTER	G/HR	0.1	0.0	0.0	0.0	0.0
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	52.5	84.4	61.7	85.5	275.0
TOTAL CO	(CORR 5% O2) MG/NM3	1.1	1.3	1.3	2.5	5.6
TOTAL HC	(CORR 5% O2) MG/NM3	2.2	2.0	2.5	5.1	14.0
PART MATTER	(CORR 5% O2) MG/NM3	0.1	0.0	0.1	0.1	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	26	41	30	42	134
TOTAL CO	(CORR 5% O2) PPM	1	1	1	2	4
TOTAL HC	(CORR 5% O2) PPM	4	4	5	10	26
TOTAL NOX (AS NO2)	G/HP-HR	0.12	0.19	0.15	0.27	1.28
TOTAL CO	G/HP-HR	0.00	0.00	0.00	0.01	0.03
TOTAL HC	G/HP-HR	0.01	0.01	0.01	0.02	0.08
PART MATTER	G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	LB/HR	0.09	0.11	0.06	0.05	0.10
TOTAL CO	LB/HR	0.00	0.00	0.00	0.00	0.00
TOTAL HC	LB/HR	0.00	0.00	0.00	0.00	0.01
TOTAL CO2	LB/HR	413	305	220	141	89
PART MATTER	LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH	%	8.0	9.8	11.6	14.4	16.0

SECONDARY SPEED NOMINAL DATA: 1800 RPM

ENGINE POWER		BHP	350	263	175	87.5	35.0
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	60	35	7	0	37
TOTAL CO		G/HR	0	0	0	0	0
TOTAL HC		G/HR	2	1	1	1	2
TOTAL CO2		KG/HR	173	128	89	54	32
PART MATTER		G/HR	0.0	0.0	0.0	0.0	0.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	79.4	62.9	17.2	0.9	295.0
TOTAL CO	(CORR 5% O2)	MG/NM3	0.0	0.0	0.1	1.3	3.7
TOTAL HC	(CORR 5% O2)	MG/NM3	1.8	1.6	1.8	4.8	11.9
PART MATTER	(CORR 5% O2)	MG/NM3	0.0	0.0	0.1	0.1	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	39	31	8	0	144
TOTAL CO	(CORR 5% O2)	PPM	0	0	0	1	3
TOTAL HC	(CORR 5% O2)	PPM	3	3	3	9	22
TOTAL NOX (AS NO2)		G/HP-HR	0.17	0.13	0.04	0.00	1.07
TOTAL CO		G/HP-HR	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.00	0.00	0.00	0.01	0.05
PART MATTER		G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.13	0.08	0.01	0.00	0.08
TOTAL CO		LB/HR	0.00	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.00	0.00	0.00	0.00	0.00
TOTAL CO2		LB/HR	382	283	197	118	71
PART MATTER		LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	6.8	8.0	9.7	13.1	16.3

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EPA TIER 4 FINAL 2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

EU STAGE IV 2014 - ----

GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 2010/26/EU, ECE REGULATION NO. 96 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSION VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
EUROPE	EU	NON-ROAD	STAGE IV	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.025

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STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	350	350	350	350	349	348	349	350	350	349	350
1,000	350	350	350	349	347	346	347	349	348	347	349
2,000	350	349	348	347	346	345	346	347	346	344	348
3,000	348	347	346	345	344	344	344	344	343	342	346
4,000	346	345	344	342	342	342	342	342	341	328	344
5,000	343	342	341	340	340	341	341	339	330	313	342
6,000	342	341	341	340	340	341	341	334	318	300	342
7,000	341	341	342	342	343	343	335	325	304	286	341
8,000	343	343	343	344	343	337	327	314	295	277	343

Unit 3c Engine Specifications

Eng Certification Status [NF300159]

March 03,2026

(NF300159)-Engine (CBC145736A)-CEM (BGK01734)-
Generator (X8H00110)-Genset (PET050377M)-PETU

For Help Desk Phone Numbers [Click here](#)

[Emissions Certificates Search](#)

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Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request portal
[Click here](#) to be directed to ERC's new customer request portal. ***Notice this portal is not CWS
authenticated, a one time sign up for JIRA will be required.***

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an
emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	NF300159
Generator Number	CBC14573
Genset Number	X8H00110
Sales Model	C13
Regulatory Build Date	10-APR-2018
As Shipped Data	
Engine Arrangement Number	5194400
Certification Arrangement	
Test Spec Number	4150523
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2018
EPA Family Code	JCPXL12.5HTF
EPA Emissions Level	EPA TIER 4f
As-Shipped Flash File	5175573
CORR FL Power at RPM	577 HP (430.0 KW)1800 RPM
Advertised Power	518 HP 1,800RPM
Total Displacement	12.5 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the
best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or
validity of the information and is not liable for any errors or omissions contained therein. All information
provided should be independently verified and confirmed, including by examining the emissions label
located on the engine.

[Need emission replacement label? Click here!](#)

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL12.5HTF	12.5	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.05	0.26	--	0.02	0.01	--	--	--

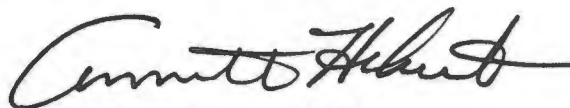
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT 1 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesel only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL12.5HTF	Cert Test 1	C13	519@2100	263	186	1752@1400	338	159	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	Cert Test 2	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	01	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	02	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	03	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	04	C13	375@2000	196.9	132.5	1575@1300	302.3	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	05	C13	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	06	C13	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	07	C13	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	08	C13	473@2100	239.1	168.9	1601@1400	308.6	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	09	C13	519@2100	262.7	185.6	1752@1400	338.2	159.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	10	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11a	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	12	C13	416@2100	216.4	152.9	1612@1200	310.3	125.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	13	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	14	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	15	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	16	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	17	C13	363@2000	190.1	127.9	1351@1000	268.4	90.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

ATTACHMENT 2 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193
JCPXL12.5HTF	18	C13	307@1850	174.5	108.5	1194@1200	233.8	94.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	19	2206	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	20	2206	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	21	2206	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	22	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	23	C13	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	24	2206	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	25	2206	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	26	2206	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	27	C13	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	28	C13	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	29	C13	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	30	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	31	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	32*	C13	425@1800	245.2	148.4	1609@1200	312.7	128.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	33*	2206	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	34*	2206	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

* New engine code

Perf No: EM0676

Change Level: 03

[General](#)[Heat Rejection](#)[Emissions](#)[Regulatory](#)[Altitude Derate](#)[Cross Reference](#)[Perf Param Ref](#)[View PDF](#)

SALES MODEL:	C13	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	518	FAN POWER (HP):	34.9
GEN POWER WITH FAN (EKW):	340.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	PRIME	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB4594 T256C .84 A/R 70/30
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,854.3
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (IN):	5		
MAX OPERATING ALTITUDE (FT):	3,999		

INDUSTRY
ELECTRIC POWERSubIndustry
STANDARDAPPLICATION
PACKAGED GENSETGeneral Performance Data [Top](#)

Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
374.0	110	563	325	0.352	0.349	28.0	27.7	0.530	0.525
340.0	100	515	297	0.346	0.343	25.2	24.9	0.525	0.520
306.0	90	466	269	0.344	0.341	22.6	22.4	0.524	0.519
272.0	80	418	241	0.344	0.340	20.2	20.0	0.528	0.523
255.0	75	394	227	0.344	0.341	19.1	18.9	0.531	0.526
238.0	70	370	213	0.345	0.341	18.0	17.8	0.535	0.530
204.0	60	322	186	0.347	0.344	15.8	15.6	0.548	0.543
170.0	50	275	158	0.352	0.349	13.6	13.5	0.570	0.564
136.0	40	228	132	0.361	0.357	11.6	11.5	0.605	0.600
102.0	30	182	105	0.375	0.372	9.6	9.5	0.668	0.662
85.0	25	158	91	0.387	0.383	8.6	8.5	0.720	0.713
68.0	20	134	77	0.404	0.400	7.6	7.6	0.797	0.789
34.0	10	85.3	49	0.470	0.466	5.7	5.6	1.181	1.169
GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
374.0	110	563	67.8	122.5	1,299.0	78.6	998.8	71	405.5
340.0	100	515	62.4	122.4	1,221.1	70.2	942.2	65	377.9
306.0	90	466	56.5	122.3	1,164.2	62.1	904.3	59	352.9
272.0	80	418	50.3	122.2	1,113.5	54.5	872.7	52	328.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
255.0	75	394	47.1	122.2	1,090.7	50.8	859.2	49	315.8
238.0	70	370	43.9	122.2	1,068.2	47.2	846.2	46	302.7
204.0	60	322	37.5	122.2	1,022.6	40.5	819.7	39	276.9
170.0	50	275	31.3	120.8	972.2	34.2	789.7	33	251.1
136.0	40	228	25.6	113.2	912.2	28.6	751.5	27	225.8
102.0	30	182	20.3	105.4	840.6	24.1	702.6	21	200.3
85.0	25	158	17.8	102.1	800.1	22.3	674.0	19	187.5
68.0	20	134	15.6	99.6	753.3	21.0	637.8	17	176.2
34.0	10	85.3	13.0	98.0	630.4	22.0	527.3	14	164.1

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE WET EXH VOL FLOW RATE	OUTLET WET INLET GAS FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM		LB/HR	LB/HR	FT3/MIN	FT3/MIN
374.0	110	563	871.2	1,746.3		3,788.5	3,986.8	588.7	523.4
340.0	100	515	826.5	1,638.0		3,573.7	3,752.3	574.5	513.3
306.0	90	466	776.5	1,537.5		3,338.5	3,498.7	554.2	497.1
272.0	80	418	722.2	1,438.0		3,088.0	3,231.4	530.7	477.3
255.0	75	394	692.2	1,382.9		2,952.1	3,087.3	515.5	464.2
238.0	70	370	661.6	1,326.4		2,814.0	2,941.3	499.4	450.1
204.0	60	322	600.6	1,211.7		2,541.5	2,653.3	465.7	420.6
170.0	50	275	542.7	1,097.6		2,285.2	2,382.0	431.9	391.3
136.0	40	228	493.0	989.2		2,066.9	2,149.2	401.6	365.6
102.0	30	182	451.7	881.4		1,889.6	1,957.7	372.8	341.9
85.0	25	158	434.1	827.3		1,816.0	1,877.1	358.8	330.5
68.0	20	134	423.8	779.4		1,772.9	1,827.1	349.2	323.4
34.0	10	85.3	442.0	724.0		1,850.2	1,890.4	360.6	339.5

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
374.0	110	563	13,383	2,729	19,984	11,217	2,937	4,294	23,891	60,808	64,776
340.0	100	515	12,526	2,516	17,308	9,576	2,753	3,653	21,853	54,736	58,308
306.0	90	466	11,683	2,364	15,079	8,320	2,586	3,095	19,769	49,180	52,389
272.0	80	418	10,776	2,213	13,375	7,219	2,397	2,576	17,714	43,998	46,869
255.0	75	394	10,235	2,102	12,764	6,708	2,266	2,322	16,696	41,501	44,209
238.0	70	370	9,668	1,983	12,161	6,217	2,125	2,075	15,677	39,042	41,590
204.0	60	322	8,499	1,733	10,988	5,293	1,831	1,612	13,659	34,278	36,515
170.0	50	275	7,356	1,491	9,846	4,433	1,550	1,190	11,655	29,682	31,619
136.0	40	228	6,353	1,290	8,741	3,632	1,330	848	9,684	25,243	26,891
102.0	30	182	5,354	1,093	7,682	2,885	1,118	570	7,704	20,901	22,264
85.0	25	158	4,847	992	7,167	2,531	1,013	455	6,704	18,751	19,974
68.0	20	134	4,323	886	6,706	2,175	903	360	5,692	16,604	17,688
34.0	10	85.3	3,218	660	6,108	1,363	672	246	3,619	12,306	13,109

Emissions Data [Top](#)

Units Filter All Units ▼

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER	BHP	563	515	394	275	158	85.3
PERCENT LOAD	%	110	100	75	50	25	10
NON-ETHANE HC	(CORR 15% O2) PPM	4.737572	3.6651466	2.7610962	2.2077477	1.9159158	3.73961
TOTAL NOX (AS NO2)	G/HR	31	42	57	13	5	24
TOTAL CO	G/HR	4	2	1	1	1	1
TOTAL HC	G/HR	9	6	3	2	2	2
TOTAL CO2	KG/HR	287	258	196	140	89	58
PART MATTER	G/HR	2.8	0.6	0.4	0.3	0.3	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	24.8	37.7	64.2	22.3	15.3	109.9
TOTAL CO	(CORR 5% O2) MG/NM3	3.4	2.2	1.6	1.0	1.7	2.7

GENSET POWER WITH FAN		EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER		BHP	563	515	394	275	158	85.3
PERCENT LOAD		%	110	100	75	50	25	10
TOTAL HC	(CORR 5% O2)	MG/NM3	6.1	4.4	3.2	2.8	3.6	8.5
PART MATTER	(CORR 5% O2)	MG/NM3	1.8	0.5	0.3	0.4	0.6	0.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	9.2	14.0	23.8	8.3	5.7	40.8
TOTAL CO	(CORR 15% O2)	MG/NM3	1.2	0.8	0.6	0.4	0.6	1.0
TOTAL HC	(CORR 15% O2)	MG/NM3	2.3	1.6	1.2	1.0	1.3	3.2
PART MATTER	(CORR 15% O2)	MG/NM3	0.6	0.2	0.1	0.2	0.2	0.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	12	18	31	11	7	54
TOTAL CO	(CORR 5% O2)	PPM	3	2	1	1	1	2
TOTAL HC	(CORR 5% O2)	PPM	11	8	6	5	7	16
ACROLEIN	(CORR 5% O2)	PPM	0.02	0.00	0.03	0.34	1.08	0.48
ACETALDEHYDE	(CORR 5% O2)	PPM	2.63	2.58	2.18	2.50	2.38	4.29
METHANOL	(CORR 5% O2)	PPM	0.07	0.02	0.00	0.00	0.00	0.13
NON-METHANE HC	(CORR 5% O2)	PPM	12.00	8.97	6.68	5.14	4.40	9.05
NON-ETHANE HC	(CORR 5% O2)	PPM	12.77	9.88	7.44	5.95	5.16	10.08
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	4	7	12	4	3	20
TOTAL CO	(CORR 15% O2)	PPM	1	1	0	0	1	1
TOTAL HC	(CORR 15% O2)	PPM	4	3	2	2	3	6
TOTAL NOX (AS NO2)		G/HP-HR	0.06	0.08	0.14	0.05	0.03	0.28
TOTAL CO		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.02	0.01	0.01	0.01	0.01	0.03
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		G/KW-HR	0.07	0.11	0.19	0.07	0.04	0.37
TOTAL CO		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL HC		G/KW-HR	0.02	0.02	0.01	0.01	0.01	0.04
PART MATTER		G/KW-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.07	0.09	0.13	0.03	0.01	0.05
TOTAL CO		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.01	0.00	0.00	0.01
TOTAL CO2		LB/HR	632	569	432	310	196	129
PART MATTER		LB/HR	0.01	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	5.1	5.8	7.1	8.1	10.9	14.2

Regulatory Information [Top](#)

EPA TIER 4 FINAL

2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)

ALTITUDE (FT)

	50	60	70	80	90	100	110	120	130	140	NORMAL
0	518	518	518	518	516	513	513	513	495	468	518
1,000	518	518	518	517	513	512	511	504	482	455	518
2,000	518	518	516	513	512	510	506	485	460	431	516
3,000	517	515	513	510	508	506	488	461	436	409	513
4,000	513	511	509	505	499	485	461	438	414	390	510
5,000	508	507	500	492	481	460	438	417	395	371	507
6,000	502	497	487	476	460	439	420	404	386	365	500
7,000	489	478	467	453	438	424	410	395	381	364	484
8,000	468	460	448	433	422	410	395	383	369	355	468
9,000	449	439	428	416	403	390	378	368	357	346	449
10,000	428	418	407	396	383	374	365	355	346	336	431
11,000	409	400	390	380	370	361	352	344	335	325	415
12,000	391	382	372	362	352	343	333	325	318	312	401
13,000	375	365	355	345	335	327	321	313	307	301	386
14,000	363	354	344	333	326	320	313	306	300	293	375

Unit 3d Engine Specifications

Eng Certification Status [NF300302]

March 03,2026

(NF300302)-Engine (CBC198148A)-CEM (BGK01910)-
Generator (X8H00251)-Genset (PET130156M)-PETU

For Help Desk Phone Numbers [Click here](#)

[Emissions Certificates Search](#)

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Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request portal
[Click here](#) to be directed to ERC's new customer request portal. ***Notice this portal is not CWS authenticated, a one time sign up for JIRA will be required.***

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	NF300302
Generator Number	CBC19814
Genset Number	X8H00251
Sales Model	C13
Regulatory Build Date	14-OCT-2019
As Shipped Data	
Engine Arrangement Number	5194400
Certification Arrangement	3611818
Test Spec Number	4150523
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2019
EPA Family Code	KCPXL12.5HTF
EPA Emissions Level	EPA TIER 4f
As-Shipped Flash File	5685631
CORR FL Power at RPM	577 HP (430.0 KW)1800 RPM
Advertised Power	518 HP 1,800RPM
Total Displacement	12.5 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or validity of the information and is not liable for any errors or omissions contained therein. All information provided should be independently verified and confirmed, including by examining the emissions label located on the engine.

[Need emission replacement label? Click here!](#)

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL12.5HTF	12.5	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.05	0.26	--	0.02	0.01	--	--	--

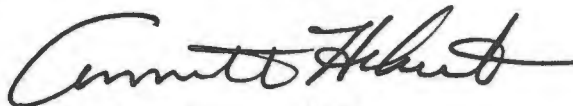
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT 1 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesel only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL12.5HTF	Cert Test 1	C13	519@2100	263	186	1752@1400	338	159	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	Cert Test 2	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	01	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	02	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	03	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	04	C13	375@2000	196.9	132.5	1575@1300	302.3	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	05	C13	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	06	C13	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	07	C13	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	08	C13	473@2100	239.1	168.9	1601@1400	308.6	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	09	C13	519@2100	262.7	185.6	1752@1400	338.2	159.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	10	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11a	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	12	C13	416@2100	216.4	152.9	1612@1200	310.3	125.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	13	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	14	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	15	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	16	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	17	C13	363@2000	190.1	127.9	1351@1000	268.4	90.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

ATTACHMENT 2 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193
JCPXL12.5HTF	18	C13	307@1850	174.5	108.5	1194@1200	233.8	94.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	19	2206	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	20	2206	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	21	2206	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	22	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	23	C13	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	24	2206	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	25	2206	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	26	2206	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	27	C13	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	28	C13	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	29	C13	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	30	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	31	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	32*	C13	425@1800	245.2	148.4	1609@1200	312.7	128.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	33*	2206	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	34*	2206	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

* New engine code

Perf No: EM0676

Change Level: 03

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SALES MODEL:	C13	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	518	FAN POWER (HP):	34.9
GEN POWER WITH FAN (EKW):	340.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	PRIME	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB4594 T256C .84 A/R 70/30
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,854.3
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (IN):	5		
MAX OPERATING ALTITUDE (FT):	3,999		

INDUSTRY
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Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
374.0	110	563	325	0.352	0.349	28.0	27.7	0.530	0.525
340.0	100	515	297	0.346	0.343	25.2	24.9	0.525	0.520
306.0	90	466	269	0.344	0.341	22.6	22.4	0.524	0.519
272.0	80	418	241	0.344	0.340	20.2	20.0	0.528	0.523
255.0	75	394	227	0.344	0.341	19.1	18.9	0.531	0.526
238.0	70	370	213	0.345	0.341	18.0	17.8	0.535	0.530
204.0	60	322	186	0.347	0.344	15.8	15.6	0.548	0.543
170.0	50	275	158	0.352	0.349	13.6	13.5	0.570	0.564
136.0	40	228	132	0.361	0.357	11.6	11.5	0.605	0.600
102.0	30	182	105	0.375	0.372	9.6	9.5	0.668	0.662
85.0	25	158	91	0.387	0.383	8.6	8.5	0.720	0.713
68.0	20	134	77	0.404	0.400	7.6	7.6	0.797	0.789
34.0	10	85.3	49	0.470	0.466	5.7	5.6	1.181	1.169
GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
374.0	110	563	67.8	122.5	1,299.0	78.6	998.8	71	405.5
340.0	100	515	62.4	122.4	1,221.1	70.2	942.2	65	377.9
306.0	90	466	56.5	122.3	1,164.2	62.1	904.3	59	352.9
272.0	80	418	50.3	122.2	1,113.5	54.5	872.7	52	328.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
255.0	75	394	47.1	122.2	1,090.7	50.8	859.2	49	315.8
238.0	70	370	43.9	122.2	1,068.2	47.2	846.2	46	302.7
204.0	60	322	37.5	122.2	1,022.6	40.5	819.7	39	276.9
170.0	50	275	31.3	120.8	972.2	34.2	789.7	33	251.1
136.0	40	228	25.6	113.2	912.2	28.6	751.5	27	225.8
102.0	30	182	20.3	105.4	840.6	24.1	702.6	21	200.3
85.0	25	158	17.8	102.1	800.1	22.3	674.0	19	187.5
68.0	20	134	15.6	99.6	753.3	21.0	637.8	17	176.2
34.0	10	85.3	13.0	98.0	630.4	22.0	527.3	14	164.1

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE WET EXH VOL FLOW RATE	OUTLET WET INLET GAS FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM		LB/HR	LB/HR	FT3/MIN	FT3/MIN
374.0	110	563	871.2	1,746.3		3,788.5	3,986.8	588.7	523.4
340.0	100	515	826.5	1,638.0		3,573.7	3,752.3	574.5	513.3
306.0	90	466	776.5	1,537.5		3,338.5	3,498.7	554.2	497.1
272.0	80	418	722.2	1,438.0		3,088.0	3,231.4	530.7	477.3
255.0	75	394	692.2	1,382.9		2,952.1	3,087.3	515.5	464.2
238.0	70	370	661.6	1,326.4		2,814.0	2,941.3	499.4	450.1
204.0	60	322	600.6	1,211.7		2,541.5	2,653.3	465.7	420.6
170.0	50	275	542.7	1,097.6		2,285.2	2,382.0	431.9	391.3
136.0	40	228	493.0	989.2		2,066.9	2,149.2	401.6	365.6
102.0	30	182	451.7	881.4		1,889.6	1,957.7	372.8	341.9
85.0	25	158	434.1	827.3		1,816.0	1,877.1	358.8	330.5
68.0	20	134	423.8	779.4		1,772.9	1,827.1	349.2	323.4
34.0	10	85.3	442.0	724.0		1,850.2	1,890.4	360.6	339.5

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTER COOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
374.0	110	563	13,383	2,729	19,984	11,217	2,937	4,294	23,891	60,808	64,776
340.0	100	515	12,526	2,516	17,308	9,576	2,753	3,653	21,853	54,736	58,308
306.0	90	466	11,683	2,364	15,079	8,320	2,586	3,095	19,769	49,180	52,389
272.0	80	418	10,776	2,213	13,375	7,219	2,397	2,576	17,714	43,998	46,869
255.0	75	394	10,235	2,102	12,764	6,708	2,266	2,322	16,696	41,501	44,209
238.0	70	370	9,668	1,983	12,161	6,217	2,125	2,075	15,677	39,042	41,590
204.0	60	322	8,499	1,733	10,988	5,293	1,831	1,612	13,659	34,278	36,515
170.0	50	275	7,356	1,491	9,846	4,433	1,550	1,190	11,655	29,682	31,619
136.0	40	228	6,353	1,290	8,741	3,632	1,330	848	9,684	25,243	26,891
102.0	30	182	5,354	1,093	7,682	2,885	1,118	570	7,704	20,901	22,264
85.0	25	158	4,847	992	7,167	2,531	1,013	455	6,704	18,751	19,974
68.0	20	134	4,323	886	6,706	2,175	903	360	5,692	16,604	17,688
34.0	10	85.3	3,218	660	6,108	1,363	672	246	3,619	12,306	13,109

Emissions Data [Top](#)

Units Filter All Units ▼

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER	BHP	563	515	394	275	158	85.3
PERCENT LOAD	%	110	100	75	50	25	10
NON-ETHANE HC	(CORR 15% O2) PPM	4.737572	3.6651466	2.7610962	2.2077477	1.9159158	3.73961
TOTAL NOX (AS NO2)	G/HR	31	42	57	13	5	24
TOTAL CO	G/HR	4	2	1	1	1	1
TOTAL HC	G/HR	9	6	3	2	2	2
TOTAL CO2	KG/HR	287	258	196	140	89	58
PART MATTER	G/HR	2.8	0.6	0.4	0.3	0.3	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	24.8	37.7	64.2	22.3	15.3	109.9
TOTAL CO	(CORR 5% O2) MG/NM3	3.4	2.2	1.6	1.0	1.7	2.7

GENSET POWER WITH FAN		EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER		BHP	563	515	394	275	158	85.3
PERCENT LOAD		%	110	100	75	50	25	10
TOTAL HC	(CORR 5% O2)	MG/NM3	6.1	4.4	3.2	2.8	3.6	8.5
PART MATTER	(CORR 5% O2)	MG/NM3	1.8	0.5	0.3	0.4	0.6	0.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	9.2	14.0	23.8	8.3	5.7	40.8
TOTAL CO	(CORR 15% O2)	MG/NM3	1.2	0.8	0.6	0.4	0.6	1.0
TOTAL HC	(CORR 15% O2)	MG/NM3	2.3	1.6	1.2	1.0	1.3	3.2
PART MATTER	(CORR 15% O2)	MG/NM3	0.6	0.2	0.1	0.2	0.2	0.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	12	18	31	11	7	54
TOTAL CO	(CORR 5% O2)	PPM	3	2	1	1	1	2
TOTAL HC	(CORR 5% O2)	PPM	11	8	6	5	7	16
ACROLEIN	(CORR 5% O2)	PPM	0.02	0.00	0.03	0.34	1.08	0.48
ACETALDEHYDE	(CORR 5% O2)	PPM	2.63	2.58	2.18	2.50	2.38	4.29
METHANOL	(CORR 5% O2)	PPM	0.07	0.02	0.00	0.00	0.00	0.13
NON-METHANE HC	(CORR 5% O2)	PPM	12.00	8.97	6.68	5.14	4.40	9.05
NON-ETHANE HC	(CORR 5% O2)	PPM	12.77	9.88	7.44	5.95	5.16	10.08
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	4	7	12	4	3	20
TOTAL CO	(CORR 15% O2)	PPM	1	1	0	0	1	1
TOTAL HC	(CORR 15% O2)	PPM	4	3	2	2	3	6
TOTAL NOX (AS NO2)		G/HP-HR	0.06	0.08	0.14	0.05	0.03	0.28
TOTAL CO		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.02	0.01	0.01	0.01	0.01	0.03
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		G/KW-HR	0.07	0.11	0.19	0.07	0.04	0.37
TOTAL CO		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL HC		G/KW-HR	0.02	0.02	0.01	0.01	0.01	0.04
PART MATTER		G/KW-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.07	0.09	0.13	0.03	0.01	0.05
TOTAL CO		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.01	0.00	0.00	0.01
TOTAL CO2		LB/HR	632	569	432	310	196	129
PART MATTER		LB/HR	0.01	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	5.1	5.8	7.1	8.1	10.9	14.2

Regulatory Information [Top](#)

EPA TIER 4 FINAL

2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)

ALTITUDE (FT)

	50	60	70	80	90	100	110	120	130	140	NORMAL
0	518	518	518	518	516	513	513	513	495	468	518
1,000	518	518	518	517	513	512	511	504	482	455	518
2,000	518	518	516	513	512	510	506	485	460	431	516
3,000	517	515	513	510	508	506	488	461	436	409	513
4,000	513	511	509	505	499	485	461	438	414	390	510
5,000	508	507	500	492	481	460	438	417	395	371	507
6,000	502	497	487	476	460	439	420	404	386	365	500
7,000	489	478	467	453	438	424	410	395	381	364	484
8,000	468	460	448	433	422	410	395	383	369	355	468
9,000	449	439	428	416	403	390	378	368	357	346	449
10,000	428	418	407	396	383	374	365	355	346	336	431
11,000	409	400	390	380	370	361	352	344	335	325	415
12,000	391	382	372	362	352	343	333	325	318	312	401
13,000	375	365	355	345	335	327	321	313	307	301	386
14,000	363	354	344	333	326	320	313	306	300	293	375

Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

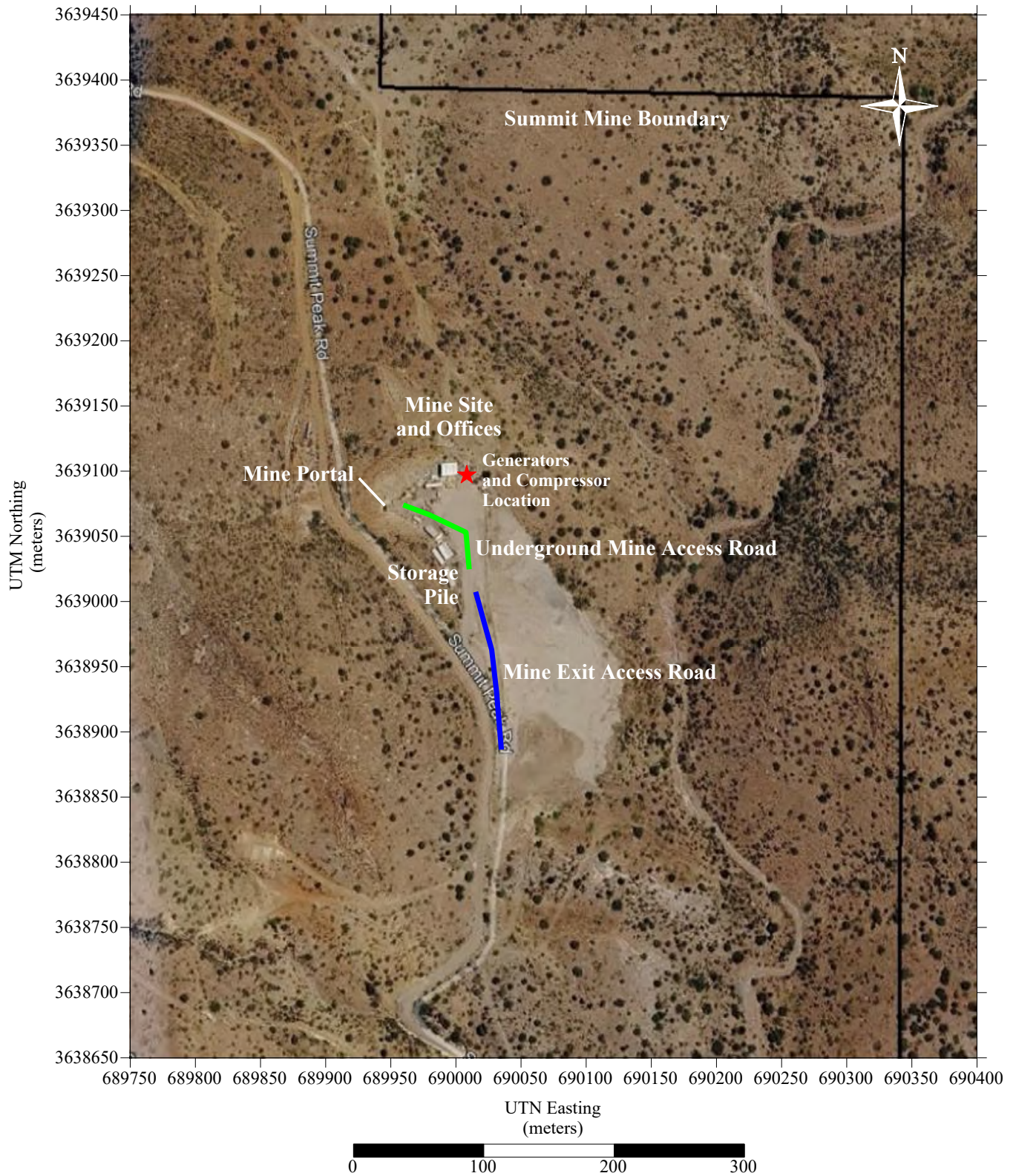


Figure 8-1: Summit Gold Corporation - Summit Mine Aerial View showing Facility Layout

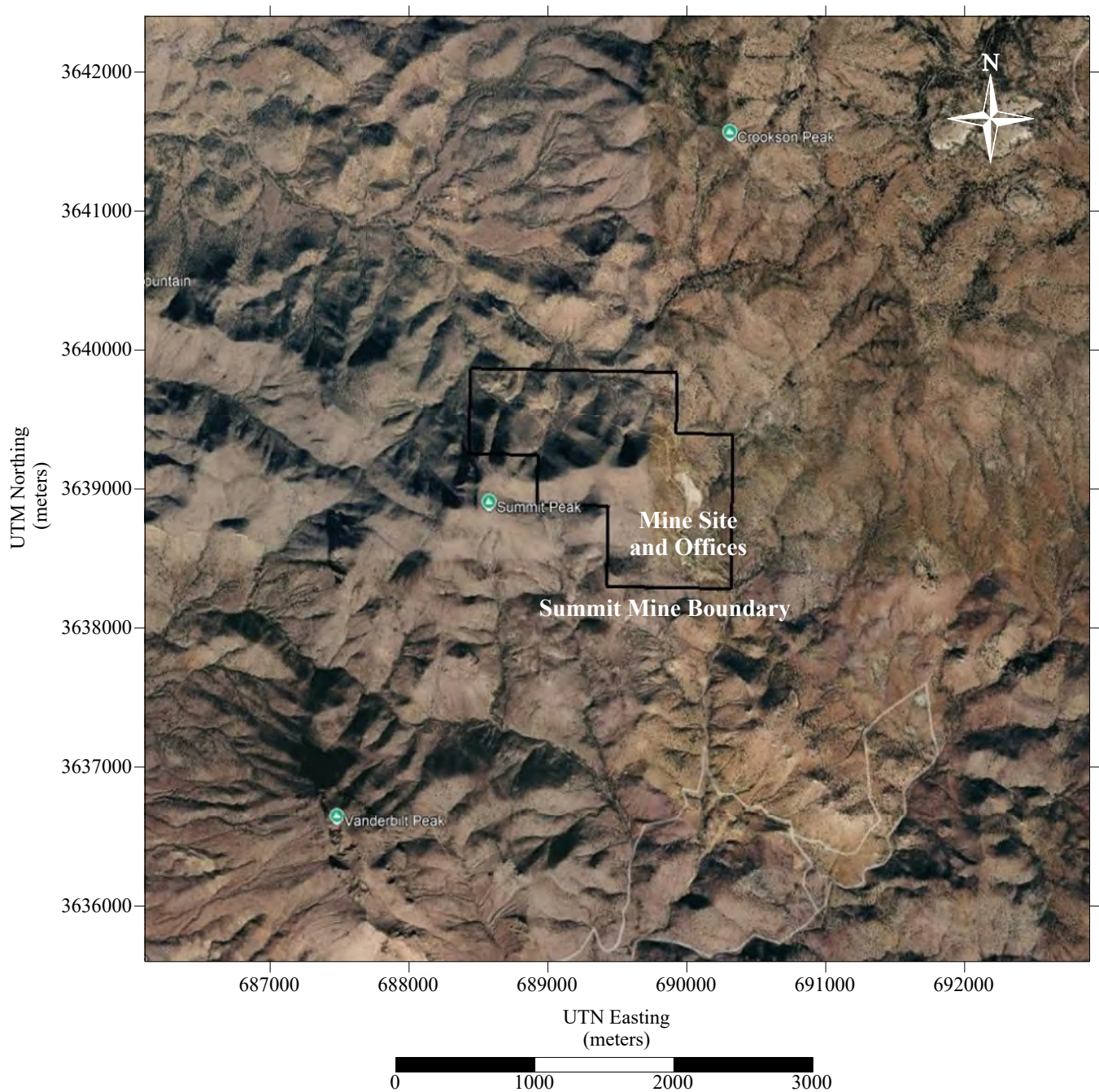


Figure 8-2: Summit Gold Corporation - Summit Mine Aerial View showing Surrounding Terrain

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

X I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"

This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. X A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
 2. X A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
 3. X A copy of the property tax record (20.2.72.203.B NMAC).
 4. X A sample of the letters sent to the owners of record.
 5. X A sample of the letters sent to counties, municipalities, and Indian tribes.
 6. X A sample of the public notice posted and a verification of the local postings.
 7. X A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
 8. X A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
 9. X A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
 10. X A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
 11. X A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.
-

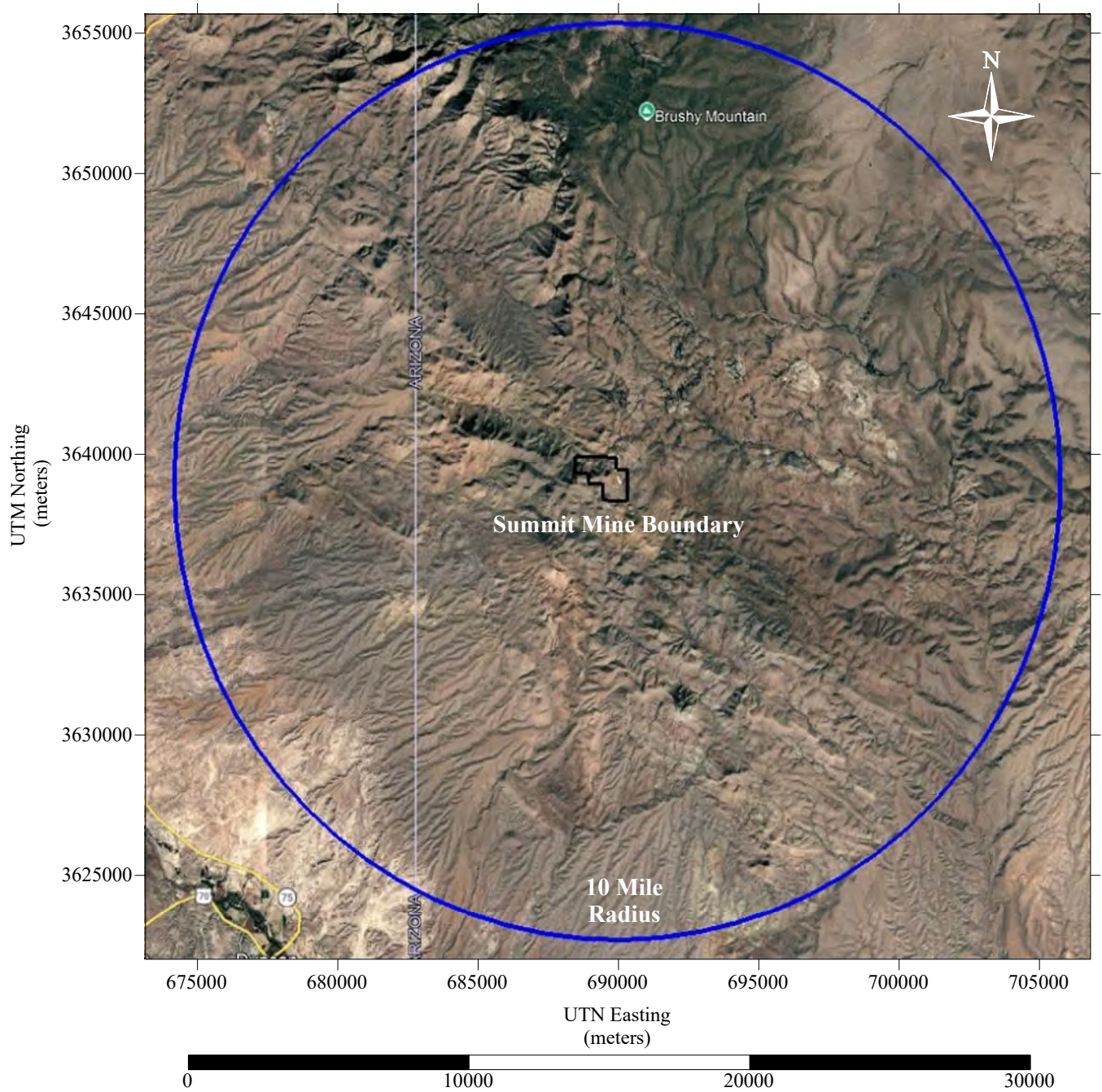


Figure 9-1: Ten-Mile Radius around Site

Government List within 10 Miles**Summit Gold's Summit Mine - Government Entities within 10 Miles****April 2026**

Grant County	Connie Holguin, County Clerk	1400 Highway 180 East	Silver City	NM	88061
Hidalgo County	Alyssa Esquivel, County Clerk	300 Shakespeare	Lordsburg	NM	88045

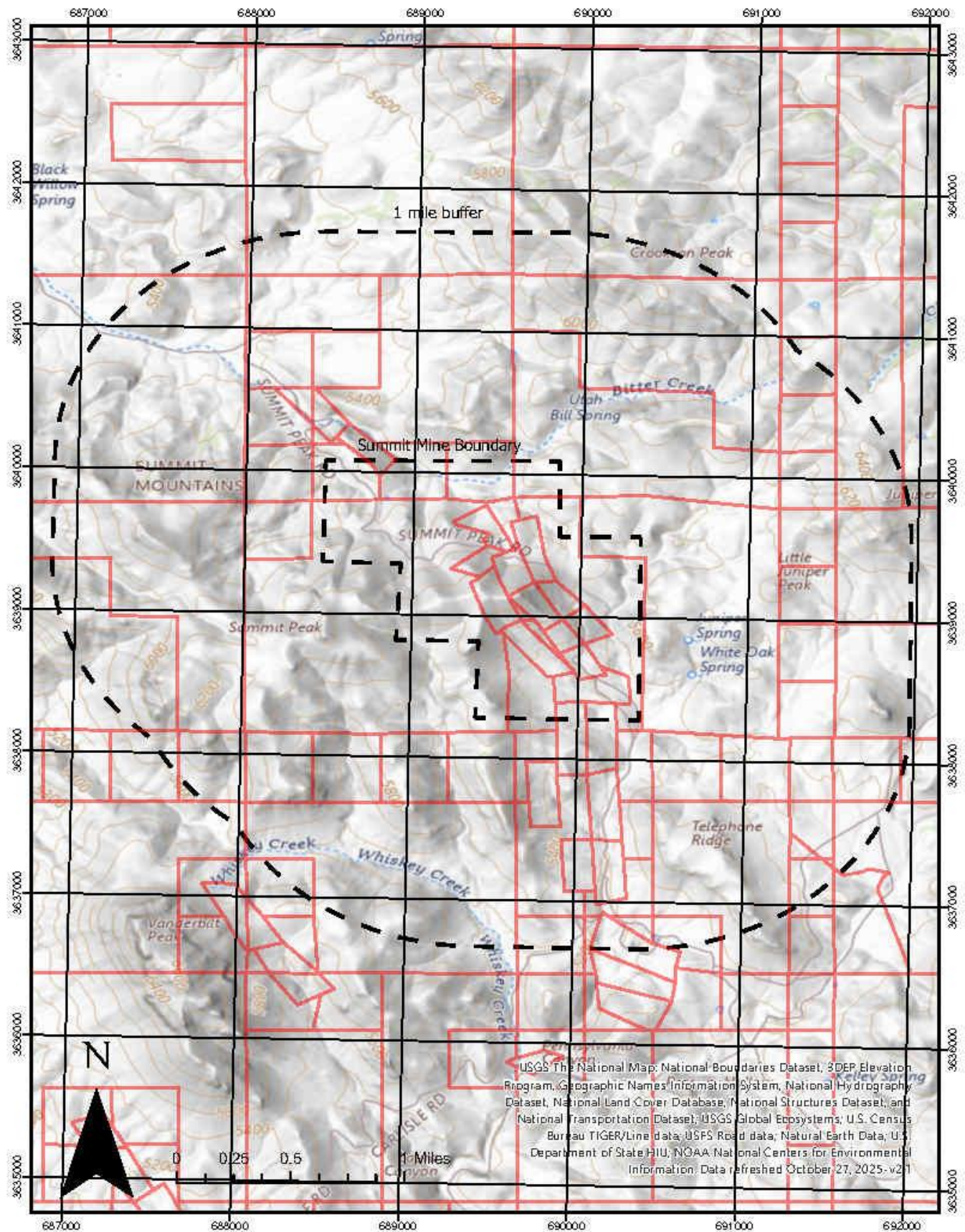


Figure 9-2: One Mile Radius around Site

Acct_No	OWNNAME	CAREOF	MAILADD	MCITY	MSTATE	MZIP
R078802	GORSKI, DANIEL E		7 COPANO POINT ROAD	ROCKPORT	TX	78382-7645
R079816	BILLALI MINE LLC		PO BOX 207	DUNCAN	AZ	85534-0207
R085895	GRAVES, CHAD M & GRAVES CISSI		PO BOX 848	SAFFORD	AZ	85548
R086231	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534-0920
R086354	BURK, DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534-8205
R086568	EARVEN, EVELYN		PO BOX 603	DUNCAN	AZ	85534-0603
R086857	CHAGDUD, LHUNDRUB LING		PO BOX 215	DUNCAN	AZ	85534-0215
R087021	VAUGHN, HOLLIS L & VAUGHN, DOROTHY P		981 MUD SPRINGS RANCH	VIRDEN	NM	88045-8022
	BUREAU OF LAND MANAGEMENT	LAS CRUCES DISTRICT OFFICE	1800 MARQUESS STREET	LAS CRUCES	NM	88005-3371
	NEW MEXICO STATE LAND OFFICE	STEPHANIE GARCIA RICHARD, COMMISIONER	PO BOX 1148	SANTA FE	NM	87504-1148

NOTICE

Summit Gold Corporation announces its application to the New Mexico Environment Department for a significant revision of Air Quality Permit #3807M2 for the existing gold/silver ore mining facility. The expected date of the significant revision application submittal to the Air Quality Bureau is May 15, 2026.

The exact location of the facility known as Summit Mine, is at Latitude (decimal degrees): 32.873577 and Longitude (decimal degrees): -108.969151. The approximate location of this site is 12.9 miles north of Virden, NM in Grant County.

The Summit Mine is an underground mining operation producing an average of 400 tons per day of gold/silver ore with a maximum daily ore production rate of 700 tons. No ore processing occurs on-site. The Summit mine is currently permitted to operate three diesel powered engines (two generators and an air compressor). Summit Gold Corporation is proposing replacement of all permitted engines with newer, more energy efficient, and environmentally friendly EPA Tier 4 final engines. The combustion emissions from the new engines will be significantly less than the permitted engines. Additionally, the maximum capacity of the haul trucks that will haul the ore off the mine site will be increased to a 60.6-ton capacity haul trucks. Increasing the capacity of the haul trucks will reduce fugitive dust emissions from mine haul road travel.

The estimated maximum quantities of any regulated air contaminants will be as follows in pound per hour (pph) and tons per year (tpy). These reported emissions could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year	Change in Emissions Tons per year
PM ₁₀	0.83 pph	1.8 tpy	-1.2 tpy
PM _{2.5}	0.15 pph	0.5 tpy	-0.9 tpy
Sulfur Dioxide (SO ₂)	0.021 pph	0.1 tpy	-2.1 tpy
Nitrogen Oxides (NO _x)	1.11 pph	4.9 tpy	-62.7 tpy
Carbon Monoxide (CO)	0.13 pph	0.6 tpy	-7.2 tpy
Volatile Organic Compounds (VOC)	0.17 pph	0.8 tpy	-5.1 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.10 pph	0.4 tpy	
Toxic Air Pollutant (TAP)	0.0006 pph	0.006 tpy	
Green House Gas Emissions as Total CO ₂ e	n/a	10,100 tpy	

The standard and maximum operating schedule of the facility will be 24 hours per day, 7 days per week, 52 weeks per year.

The owner and operator of the Facility is:

Summit Gold Corporation
PO Box 129
Lordsburg, NM 8805

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and facility name or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Atención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-7748.

Notice of Non-Discrimination

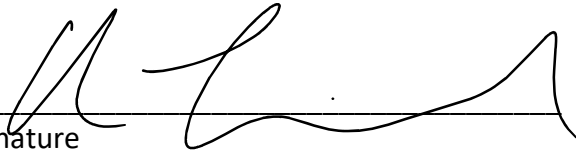
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at <https://www.env.nm.gov/non-employee-discrimination-complaint-page/> to learn how and where to file a complaint of discrimination.

General Posting of Notices – Certification

I, Alan Linden, the undersigned, certify that on April 30th, May 1st and May 2nd posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in and around the City of Silver City of Grant County, State of New Mexico on the following dates:

1. Summit Mine Facility Entrance May 2 2026
2. Saucedo's Supermarket Lordsburg May 1 2026
3. United State Post Office Lordsburg April 30, 2026
4. United State Post Office Silver City April 30, 2026
5. United State Post Office Tyrone April 30, 2026

Signed this 4 day of May, 2026,


Signature

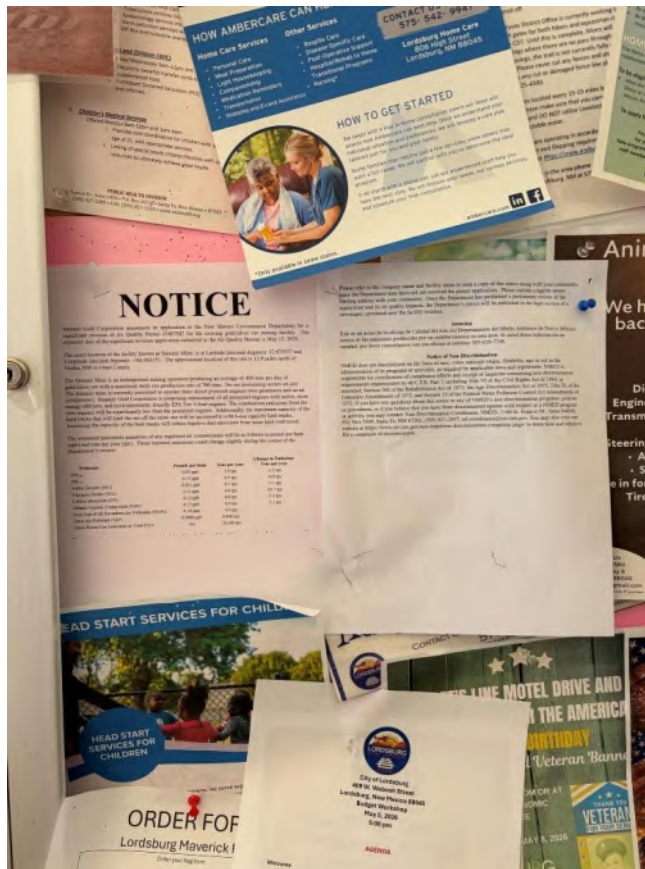
5/4/ 26
Date

Alan Linden
Printed Name

General Manager – Banner Mill and Summit Mine
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}



Saucedo's Supermarket



Lordsburg Post Office



Silver City Post Office



Tyrone Post Office

Summit Gold Corporation

May 4, 2026

Connie Holguin
Grant County Clerk
1400 Highway 180 East
Silver City, NM 88061-7837

Dear Ms. Holguin

Summit Gold Corporation announces its application to the New Mexico Environment Department for a significant revision of Air Quality Permit #3807M2 for the existing gold/silver ore mining facility. The expected date of the significant revision application submittal to the Air Quality Bureau is May 15, 2026.

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Summit Gold Corporation

The standard and maximum operating schedule of the facility will be 24 hours per day, 7 days per week, 52 weeks per year.

The owner and operator of the Facility is:

Summit Gold Corporation
PO Box 129
Lordsburg, NM 8805

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

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Sincerely,

Summit Gold Corporation
PO Box 129
Lordsburg, NM 8805

Re: Air Quality Permit Public Notice Landowners of Record

From Paul Wade <pwade@onterris.com>

Date Fri 5/1/2026 2:52 PM

To Jeremiah Paul <jpaul@grantcountynm.gov>

Cc Misty Trujillo <mtrujillo@grantcountynm.gov>; John Betz <jobetz@onterris.com>; Samantha Valentine <SamanthaValentine@onterris.com>

Thank you for looking. We will contact the BLM office in Las Cruces and NM State Land Office in Santa Fe.

Thanks again.

Paul Wade

Senior Associate Engineer

Albuquerque, NM | US Mountain Time

Office: +1-505-830-9680 x6 | Mobile:

Office Location:

9100 2nd Street NW, Suite 200

Albuquerque, NM 87114-1664

pwade@onterris.com • Onterris.com



From: Jeremiah Paul <jpaul@grantcountynm.gov>

Sent: Friday, May 1, 2026 2:48 PM

To: Paul Wade <pwade@onterris.com>

Cc: Misty Trujillo <mtrujillo@grantcountynm.gov>; John Betz <jobetz@onterris.com>; Samantha Valentine <SamanthaValentine@onterris.com>

Subject: RE: Air Quality Permit Public Notice Landowners of Record

Mr Wade

There was not any USFS property within the 1 mile distance. The area does include BLM and State land . We do not have accounts for BLM, USFS, or State property so we do not have address information to give you. We do have the BLM, USFS, and state land noted in the parcel data, but to contact the owners we can only suggest to contact those organizations.

From: Paul Wade <pwade@onterris.com>

Sent: Friday, May 1, 2026 1:44 PM

To: Jeremiah Paul <jpaul@grantcountynm.gov>

Cc: Misty Trujillo <mtrujillo@grantcountynm.gov>; John Betz <jobetz@onterris.com>; Samantha Valentine <SamanthaValentine@onterris.com>

Subject: Re: Air Quality Permit Public Notice Landowners of Record

Thank you Mr Paul

I am also assuming some of the land is BLM and NM State Land. Is there any US Forest Service Land within that one mile radius?

Thanks again

Paul Wade
Senior Associate Engineer
Albuquerque, NM | US Mountain Time
Office: +1-505-830-9680 x6 | Mobile:
Office Location:
9100 2nd Street NW, Suite 200
Albuquerque, NM 87114-1664
pwade@onterris.com • Onterris.com


From: Jeremiah Paul <jpaul@grantcountynm.gov>
Sent: Friday, May 1, 2026 12:14 PM
To: Paul Wade <pwade@onterris.com>
Cc: Misty Trujillo <mtrujillo@grantcountynm.gov>; John Betz <jobetz@onterris.com>; Samantha Valentine <SamanthaValentine@onterris.com>
Subject: RE: Air Quality Permit Public Notice Landowners of Record

You don't often get email from jpaul@grantcountynm.gov. [Learn why this is important](#)

Good Morning Mr Wade

Attached is a list of accounts that are within 1 mile from the designated area along with a map of the properties.

From: Misty Trujillo <mtrujillo@grantcountynm.gov>
Sent: Thursday, April 30, 2026 4:20 PM
To: Jeremiah Paul <jpaul@grantcountynm.gov>
Subject: Fw: Air Quality Permit Public Notice Landowners of Record

Jerry,

Will you be able to work on this for Mr. Wade? Please respond back to him.

Thank you!

From: Paul Wade <pwade@onterris.com>
Sent: Thursday, April 30, 2026 4:06 PM
To: Misty Trujillo <mtrujillo@grantcountynm.gov>
Cc: Samantha Valentine <SamanthaValentine@onterris.com>; John Betz <jobetz@onterris.com>
Subject: Air Quality Permit Public Notice Landowners of Record

Grant County Assessor
My name is Paul Wade and I am an air quality consultant with Onterris out of Albuquerque. I am preparing a significant air permit revision application for Summit Gold Corporation's Summit Mine Air

Quality Permit. As part of the public notice requirements required by the New Mexico Environment Department's Air Quality Regulation, I am required to send a public notice to the property owners that are within one-half (1/2) mile from the property boundary on which the property is located. The regulation requires that all property owners on record with the county assessor's office where the property is located receive written notice by certified mail.

I am requesting a record of all landowners within a one-mile radius of the Summit Mine boundary identified on the attached map. I will need a list of the landowner's name and contact mailing address, and a map from your office showing the landowner's included in the list.

If you have any questions, please contact me at this email address or call 505.366.4702.

Thank you in advance.

Paul Wade
Senior Associate Engineer
Albuquerque, NM | US Mountain Time
Office: +1-505-830-9680 x6 | Mobile:
Office Location:
9100 2nd Street NW, Suite 200
Albuquerque, NM 87114-1664
pwade@onterris.com • Onterris.com


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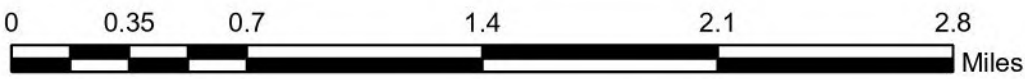
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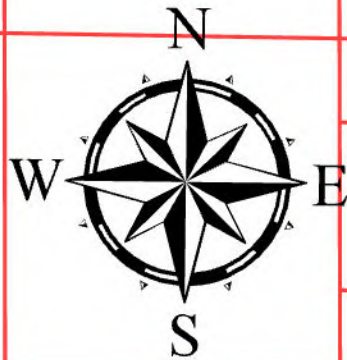
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ACCOUNTNO	NAME	CAREOF	ADDRESS2	CITY	STATE	ZIPCODE	LEGAL
R078802	GORSKI DANIEL E		7 COPANO POINT ROAD	ROCKPORT	TX	78382	S: 01 T: 17S R: 21W S: 12 T: 17S R: 21W MINE: HOMESTEAD - MS 283 17.91 MineAcres 17.91 AC
R078806	GORSKI DANIEL E		7 COPANO POINT ROAD	ROCKPORT	TX	78382	S: 01 T: 17S R: 21W S: 12 T: 17S R: 21W MINE: CARLISLE - MS 279 20.660 MineAcres 20.660 AC
R079816	BILLALI MINE LLC		PO BOX 207	DUNCAN	AZ	85534	Quarter: SE S: 26 T: 16S R: 21W BILLALI MS 1021 Quarter: SW S: 26 T: 16S R: 21W BILLALI MS 1021 MINE: BILLALI - MS 1021 11.597 MineAcres 11.597 AC
R085895	GRAVES CHAD M & GRAVES CISSI		PO BOX 848	SAFFORD	AZ	85546	Quarter: SW S: 06 T: 17S R: 20W GOV LOT 7 & PT GOV LOT 6 & PT SWQ Quarter: NW S: 06 T: 17S R: 20W PT GOV LOT 5 142.680 AC, JOINT TENANTS, NOTE: PROCESSED WITH RECOGNIZED DEED ERROR - CLOSURE 274/1311
R086231	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	Quarter: NW S: 01 T: 17S R: 21W MINE: JOE H - MS 1847 20.115 MineAcres 20.115 AC
R086232	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	Quarter: SW S: 36 T: 16S R: 21W Quarter: NW S: 01 T: 17S R: 21W MINE: EMMA - MS 1847 20.661 MineAcres 20.661 AC
R086233	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	S: 01 T: 17S R: 21W MINE: HARD SCRABBLE - MS 1847 16.503 MineAcres 16.503 AC
R086234	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	Quarter: SW S: 36 T: 16S R: 21W Quarter: NW S: 01 T: 17S R: 21W MINE: TOTAL WRECK - MS 1847 20.411 MineAcres 20.411 AC
R086235	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	Quarter: NW S: 01 T: 17S R: 21W MINE: BILLY H - MS 1847 20.66 MineAcres 20.66 AC
R086236	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	S: 01 T: 17S R: 21W MINE: PROGRESS - MS 1847 20.661 MineAcres 20.661 AC
R086237	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	Quarter: SW S: 36 T: 16S R: 21W Quarter: SE S: 35 T: 16S R: 21W MINE: BISBEE - MS 1847 16.609 MineAcres 16.609 AC
R086238	PROGRESS MINING COMPANY	C/O DOUG HANSON	PO BOX 920	DUNCAN	AZ	85534	Quarter: SW S: 36 T: 16S R: 21W MINE: WEDGE - MS 1847 20.661 MineAcres 20.661 AC
R086354	BURK DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534	Quarter: NW S: 35 T: 16S R: 21W NWQNWQ 40 AC, JOINT TENANTS
R086355	BURK DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534	Quarter: SE S: 26 T: 16S R: 21W SEQSEQ & GOV LOT 5 Quarter: SW S: 26 T: 16S R: 21W SWQSWQ & GOV LOT 3 & GOV LOT 6 Quarter: NW S: 26 T: 16S R: 21W NHNWQ & GOV LOT 1 & GOV LOT 2 349.57 AC, JOINT TENANTS
R086356	BURK DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534	Quarter: SE S: 25 T: 16S R: 21W SHSEQ NWQSEQ Quarter: SW S: 25 T: 16S R: 21W SWQ Quarter: NW S: 25 T: 16S R: 21W SWQNWQ 320 AC, JOINT TENANTS

ACCOUNTNO	NAME	CAREOF	ADDRESS2	CITY	STATE	ZIPCODE	LEGAL
R086357	BURK DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534	Quarter: NE S: 31 T: 16S R: 20W NEQ Quarter: NW S: 31 T: 16S R: 20W EHNWQ & GOV LOTS 1, 2 (WHNWQ) 307.900 AC, JOINT TENANTS
R086358	BURK DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534	Quarter: SW S: 30 T: 16S R: 20W GOV LOT 4 (SWQSWQ) 33.78 AC, JOINT TENANTS
R086369	BURK DAN & BURK ELIZABETH		748 JACK RABBIT DR	DUNCAN	AZ	85534	Quarter: NE S: 30 T: 16S R: 20W NEQ Quarter: SE S: 30 T: 16S R: 20W SEQ 320 AC, JOINT TENANTS
R086568	EARVEN EVELYN		PO BOX 603	DUNCAN	AZ	85534	Quarter: NE S: 34 T: 16S R: 21W NEQ Quarter: SE S: 34 T: 16S R: 21W EHSEQ Quarter: NW S: 34 T: 16S R: 21W NHNWQ 320 AC, SELF GRAZED EARVEN P064650
R086857	CHAGDUD LHUNDRUB LING		PO BOX 215	DUNCAN	AZ	85534	Quarter: NE S: 27 T: 16S R: 21W NEQ Quarter: SE S: 27 T: 16S R: 21W SEQ Quarter: SW S: 27 T: 16S R: 21W SWQ Quarter: NW S: 27 T: 16S R: 21W NWQ 640 AC, SELF GRAZED P066539
R086858	CHAGDUD LHUNDRUB LING		PO BOX 215	DUNCAN	AZ	85534	Quarter: NE S: 22 T: 16S R: 21W NHNEQ Quarter: SE S: 22 T: 16S R: 21W SEQ Quarter: SW S: 22 T: 16S R: 21W SWQ Quarter: NW S: 22 T: 16S R: 21W NWQ 560 AC, SELF GRAZED P066539
R087021	VAUGHN HOLLIS L & VAUGHN DOROTHY P		981 MUD SPRINGS RANCH	VIRDEN	NM	88045	31 T: 16S R: 20W EHSWQ GOV LOT 3 (NWQSWQ) GOV LOT 4 (SWQSWQ) Quarter: SW S: 33 T: 16S R: 20W SWQ Quarter: NE S: 04 T: 17S R: 20W GOV LOT 2 (NWQNEQ) SWQNEQ Quarter: SE S: 04 T: 17S R: 20W GOV LOT 6 (NEQSEQ) GOV LOT 7 (SEQSEQ) WHSEQ Quarter: SW S: 04 T: 17S R: 20W NHSWQ Quarter: NW S: 04 T: 17S R: 20W SHNWQ GOV LOT 4 (NWQNWQ) Quarter: NE S: 05 T: 17S R: 20W GOV LOT 1 (NEQNEQ) GOV LOT 2 (NWQNEQ) SHNEQ Quarter: SW S: 05 T: 17S R: 20W GOV LOT 5 (SWQSWQ) NWQSWQ Quarter: NW S: 05 T: 17S R: 20W GOV LOT 3 (NEQNWQ) GOV LOT 4 (NWQNWQ) SHNWQ Quarter: NE S: 06 T: 17S R: 20W GOV LOT 1 (NEQNEQ) GOV LOT 2 (NWQNEQ) SHNEQ Quarter: SE S: 06 T: 17S R: 20W NEQSEQ WHSEQ GOV LOT 8 (PT SEQSEQ) Quarter: SW S: 06 T: 17S R: 20W PT GOV LOT 6 (NWQSWQ) PT EHSWQ Quarter: NW S: 06 T: 17S R: 20W GOV LOT 3 (NEQNWQ) GOV LOT 4 (NWQNWQ) SEQNWQ PT GOV LOT 5 (SWQNWQ) Quarter: NE S: 08 T: 17S R: 20W GOV LOT 4 (PT SWQNEQ) SEQNEQ NWQNEQ Quarter: SE S: 08 T: 17S R: 20W GOV LOT 5 (PT NEQSEQ PT SEQSEQ) GOV LOT 6 (PT NWQSEQ) GOV LOT 7 (PT NWQSEQ) GOV LOT 9 (PT SWQSEQ) GOV LOT 10 (PT SEQSEQ) Quarter: SW S: 08 T: 17S R: 20W GOV LOT 8 (PT NEQSWQ) WHSWQ SEQSWQ Quarter: NW S: 08 T: 17S R: 20W GOV LOT 1 (PT NWQNWQ PT SWQNWQ)



Properties within 1 Mile From Summit Peak



BITTER CREEK

SUMMIT PEAK

CARLISLE

Legend

Silver City Roads

Grant County Roads

Grant County Interactive Parcel Map

Summit Peak PLSS sections

Summit Peak PLSS sections

SP_1mile buffer

Grant County Interactive Parcel Map selection

GOLDKING IMPERIAL MINE

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300 SHAKESPEARE
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DUNCAN, AZ 85534-0920

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HOLLIS L & DOROTHY P VAUGHN
981 MUD SPRINGS RANCH
VIRDEN, NM 88045-8022

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Postage	\$0.78	
Total Postage and Fees	\$6.08	

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CONNIE HOLGUIN
GRANT COUNTY CLERK
1400 HIGHWAY 180 EAST
SILVER CITY, NM 88061-7837

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☐ Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.78	
Total Postage and Fees	\$6.08	

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CHAD M & CISSI GRAVES
PO BOX 848
SAFFORD, AZ 85548

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NEW MEXICO STATE LAND OFFICE
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SANTA FE, NM 87504-1148

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Total Postage and Fees \$6.08

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LHUNDRUB LING CHAGDUD
PO BOX 215
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Postage \$0.78

Total Postage and Fees \$6.08

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EVELYN E ARVEN
PO BOX 603
DUNCAN, AZ 85534-0603

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LAS CRUCES DISTRICT OFFICE
BUREAU OF LAND MANAGEMENT
1800 MARQUESS STREET
LAS CRUCES, NM 88005-3371

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☐ Adult Signature Required \$0.00

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Postage \$0.78

Total Postage and Fees \$6.08

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DANIEL E GORSKI
7 COPANO POINT ROAD
ROCKPORT, TX 78382-7645

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☐ Adult Signature Required \$0.00

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Postage \$0.78

Total Postage and Fees \$6.08

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DAN & ELIZABETH BURK
748 JACK RABBIT DR
DUNCAN, AZ 85534-8205

See Reverse for Instructions

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BILLALI MINE LLC
PO BOX 207
DUNCAN, AZ 85534-0207

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

Notice of Air Quality Permit Application

Summit Gold Corporation announces its application to the New Mexico Environment Department for a significant revision of Air Quality Permit #3807M2 for the existing gold/silver ore mining facility. The expected date of the significant revision application submittal to the Air Quality Bureau is May 15, 2026.

The exact location of the facility known as Summit Mine, is at Latitude (decimal degrees): 32.873577 and Longitude (decimal degrees): -108.969151. The approximate location of this site is 12.9 miles north of Virden, NM in Grant County.

The Summit Mine is an underground mining operation producing an average of 400 tons per day of gold/silver ore with a maximum daily ore production rate of 700 tons. No ore processing occurs on-site. The Summit mine is currently permitted to operate three diesel powered engines (two generators and an air compressor). Summit Gold Corporation is proposing replacement of all permitted engines with newer, more energy efficient, and environmentally friendly EPA Tier 4 final engines. The combustion emissions from the new engines will be significantly less than the permitted engines. Additionally, the maximum capacity of the haul trucks that will haul the ore off the mine site will be increased to a 60.6-ton capacity haul trucks. Increasing the capacity of the haul trucks will reduce fugitive dust emissions from mine haul road travel.

The estimated maximum quantities of any regulated air contaminants will be as follows in pound per hour (pph) and tons per year (tpy). These reported emissions could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year	Change in Emissions
			Tons per year
PM ₁₀	0.83 pph	1.8 tpy	-1.2 tpy
PM _{2.5}	0.15 pph	0.5 tpy	-0.9 tpy
Sulfur Dioxide (SO ₂)	0.021 pph	0.1 tpy	-2.1 tpy
Nitrogen Oxides (NO _x)	1.11 pph	4.9 tpy	-62.7 tpy
Carbon Monoxide (CO)	0.13 pph	0.6 tpy	-7.2 tpy
Volatile Organic Compounds (VOC)	0.17 pph	0.8 tpy	-5.1 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.10 pph	0.4 tpy	
Toxic Air Pollutant (TAP)	0.0006 pph	0.006 tpy	
Green House Gas Emissions as Total CO ₂ e	n/a	10,100 tpy	

The standard and maximum operating schedule of the facility will be 24 hours per day, 7 days per week, 52 weeks per year.

The owner and operator of the Facility is:

Summit Gold Corporation
PO Box 129
Lordsburg, NM 8805

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality

Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and facility name or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Atención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-7748.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at <https://www.env.nm.gov/non-employee-discrimination-complaint-page/> to learn how and where to file a complaint of discrimination.

Author...

From Page 6

"The beeswax substance draws the viewer's attention to our environment with an accent on the man-made stresses to our ecosystem," Kleiss said.

In 2013, she moved to Silver City and has exhibited her work in galleries and solo exhibits around the country, has been featured in art magazines and served on several art boards including the International Encaustic Artists board.

In February 2020, she was awarded the Edwina Milner Women in the Arts Award with a 40-year retrospective at Western New Mexico University's McCray Art Gallery. Her studio is open every year for the Silver City Art Association's Studio Tour.

"All ages are welcome to attend the Sunday program," a spokesperson said. "There are speakers on the patio for anyone who would like to sit outside. UUFSC safety protocol as pursuant to our most recent UUA guidelines,

masks are now optional, but their use is encouraged. We will continue to serve refreshments on the patio and in the building. Visitors are always welcome."

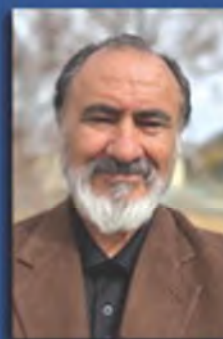
The Unitarian Universalist Fellowship of Silver City is a diverse group of religious independents seeking knowledge, spiritual sustenance, fellowship and opportunities for service to others, according to the release.

"Our programs encompass humanism, liberal Christianity, earth-based spirituality, Buddhism and many other traditions," the spokesperson said. "If you'd like to find out more, email uufellowship@silvercity.org, visit our website at uufsc.com or visit us on Facebook at Unitarian-Universalist-Fellowship-of-Silver-City."

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Vote Gilbert Guadiana

DEMOCRAT FOR COUNTY COMMISSION DISTRICT 2



Advocate for:

- Expanding Healthcare. Gila Regional is restricted to 25 patients per day and limited in the acuity of patients receiving surgeries because of its Urgent Care designation. If Gila Regional regains its Acute Care designation and higher levels of care and surgeries, it will keep residents here and recruit a broader range of physicians.

- Water is already getting scarce. Now, new mines may be opening up in Grant County. Existing mines are expanding. We need to ensure the quality and quantity are sustainable for all municipalities, farms/ranches and homes in unincorporated areas.

Paid for by Gilbert Guadiana

Notice of Air Quality Permit Application

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PUBLIC SERVICE ANNOUNCEMENT

Summit Gold Corporation announces its application to the New Mexico Environment Department for a significant revision of Air Quality Permit #3807M2 for the existing Summit Mine. The expected date of significant revision application submittal to the Air Quality Bureau is May 15, 2026.

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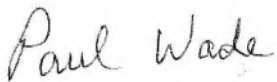
Public notices have been posted in the following locations for review by the public:

1. At Saucedo's Supermarket at 810 Main St, Lordsburg, NM 88045;
2. At the United States Post Office at 401 Shakespeare St, Lordsburg, NM;
3. At the United States Post Office at 500 N Hudson St, Silver City, NM;
4. At the United States Post Office at 210 Turquoise St, Tyrone, NM; and
5. At the main entrance to Summit Gold Corporation's Summit Mine, Virden, NM

Submittal of Public Service Announcement – Certification

I, Paul Wade, the undersigned, certify that on May 4, 2026, submitted a public service announcement to KNFT Radio that serves the City of Silver City, Grant County, New Mexico, in which the source is proposed to be located and that KNFT Radio DID NOT RESPOND.

Signed this 4 day of May, 2026.



Signature

May 4, 2026

Date

Paul Wade
Printed Name

Air Quality Consultant – Onterris
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

May 4, 2026

KNFT Radio
1560 No. Corbin Street
Silver City, NM 88061

CERTIFIED MAIL

Dear KNFT Radio:

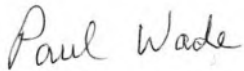
SUBJECT: PSA Request - Proposed Air Quality Construction Permit Application Revision for Summit Gold Corporation's Summit Mine

Attached is a copy of a public service announcement regarding a proposed air quality construction permit application for the Summit Mine. This announcement is being submitted by Onterris, Albuquerque, NM on behalf of Summit Gold Corporation.

The announcement request is being made to fulfill the requirements of the New Mexico Environmental Department air quality permitting regulations. Please consider reading the attached announcement as a public service message.

If you have any questions or need additional information, please contact me at (505) 830-9680 ext 6 (voice), (505) 830-9678 (fax) or email at pwade@montrose-env.com. You may also contact Mr. Alan Linden, Summit Gold Corporation at (575) 313-3273. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Paul Wade".

Paul Wade
Senior Associate Engineer

Cc: Alan Linden, General Manager, Summit Gold Corporation

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Extra Services & Fees (check box, add fees as appropriate)

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☐ Certified Mail Restricted Delivery \$0.00
☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00

Postage \$0.78

Total Postage and Fees \$6.08

\$

Sen

Str

City

KNFT RADIO
1560 NO. CORBIN STREET
SILVER CITY, NM 88061

0110 08
TOWN STATION
Postmark
MAY 04 2026
ALBUQUERQUE, NM
87103-3801 USPS 2026

Section 10

Written Description of the Routine Operations of the Facility

A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

All mining activity at the Summit Mine occurs underground. Mining has previously occurred in this area with underground mine development occurring during the 1970's and 1980's under previous mine claim owners. The current Summit Mine mining operations make use of these previous developed declines and adits to access the ore bearing formation. Ore produced in the mine is transported to the surface using rubber-tired underground haul truck with a 10 to 20 ton carrying capacity (Unit 4). The maximum daily production is 700 tons of ore. This results in 35 to 70 underground ore haul truck trips per day. The underground haul truck exits the mine at the Hanson Decline and delivers the ore to an ore stockpile located approximately 200 feet from the decline exit (Unit 6). Ore from the stockpile is reclaimed with a front-end loader to haul trucks (Unit 6) that transport the ore off site for further processing (Unit 5). The off-site haul trucks have a capacity of 25 to 60.6 tons carrying capacity giving a total of 12 to 28 haul truck trips per day. No screening, crushing, or any other type of ore processing occurs at the Summit Mine site. Emissions from these operations consist of fugitive dust generated by mine and off-site truck traffic (road dust) and dust from dropping onto and reclaiming from the ore stockpile.

Currently there is no commercial electrical power available at the Summit Mine site. Therefore, electrical power for the site and fan ventilation air supply will be supplied by three identical 430 kW (577 bhp) generators (Unit 1a, 3c, and 3d). To power the pneumatic mining equipment a 1150 cfm compressor (350 bhp engine) (Unit 2a) will be used. All engines will operate on ULSD diesel fuel. The operating hours for the mine will be up to 8,760 hours per year.

There are no pollution controls for unloading from mine haul trucks to the ore storage pile or loading ore to the mine delivery haul truck (Unit 6).

For haul truck traffic (Units 4 and 5), the road is controlled with watering or base course to reduce visible emissions.

Section 11

Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe): Gold and Silver Mining, SIC Codes 1041, 1044

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☒ **Yes** ☐ **No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

☒ **Yes** ☐ **No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

☒ **Yes** ☐ **No**

C. Make a determination:

- ☒ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.
- ☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

- A. This facility is a “synthetic minor” source
- B. This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories.
 - a. NOx: 4.9 TPY
 - b. CO: 0.6 TPY
 - c. VOC: 0.7 TPY
 - d. SOx: 0.1 TPY
 - e. PM: 4.3 TPY
 - f. PM10: 1.5 TPY
 - g. PM2.5: 0.5 TPY
 - h. Lead: 0.0006 TPY
 - i. GHG: <75,000 TPY
- C. Netting is not required for this application.
- D. BACT is not required for this application.
- E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

No, this facility is not a major source. The facility consists of underground mine powered by 40 CFR Part 60 Subpart IIII engines with annual emission rates below 250 tpy of any regulated new source review pollutant.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:

For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply. For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:

See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:

If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example**, if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:

For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:

All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVANT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: <http://cfpub.epa.gov/adi/>

Table for State Regulations:

<u>State Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQs	Yes	Facility	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This facility is subject to 20.2.7 NMAC.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1a, 2a, 3c, 3d	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as the diesel-fired generators and compressor engines.
20.2.70 NMAC	Operating Permits	No		This facility is not a Title V Operating Permit source.
20.2.71 NMAC	Operating Permit Fees	No		This facility is not a Title V Operating Permit source.
20.2.72 NMAC	Construction Permits	Yes	Facility	Any person constructing or modifying any source or installing any equipment which is subject to 20.2.77 NMAC (New Source Performance Standards). Facility has 4 RICE that are applicable to 40 CFR 60 Subpart IIII.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	NOI: 20.2.73.200 NMAC applies (requiring a NOI application) Emissions Inventory Reporting: 20.2.73.300 NMAC applies.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		This facility is not a PSD major source.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This facility is subject to 20.2.72 NMAC and is in turn subject to 20.2.75 NMAC.
20.2.77 NMAC	New Source Performance	Yes	Units subject to 40 CFR 60	This is a stationary source which is subject to the requirements of 40 CFR Part 60.
20.2.78 NMAC	Emission Standards for HAPS	No	Units Subject to 40 CFR 61	No, this facility doesn't emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	This facility is located in an Attainment Area.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	Units subject to 40 CFR 63	This is a stationary source which is subject to the requirements of 40 CFR Part 63.

Table for Applicable Federal Regulations:

<u>Federal Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	Defined as applicable at 20.2.70.7.E.11, any national ambient air quality standard
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	1a, 2a, 3c, 3d	Subpart IIII in 40 CFR 60 applies.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No		This facility does not have storage vessels with a capacity greater than or equal to 75 cubic meters (m ³) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	1a, 2a, 3c, 3d	The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE).
NESHAP 40 CFR 61 Subpart A	General Provisions	No	Units Subject to 40 CFR 61	Applies if any other Subpart in 40 CFR 61 applies.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Units Subject to 40 CFR 63	Applies if any other Subpart in 40 CFR 63 applies.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	1a, 2a, 3c, 3d	Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

- ☐ **Title V Sources** (20.2.70 NMAC): By checking this box and certifying this application the permittee certifies that it has developed an Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☒ **NSR** (20.2.72 NMAC), **PSD** (20.2.74 NMAC) & **Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☒ **Title V** (20.2.70 NMAC), **NSR** (20.2.72 NMAC), **PSD** (20.2.74 NMAC) & **Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.
-

Operational Plan to Mitigate Emissions and Plan of Work Practices

Startup

Upon visual inspection, all haul roads will be controlled with watering or base course, to minimize fugitive dust as required under applicable permit conditions.

Shutdown

All required control equipment will operate until all production ceases.

Maintenance

Any water trucks used for fugitive dust control will be maintained per the manufacturer requirements.

Malfunction

Upon malfunction where excess emissions are observed, generators or compressor will cease until repairs can be made within a reasonable time period or replacement engine is installed.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

No alternative operating scenarios are proposed for this stationary source.

Section 16

Air Dispersion Modeling

- 1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
- 2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
- 3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. Note: Neither modeling nor a modeling waiver is required for VOC emissions.	
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

Check each box that applies:

- ☒ See attached, approved modeling **waiver for all** pollutants from the facility.
- ☐ See attached, approved modeling **waiver for some** pollutants from the facility.
- ☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
- ☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
- ☐ No modeling is required.

New Mexico Environment Department Air Quality Bureau Modeling Section 525 Camino de Los Marquez - Suite 1 Santa Fe, NM 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/air-quality/		For Department use only: Approved by: Date: Bryant Fong Digitally signed by Bryant Fong Date: 2026.04.30 16:27:03 -06'00'
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Air Dispersion Modeling Waiver Request Form

This form must be completed and submitted with all air dispersion modeling waiver requests.

If an air permit application requires air dispersion modeling, in some cases the demonstration that ambient air quality standards and Prevention of Significant Deterioration (PSD) increments will not be violated can be satisfied with a discussion of previous modeling. The purpose of this form is to document and streamline requests to certify that previous modeling satisfies all or some of the current modeling requirements. The criteria for requesting and approving modeling waivers are found in the Air Quality Bureau Modeling Guidelines. Typically, only construction permit applications submitted per 20.2.72, 20.2.74, or 20.2.79 NMAC require air dispersion modeling. However, modeling is sometimes also required for a Title V permit application.

A waiver may be requested by e-mailing this completed form in **MS Word** format to the modeling manager, sufi.mustafa@env.nm.gov.

This modeling waiver is not valid if the emission rates in the application are higher than those listed in the approved waiver request.

Section 1 and Table 1: Contact and facility information:

Contact name	Alan Linden
E-mail Address:	alan.linden@summit-gold.com
Phone	(575) 313-3273
Facility Name	Summit Mine
Air Quality Permit Number(s)	3807M2
Agency Interest Number (if known)	27659
Latitude and longitude of facility (decimal degrees)	32.873577; -108.969151

General Comments: (Add introductory remarks or comments here, including the purpose of and type of permit application.)

Summit Gold Corporation is planning on reopening Summit Mine which previously obtained from the New Mexico Environment Department – Air Quality Bureau (NMED AQB) a minor new source review (NSR) construction permit to operate the underground mine. The permit number is 3807M2. The permit was to allow operation of two generators, Unit 1 and Units 3a or 3b, and a compressor, Unit 2, along with material handling operations. Each of the generators and compressor were powered by a diesel-fired CI engine. The mine was shut down and the permitted engines were removed. To restart the mine, Summit Gold Corporation has purchased three generators powered by CAT C13 engines and an Atlas Copco Compressor. Each of these engines are Tier 4f certified.

The table below summarizes a comparison between the presently permitted engines and the proposed replacement engines. Both replacements for Units 1 and 2 are larger than the permitted engine but based on the “Short Term Engine Replacement Excel Spreadsheet” (4/25/11), the spreadsheet calculation shows using the exhaust parameters for the modeled permitted engine with permitted emission rates and the replacement engines manufacturer’s exhaust parameters with calculated emission rates, the replacement engines will provide exhaust dispersion equivalent or better than the present permitted engines. For Unit 3a or 3b, the replacement engines are rated smaller, but Summit Gold

would like to be allowed to operate both replacement engines 3a and 3b simultaneously in contradiction with Permit 3807M2 Condition A802B. The combined emission rates for replacement engines Units 3a and 3b are less than either of the individual permitted Units 3a or 3b. Using the “Short Term Engine Replacement Excel Spreadsheet”, the spreadsheet calculation shows based on the permit modeled exhaust parameters and permitted emission rates for either Units 3a or 3b and the manufacturer’s exhaust parameter and combined calculated emission rates for replacement Units 3a and 3b, the replacement engines will provide exhaust dispersion equivalent or better than the present permitted engine. The output from each of the short term engine replacement spreadsheet is located at the end of this memo along with the manufacturer’s performance data for the replacement CAT C13 (Units 1, 3a, and 3b) and CAT C9.3.

Permit Unit	Engine Parameter	Permitted	Proposed	Replacement
1a	Engine Power (BHP)	480	577	1
	Engine Power (kW)	275	430	
	NOx (lbs/hr)	4.13	0.27	
	CO (lbs/hr)	0.27	0.019	
	SO2 (lbs/hr)	0.16	0.0059	
	VOC (lbs/hr)	0.10	0.047	
	PM (lbs/hr)	0.075	0.019	
	Stack Height (ft)	6.0	10.5	
	Stack Velocity (ft/s)	209.02	213.42	
	Stack Dia (in)	6.0	5.0	
	Exhaust Temp (F)	930.00	998.80	
2a	Engine Power (BHP)	130	350	2
	Engine Power (kW)	97	262	
	NOx (lbs/hr)	1.11	0.31	
	CO (lbs/hr)	0.12	0.077	
	SO2 (lbs/hr)	0.043	0.0038	
	VOC (lbs/hr)	1.10	0.023	
	PM (lbs/hr)	0.087	0.0077	
	Stack Height (ft)	6.0	10.5	
	Stack Velocity (ft/s)	129.80	228.82	
	Stack Dia (in)	4.0	4.0	
	Exhaust Temp (F)	930.00	803.10	
3c and 3d each	Engine Power (BHP)	831/924	577	3a or 3b
	Engine Power (kW)	620/689	430	
	NOx (lbs/hr)	10.21	0.27	
	CO (lbs/hr)	1.40	0.019	
	SO2 (lbs/hr)	0.28	0.0059	
	VOC (lbs/hr)	0.040	0.047	
	PM (lbs/hr)	0.12	0.019	
	Stack Height (ft)	12.0	10.5	
	Stack Velocity (ft/s)	566.20	213.42	
	Stack Dia (in)	9.0	5.0	
	Exhaust Temp (F)	1277.00	998.80	

Summit Gold Corporation will be submitting a significant permit revision for NSR Permit #3807M2 for replacement of all engines discussed above. At the end of this form is attached the “Short Term Engine Replacement Excel Spreadsheet” (4/25/11) and engine specification sheets that shows for replacement engines Units 1a and 2a which replace Permit 3807M2 Units 1 and 2, and both replacement engines Units 3c and 3d which will replace either one of Permit 3807M2 Units 3a or 3b, will dispersion equivalent or better than the present permitted engines.

Section 2 – List All Regulated Pollutants from the Entire Facility - Required

In Table 2, below, list all regulated air pollutants emitted from your facility, except for New Mexico Toxic Air Pollutants, which are listed in Table 6 of this form. All pollutants emitted from the facility must be listed whether or not a modeling waiver is requested for that pollutant or if the pollutant emission rate is subject to the proposed permit changes.

Table 2: Air Pollutant summary table (Check all that apply. Include all pollutants emitted by the facility):

Pollutant	Pollutant is not emitted at the facility and modeling or waiver are not required.	Pollutant does not increase in emission rate at any emission unit (based on levels currently in the permit) and stack parameters are unchanged. Modeling or waiver are not required.	Stack parameters or stack location has changed.	Pollutant is new to the permit, but already emitted at the facility.	Pollutant is increased at any emission unit (based on levels currently in the permit).	A modeling waiver is being requested for this pollutant.	Modeling for this pollutant will be included in the permit application.
CO			X			X	
NO ₂			X			X	
SO ₂			X			X	
PM10			X			X	
PM2.5			X			X	
H ₂ S	X						
Reduced S	X						
O ₃ (PSD only)	X						
Pb						X	

Section 3: Pollutants, other than NMTAPs, with very small emission rates

The Air Quality Bureau has performed generic modeling to demonstrate that small sources, as listed in Appendix 2 of this form, do not need computer modeling. This modeling compared emissions from a project (the increase in emissions from the previous permit or total facility emissions for a new facility) with significance levels. After comparing the project’s emission rates for various pollutants to Appendix 2, list in Table 3 the pollutants that do not need to be modeled because of very small emission rates.

The facility must be at least 2 km from the nearest Class I area to qualify for a waiver due to very small emission rates. List the nearest Class I area and the distance from the facility in Section 3 comments.

Section 3 Comments. (If you are not requesting a waiver for any pollutants based on their low emission rate, then note that here. You do not need to complete the rest of Section 3 or Table 3.)

[<Add comments here>](#)

Table 3: List of Pollutants with very small emission rates from the project

Pollutant	Requested Allowable Emission Rate for Project	Release Type (select “all from stacks >20 m”	Waiver Threshold (from appendix 2)
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	(pounds/hour)	or "other"	(lb/hr)

Section 4: Pollutants that have previously been modeled at equal or higher emission rates

List the pollutants and averaging periods in Table 4 for which you are requesting a modeling waiver based on previous modeling for this facility. The previous modeling reports that apply to the pollutant must be submitted with the modeling waiver request. Request previous modeling reports from the Modeling Section of the Air Quality Bureau if you do not have them and believe they exist in the AQB modeling file archive.

Section 4 Comments. (If you are not asking for a waiver based on previously modeled pollutants, note that here. You do not need to complete the rest of section 4 or table 4.)

The bureau’s “Short Term Engine Replacement Excel Spreadsheet” (4/25/11) was used to determine if the new replacement engines would be equivalent or better in dispersing emission then the old engines. In every case the answer was yes. The “Short Term Engine Replacement Excel Spreadsheet” (4/25/11) spreadsheets are attached with this form along with the engine manufacturer specifications.

Table 4: List of previously modeled pollutants (facility-wide emission rates)

Pollutant	Averaging period	Proposed emission rate (pounds/hour)	Previously modeled emission rate (pounds/hour)	Proposed minus modeled emissions (lb/hr)	Modeled percent of standard or increment	Year modeled
NO2	24 Hr	1.11	15.44	14.33	40.7	2011
NO2	Annual	1.11	15.44	14.33	12.8	2011
CO	1 Hr	0.13	1.78	1.65	0.8	2011
CO	8 Hr	0.13	1.78	1.65	2.8	2011
SO2	24 Hr	0.021	0.485	0.46	1.2	2011
SO2	3 Hr	0.021	0.485	0.46	0.3	2011
SO2	Annual	0.021	0.485	0.46	0.2	2011
PM (TSP)	24 Hr		2.31			2011
PM (TSP)	Annual		2.31			2011
PM10	24 Hr	0.83	0.916	0.086	32.5	2011
PM2.5	24 Hr	0.15	0.392	0.242	26.5	2011
PM2.5	Annual	0.15	0.392	0.242	52.4	2011

Section 4, Table 5: Questions about previous modeling:

Question	Yes	No
Was AERMOD used to model the facility?	X	
Did previous modeling predict concentrations less than 95% of each air quality standard and PSD increment?		X

Were all averaging periods modeled that apply to the pollutants listed above?		X
Were all applicable startup/shutdown/maintenance scenarios modeled?		X
Did modeling include all sources within 1000 meters of the facility fence line that now exist?	X	
Did modeling include background concentrations at least as high as current background concentrations?		X
If a source is changing or being replaced, is the following equation true for all pollutants for which the waiver is requested? (Attach calculations if applicable.)	X	
<u>EXISTING SOURCE</u> $\frac{[(g) \times (h1)] + [(v1)^2/2] + [(c) \times (T1)]}{q1}$ <u>REPLACEMENT SOURCE</u> $\frac{[(g) \times (h2)] + [(v2)^2/2] + [(c) \times (T2)]}{q2}$ Where g = gravitational constant = 32.2 ft/sec² h1 = existing stack height, feet v1 = exhaust velocity, existing source, feet per second c = specific heat of exhaust, 0.28 BTU/lb-degree F T1 = absolute temperature of exhaust, existing source = degree F + 460 q1 = emission rate, existing source, lbs/hour h2 = replacement stack height, feet v2 = exhaust velocity, replacement source, feet per second T2 = absolute temperature of exhaust, replacement source = degree F + 460 q2 = emission rate, replacement source, lbs/hour		

If you checked "no" for any of the questions, provide an explanation for why you think the previous modeling may still be used to demonstrate compliance with current ambient air quality standards.

Did previous modeling predict concentrations less than 95% of each air quality standard and PSD increment?
For the NAAQS all previous modeling showed the facility concentrations less than the NAAQS. For the PSD Increment, PM10 was 95.6% of the increment, but the decrease in PM10 emissions from the proposed facility is 10%.

Were all averaging periods modeled that apply to the pollutants listed above?

For both NO2 and SO2 the modeling did not include the 1 hour standard. From the mine only, the modeled concentrations predicted NO2 - 62.88 ug/m3 (24 hr average including neighboring sources) and SO2 - 10.31 ug/m3 (3 Hr average including neighboring sources). The reduction in the hourly emission rate for NO2 is 93% and the reduction in the hour emission rate for SO2 is 96%. Using these percentages, the reduced concentrations from the new engines would be 4.4 ug/m3 for NO2 (24 Hr average) and 0.41 ug/m3 for SO2 (3 Hr average). The AERSCREEN adjustment factor from a 1 hour average to a 24 hour average is 0.40. The AERSCREEN adjustment factor from a 1 hour average to a 3 hour average is 0.90. Using these adjustment factors the 1 hour NO2 would be 11 ug.m3 and for SO2 it would be 0.46 ug/m3.

Were all applicable startup/shutdown/maintenance scenarios modeled?

There are no startup/shutdown/maintenance emission rates.

Did modeling include background concentrations at least as high as current background concentrations?

CO modeling did not rise above the SILs, so no background was modeled. Modeling for NO2 and SO2 used the option for including neighboring sources in the model instead of a background. For PM10 the modeled background for the 24 hour modeling was 20 ug/m3. The nearest monitoring station is Deming, but this monitoring station has a lower elevation and is near a city center. It is not applicable for this site which is at higher elevation away from any other source of PM10 emission. A more applicable monitoring station that is more representative is Shiprock substation which is at a similar elevation and away from any city center. The Summit mine model PM10 concentration is 28.7 ug/m3 with the Shiprock substation background concentration of 66 ug/m3 would give it a total PM10 concentration of 94.7 ug/m3 or 63% of the NAAQS. For PM2.5 the modeled background for the 24 hour and annual modeling was 7.3 ug/m3. The nearest monitoring station is Las Cruces, but this monitoring station has a lower elevation and is near any city center.

There is no applicable monitoring station for this site which is at higher elevation away from any other source of PM_{2.5} emission. A most applicable monitoring station that is more representative is Taos which is at a similar elevation. The Taos PM_{2.5} background is 15.8 ug/m³ for the 24 hour averaging period and 5.7 ug/m³ for the annual averaging period. The Summit mine model PM_{2.5} 24 hour concentration was 1.99 ug/m³ with the Taos background concentration of 15.8 ug/m³ would give it a total PM_{2.5} concentration of 17.8 ug/m³ or 51% of the NAAQS. The Summit mine model PM_{2.5} annual concentration was 0.56 ug/m³ with the Taos background concentration of 5.7 ug/m³ would give it a total PM_{2.5} concentration of 6.3 ug/m³ or 70% of the NAAQS.

Section 5: Modeling waiver using scaled emission rates and scaled concentrations

At times it may be possible to scale the results of modeling one pollutant and apply that to another pollutant. Increases in emissions of one pollutant might also demonstrate compliance by applying a scaling factor to the modeling results. If the analysis for the waiver gets too complicated, then it becomes a modeling review rather than a modeling waiver, and applicable modeling fees will be charged for the modeling. Plume depletion, ozone chemical reaction modeling, post-processing, and unequal pollutant ratios from different sources are likely to invalidate scaling.

If you are not scaling previous results, note that here. You do not need to complete the rest of section 5. Scaling analyses are not intended to be used for previously modeled pollutants with decreasing emissions, which is already addressed in section 4.

To demonstrate compliance with standards for a pollutant describe scenarios below that you wish the modeling section to consider for scaling results.

For both NO₂ and SO₂ the modeling did not include the 1 hour standard. From the mine only, the modeled concentrations predicted NO₂ - 62.88 ug/m³ (24 hr average including neighboring sources) and SO₂ - 10.31 ug/m³ (3 Hr average including neighboring sources). The reduction in the hourly emission rate for NO₂ is 93% and the reduction in the hour emission rate for SO₂ is 96%. Using these percentages, the reduced concentrations from the new engines would be 4.4 ug/m³ for NO₂ (24 Hr average) and 0.41 ug/m³ for SO₂ (3 Hr average). The AERSCREEN adjustment factor from a 1 hour average to a 24 hour average is 0.40. The AERSCREEN adjustment factor from a 1 hour average to a 3 hour average is 0.90. Using these adjustment factors the 1 hour NO₂ would be 11 ug/m³ or 6% of the NAAQS and for SO₂ it would be 0.46 ug/m³ or < 1% of the NAAQS.

For PM₁₀ the modeled background for the 24 hour modeling was 20 ug/m³. The nearest monitoring station is Deming, but this monitoring station has a lower elevation and is near a city center. It is not applicable for this site which is at higher elevation away from any other source of PM₁₀ emission. A more applicable monitoring station that is more representative is Shiprock substation which is at a similar elevation and away from any city center. The Summit mine model PM₁₀ concentration is 28.7 ug/m³ with the Shiprock substation background concentration of 66 ug/m³ would give it a total PM₁₀ concentration of 94.7 ug/m³ or 63% of the NAAQS.

For PM_{2.5} the modeled background for the 24 hour and annual modeling was 7.3 ug/m³. The nearest monitoring station is Las Cruces, but this monitoring station has a lower elevation and is near any city center. There is no applicable monitoring station for this site which is at higher elevation away from any other source of PM_{2.5} emission. A most applicable monitoring station that is more representative is Taos which is at a similar elevation. The Taos PM_{2.5} background is 15.8 ug/m³ for the 24 hour averaging period and 5.7 ug/m³ for the annual averaging period. The Summit mine model PM_{2.5} 24 hour concentration was 1.99 ug/m³ with the Taos background concentration of 15.8 ug/m³ would give it a total PM_{2.5} concentration of 17.8 ug/m³ or 51% of the NAAQS. The Summit mine model PM_{2.5} annual concentration was 0.56 ug/m³ with the Taos background concentration of 5.7 ug/m³ would give it a total PM_{2.5} concentration of 6.3 ug/m³ or 70% of the NAAQS.

Section 6: New Mexico Toxic air pollutants – 20.2.72.400 NMAC

Modeling must be provided for any New Mexico Toxic Air Pollutant (NMTAP) with a facility-wide controlled emission rate in excess of the pound per hour emission levels specified in Tables A and B at **20.2.72.502 NMAC - Toxic Air Pollutants and Emissions**. An applicant may use a stack height correction factor based on the release height of the stack for the purpose of determining whether modeling is required. See Table C - Stack Height Correction Factor at 20.2.72.502 NMAC. Divide the emission rate for each release point of a NMTAP by the correction factor for that release height and add the total values together to determine the total adjusted pound per hour emission rate for that NMTAP. If the total adjusted pound per hour emission rate is lower than the emission rate screening level found in Tables A and B, then modeling is not required.

In Table 6, below, list the total facility-wide emission rates for each New Mexico Toxic Air Pollutant emitted by the facility. The table is pre-populated with common examples. Extra rows may be added for NMTAPS not listed or for NMTAPS emitted from multiple stack heights. NMTAPS not emitted at the facility may be deleted, left blank, or noted as 0 emission rate. Toxics previously modeled may be addressed in Section 5 of this waiver form. For convenience, we have listed the stack height correction factors in Appendix 1 of this form.

Section 6 Comments. (If you are not requesting a waiver for any NMTAPS then note that here. You do not need to complete the rest of section 6 or Table 6.)

No significant toxic emissions

Table 6: New Mexico Toxic Air Pollutants emitted at the facility

If requesting a waiver for any NMTAP, all NMTAPS from this facility must be listed in Table 3 regardless of if a modeling waiver is requested for that pollutant or if the pollutant emission rate is subject to the proposed permit changes.

Pollutant	Requested Allowable Emission Rate (pounds/hour)	Release Height (Meters)	Correction Factor	Allowable Emission Rate Divided by Correction Factor	Emission Rate Screening Level (pounds/hour)
Ammonia					1.20
Asphalt (petroleum) fumes					0.333
Carbon black					0.233
Chromium metal					0.0333
Glutaraldehyde					0.0467
Nickel Metal					0.0667
Wood dust (certain hard woods as beech & oak)					0.0667
Wood dust (soft wood)					0.333
(add additional toxics if they are present)					

Section 7: Approval or Disapproval of Modeling Waiver

The AQB air dispersion modeler should list each pollutant for which the modeling waiver is approved, the reasons why, and any other relevant information. If not approved, this area may be used to document that decision.

<Add comments here>

The waiver is issued for CO, NO₂, SO₂, PM₁₀, PM_{2.5} and Pb.

The maximum concentrations will be at least as good as previously modeled because 1) diesel-fired engines will be replaced with EPA certified tier 4f engines resulting in a significant drop in combustion sources, 2) fugitive dust emissions will remain unchanged since production rates will not change with permit revision.

Appendix 1: Stack Height Release Correction Factor (adapted from 20.2.72.502 NMAC)

Release Height in Meters	Correction Factor
0 to 9.9	1
10 to 19.9	5
20 to 29.9	19
30 to 39.9	41
40 to 49.9	71
50 to 59.9	108
60 to 69.9	152
70 to 79.9	202
80 to 89.9	255
90 to 99.9	317
100 to 109.9	378
110 to 119.9	451
120 to 129.9	533
130 to 139.9	617
140 to 149.9	690
150 to 159.9	781
160 to 169.9	837
170 to 179.9	902
180 to 189.9	1002
190 to 199.9	1066
200 or greater	1161

Appendix 2. Very small emission rate modeling waiver requirements (updated 3/4/2024 to correct feet to meters)

Modeling is waived if emissions of a pollutant for the project are below the amount:

Pollutant	If all emissions come from stacks 20 meters or greater in height and there are no horizontal stacks or raincaps (lb/hr)	If not all emissions come from stacks 20 meters or greater in height, or there are horizontal stacks, raincaps, volume, or area sources (lb/hr)
CO	16.037	2.580
H ₂ S (Pecos-Permian Basin)	0.114	0.015
H ₂ S (Not in Pecos-Permian Basin)	0.022	0.003
Lead	0.005	0.001
NO ₂	0.189	0.024
PM _{2.5} – Point Sources	0.056	0.009
PM _{2.5} – Volume Sources		0.003
PM ₁₀ – Point Sources	0.255	0.039
PM ₁₀ – Volume Sources		0.015
SO ₂	0.179	0.023
Reduced sulfur (Pecos-Permian Basin)	0.033	No waiver
Reduced sulfur (Not in Pecos-Permian Basin)	No waiver	No waiver

Engine Replacement Form
Plume Dispersion Energy Comparison

Date: 4/10/2026 Company Name: Summit Gold Corporation Facility Name: Summit Mine Unit No. 1a Unit Make & Model: CAT XQ300AG to CAT C13	OK																																					
Version: 4/25/11 Enter data only in the yellow fields.																																						
Note: This spreadsheet is only to be used for permits that have a general condition titled 'Short Term Engine Replacement', to verify whether or not the replacement engine qualifies as a "replacement engine" under this General Condition. Enter any facility notes here:																																						
Enter Plume Energy Equation Variables Here																																						
	Engine																																					
	Existing Replacement																																					
Stack Height (f)	6 10.5																																					
Velocity (fps)	209.2 213.42																																					
Exhaust Temp (°F)	930 998.8																																					
Allowable/potential NOx Emission Rate (lb/hr)	4.13 0.27																																					
Allowable/potential CO Emission Rate (lb/hr)	0.27 0.019																																					
Calculated NOx Plume Energy	5439.39952 87113.3785																																					
Calculated CO Plume Energy	83202.6667 1237926.96																																					
	5439.3995157385 < 87113.3785185185 and																																					
The replacement engine's stack height and flow parameters shall be at least as effective in the dispersion of air pollutants as the modeled stack height and flow parameters for the existing permitted engine. The following equation may be used to show that the replacement engine disperses pollutants as well as the existing engine. The value calculated for the replacement engine on the right side of the equation shall be equal to or greater than the value for the existing engine on the left side of the equation.																																						
Equation used to determine 'existing' and 'replacement' plume energy (do not enter data here):																																						
Plume Energy, Existing Engine 1	Must be <=	Plume Energy, Replacement Engine 2																																				
$[(g) \times (h_1) + (v_1)^2/2 + (c) \times (T_1)]/(q_1)$	Must be <=	$[(g) \times (h_2) + (v_2)^2/2 + (c) \times (T_2)]/(q_2)$																																				
385 = (32.2 x 6 + 209.2^2/2 + 0.28 x 1390)/4.13	is <= for NOx	(32.2 x 10.5 + 213.42^2/2 + 0.28 x 1458.8)/0.27 =																																				
667 = (32.2 x 6 + 209.2^2/2 + 0.28 x 1390)/0.27	is <= for CO	(32.2 x 10.5 + 213.42^2/2 + 0.28 x 1458.8)/0.019 =																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">g - gravitational constant</td> <td style="width:10%; text-align: center;">32.2</td> <td style="width:20%;">ft/sec²</td> </tr> <tr> <td>c - specific heat of exhaust</td> <td style="text-align: center;">0.28</td> <td>Btu/lb-°F</td> </tr> <tr> <td>h₁ - existing stack height, feet</td> <td style="text-align: center;">6</td> <td>feet</td> </tr> <tr> <td>v₁ - exhaust velocity, existing engine, feet per second</td> <td style="text-align: center;">209.2</td> <td>ft/sec</td> </tr> <tr> <td>T₁ - absolute temperature of exhaust, existing engine (K) = degree F + 460</td> <td style="text-align: center;">1390</td> <td>Rankine</td> </tr> <tr> <td>q_{1NOx} - permitted allowable emission rate, existing engine, lbs/hour</td> <td style="text-align: center;">4.13</td> <td>lb/hr</td> </tr> <tr> <td>q_{1CO} - permitted allowable emission rate, existing engine, lbs/hour</td> <td style="text-align: center;">0.27</td> <td>lb/hr</td> </tr> <tr> <td>h₂ - replacement stack height, feet</td> <td style="text-align: center;">10.5</td> <td>feet</td> </tr> <tr> <td>v₂ - exhaust velocity, replacement engine, feet per second</td> <td style="text-align: center;">213.42</td> <td>ft/sec</td> </tr> <tr> <td>T₂ - absolute temperature of exhaust, replacement engine (K) = degree F + 460</td> <td style="text-align: center;">1458.8</td> <td>Rankine</td> </tr> <tr> <td>q_{2NOx} - manufacturer's potential emission rate, replacement engine, lbs/hour</td> <td style="text-align: center;">0.27</td> <td>lb/hr</td> </tr> <tr> <td>q_{2CO} - manufacturer's potential emission rate, replacement engine, lbs/hour</td> <td style="text-align: center;">0.019</td> <td>lb/hr</td> </tr> </table>			g - gravitational constant	32.2	ft/sec ²	c - specific heat of exhaust	0.28	Btu/lb-°F	h ₁ - existing stack height, feet	6	feet	v ₁ - exhaust velocity, existing engine, feet per second	209.2	ft/sec	T ₁ - absolute temperature of exhaust, existing engine (K) = degree F + 460	1390	Rankine	q _{1NOx} - permitted allowable emission rate, existing engine, lbs/hour	4.13	lb/hr	q _{1CO} - permitted allowable emission rate, existing engine, lbs/hour	0.27	lb/hr	h ₂ - replacement stack height, feet	10.5	feet	v ₂ - exhaust velocity, replacement engine, feet per second	213.42	ft/sec	T ₂ - absolute temperature of exhaust, replacement engine (K) = degree F + 460	1458.8	Rankine	q _{2NOx} - manufacturer's potential emission rate, replacement engine, lbs/hour	0.27	lb/hr	q _{2CO} - manufacturer's potential emission rate, replacement engine, lbs/hour	0.019	lb/hr
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Unit 1a

Eng Certification Status [NF300158]

March 03,2026

(NF300158)-Engine (CBC147135A)-CEM (BGK01739)-
Generator (X8H00109)-Genset (PET048997M)-PETU

For Help Desk Phone Numbers [Click here](#)

[Emissions Certificates Search](#)

[Print](#)



Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request portal
[Click here](#) to be directed to ERC's new customer request portal. ***Notice this portal is not CWS
authenticated, a one time sign up for JIRA will be required.***

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an
emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	NF300158
Generator Number	CBC14713
Genset Number	X8H00109
Sales Model	C13
Regulatory Build Date	13-APR-2018

As Shipped Data

Engine Arrangement Number	5194400
Certification Arrangement	
Test Spec Number	4150523
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2018
EPA Family Code	JCPXL12.5HTF
EPA Emissions Level	EPA TIER 4f
As-Shipped Flash File	5175573
CORR FL Power at RPM	577 HP (430.0 KW)1800 RPM
Advertised Power	518 HP 1,800RPM
Total Displacement	12.5 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the
best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or
validity of the information and is not liable for any errors or omissions contained therein. All information
provided should be independently verified and confirmed, including by examining the emissions label
located on the engine.

[Need emission replacement label? Click here!](#)

Perf No: EM0676

Change Level: 03

[General](#)[Heat Rejection](#)[Emissions](#)[Regulatory](#)[Altitude Derate](#)[Cross Reference](#)[Perf Param Ref](#)[View PDF](#)

SALES MODEL:	C13	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	518	FAN POWER (HP):	34.9
GEN POWER WITH FAN (EKW):	340.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	PRIME	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB4594 T256C .84 A/R 70/30
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,854.3
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (IN):	5		
MAX OPERATING ALTITUDE (FT):	3,999		

INDUSTRY
ELECTRIC POWERSubIndustry
STANDARDAPPLICATION
PACKAGED GENSETGeneral Performance Data [Top](#)

Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
374.0	110	563	325	0.352	0.349	28.0	27.7	0.530	0.525
340.0	100	515	297	0.346	0.343	25.2	24.9	0.525	0.520
306.0	90	466	269	0.344	0.341	22.6	22.4	0.524	0.519
272.0	80	418	241	0.344	0.340	20.2	20.0	0.528	0.523
255.0	75	394	227	0.344	0.341	19.1	18.9	0.531	0.526
238.0	70	370	213	0.345	0.341	18.0	17.8	0.535	0.530
204.0	60	322	186	0.347	0.344	15.8	15.6	0.548	0.543
170.0	50	275	158	0.352	0.349	13.6	13.5	0.570	0.564
136.0	40	228	132	0.361	0.357	11.6	11.5	0.605	0.600
102.0	30	182	105	0.375	0.372	9.6	9.5	0.668	0.662
85.0	25	158	91	0.387	0.383	8.6	8.5	0.720	0.713
68.0	20	134	77	0.404	0.400	7.6	7.6	0.797	0.789
34.0	10	85.3	49	0.470	0.466	5.7	5.6	1.181	1.169
GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
374.0	110	563	67.8	122.5	1,299.0	78.6	998.8	71	405.5
340.0	100	515	62.4	122.4	1,221.1	70.2	942.2	65	377.9
306.0	90	466	56.5	122.3	1,164.2	62.1	904.3	59	352.9
272.0	80	418	50.3	122.2	1,113.5	54.5	872.7	52	328.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
255.0	75	394	47.1	122.2	1,090.7	50.8	859.2	49	315.8
238.0	70	370	43.9	122.2	1,068.2	47.2	846.2	46	302.7
204.0	60	322	37.5	122.2	1,022.6	40.5	819.7	39	276.9
170.0	50	275	31.3	120.8	972.2	34.2	789.7	33	251.1
136.0	40	228	25.6	113.2	912.2	28.6	751.5	27	225.8
102.0	30	182	20.3	105.4	840.6	24.1	702.6	21	200.3
85.0	25	158	17.8	102.1	800.1	22.3	674.0	19	187.5
68.0	20	134	15.6	99.6	753.3	21.0	637.8	17	176.2
34.0	10	85.3	13.0	98.0	630.4	22.0	527.3	14	164.1

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE WET EXH VOL FLOW RATE	OUTLET WET INLET GAS FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM		LB/HR	LB/HR	FT3/MIN	FT3/MIN
374.0	110	563	871.2	1,746.3		3,788.5	3,986.8	588.7	523.4
340.0	100	515	826.5	1,638.0		3,573.7	3,752.3	574.5	513.3
306.0	90	466	776.5	1,537.5		3,338.5	3,498.7	554.2	497.1
272.0	80	418	722.2	1,438.0		3,088.0	3,231.4	530.7	477.3
255.0	75	394	692.2	1,382.9		2,952.1	3,087.3	515.5	464.2
238.0	70	370	661.6	1,326.4		2,814.0	2,941.3	499.4	450.1
204.0	60	322	600.6	1,211.7		2,541.5	2,653.3	465.7	420.6
170.0	50	275	542.7	1,097.6		2,285.2	2,382.0	431.9	391.3
136.0	40	228	493.0	989.2		2,066.9	2,149.2	401.6	365.6
102.0	30	182	451.7	881.4		1,889.6	1,957.7	372.8	341.9
85.0	25	158	434.1	827.3		1,816.0	1,877.1	358.8	330.5
68.0	20	134	423.8	779.4		1,772.9	1,827.1	349.2	323.4
34.0	10	85.3	442.0	724.0		1,850.2	1,890.4	360.6	339.5

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTER COOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
374.0	110	563	13,383	2,729	19,984	11,217	2,937	4,294	23,891	60,808	64,776
340.0	100	515	12,526	2,516	17,308	9,576	2,753	3,653	21,853	54,736	58,308
306.0	90	466	11,683	2,364	15,079	8,320	2,586	3,095	19,769	49,180	52,389
272.0	80	418	10,776	2,213	13,375	7,219	2,397	2,576	17,714	43,998	46,869
255.0	75	394	10,235	2,102	12,764	6,708	2,266	2,322	16,696	41,501	44,209
238.0	70	370	9,668	1,983	12,161	6,217	2,125	2,075	15,677	39,042	41,590
204.0	60	322	8,499	1,733	10,988	5,293	1,831	1,612	13,659	34,278	36,515
170.0	50	275	7,356	1,491	9,846	4,433	1,550	1,190	11,655	29,682	31,619
136.0	40	228	6,353	1,290	8,741	3,632	1,330	848	9,684	25,243	26,891
102.0	30	182	5,354	1,093	7,682	2,885	1,118	570	7,704	20,901	22,264
85.0	25	158	4,847	992	7,167	2,531	1,013	455	6,704	18,751	19,974
68.0	20	134	4,323	886	6,706	2,175	903	360	5,692	16,604	17,688
34.0	10	85.3	3,218	660	6,108	1,363	672	246	3,619	12,306	13,109

Emissions Data [Top](#)

Units Filter All Units ▼

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER	BHP	563	515	394	275	158	85.3
PERCENT LOAD	%	110	100	75	50	25	10
NON-ETHANE HC	(CORR 15% O2) PPM	4.737572	3.6651466	2.7610962	2.2077477	1.9159158	3.73961
TOTAL NOX (AS NO2)	G/HR	31	42	57	13	5	24
TOTAL CO	G/HR	4	2	1	1	1	1
TOTAL HC	G/HR	9	6	3	2	2	2
TOTAL CO2	KG/HR	287	258	196	140	89	58
PART MATTER	G/HR	2.8	0.6	0.4	0.3	0.3	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	24.8	37.7	64.2	22.3	15.3	109.9
TOTAL CO	(CORR 5% O2) MG/NM3	3.4	2.2	1.6	1.0	1.7	2.7

GENSET POWER WITH FAN		EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER		BHP	563	515	394	275	158	85.3
PERCENT LOAD		%	110	100	75	50	25	10
TOTAL HC	(CORR 5% O2)	MG/NM3	6.1	4.4	3.2	2.8	3.6	8.5
PART MATTER	(CORR 5% O2)	MG/NM3	1.8	0.5	0.3	0.4	0.6	0.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	9.2	14.0	23.8	8.3	5.7	40.8
TOTAL CO	(CORR 15% O2)	MG/NM3	1.2	0.8	0.6	0.4	0.6	1.0
TOTAL HC	(CORR 15% O2)	MG/NM3	2.3	1.6	1.2	1.0	1.3	3.2
PART MATTER	(CORR 15% O2)	MG/NM3	0.6	0.2	0.1	0.2	0.2	0.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	12	18	31	11	7	54
TOTAL CO	(CORR 5% O2)	PPM	3	2	1	1	1	2
TOTAL HC	(CORR 5% O2)	PPM	11	8	6	5	7	16
ACROLEIN	(CORR 5% O2)	PPM	0.02	0.00	0.03	0.34	1.08	0.48
ACETALDEHYDE	(CORR 5% O2)	PPM	2.63	2.58	2.18	2.50	2.38	4.29
METHANOL	(CORR 5% O2)	PPM	0.07	0.02	0.00	0.00	0.00	0.13
NON-METHANE HC	(CORR 5% O2)	PPM	12.00	8.97	6.68	5.14	4.40	9.05
NON-ETHANE HC	(CORR 5% O2)	PPM	12.77	9.88	7.44	5.95	5.16	10.08
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	4	7	12	4	3	20
TOTAL CO	(CORR 15% O2)	PPM	1	1	0	0	1	1
TOTAL HC	(CORR 15% O2)	PPM	4	3	2	2	3	6
TOTAL NOX (AS NO2)		G/HP-HR	0.06	0.08	0.14	0.05	0.03	0.28
TOTAL CO		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.02	0.01	0.01	0.01	0.01	0.03
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		G/KW-HR	0.07	0.11	0.19	0.07	0.04	0.37
TOTAL CO		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL HC		G/KW-HR	0.02	0.02	0.01	0.01	0.01	0.04
PART MATTER		G/KW-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.07	0.09	0.13	0.03	0.01	0.05
TOTAL CO		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.01	0.00	0.00	0.01
TOTAL CO2		LB/HR	632	569	432	310	196	129
PART MATTER		LB/HR	0.01	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	5.1	5.8	7.1	8.1	10.9	14.2

Regulatory Information [Top](#)

EPA TIER 4 FINAL

2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)

ALTITUDE (FT)

	50	60	70	80	90	100	110	120	130	140	NORMAL
0	518	518	518	518	516	513	513	513	495	468	518
1,000	518	518	518	517	513	512	511	504	482	455	518
2,000	518	518	516	513	512	510	506	485	460	431	516
3,000	517	515	513	510	508	506	488	461	436	409	513
4,000	513	511	509	505	499	485	461	438	414	390	510
5,000	508	507	500	492	481	460	438	417	395	371	507
6,000	502	497	487	476	460	439	420	404	386	365	500
7,000	489	478	467	453	438	424	410	395	381	364	484
8,000	468	460	448	433	422	410	395	383	369	355	468
9,000	449	439	428	416	403	390	378	368	357	346	449
10,000	428	418	407	396	383	374	365	355	346	336	431
11,000	409	400	390	380	370	361	352	344	335	325	415
12,000	391	382	372	362	352	343	333	325	318	312	401
13,000	375	365	355	345	335	327	321	313	307	301	386
14,000	363	354	344	333	326	320	313	306	300	293	375

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL12.5HTF	12.5	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.05	0.26	--	0.02	0.01	--	--	--

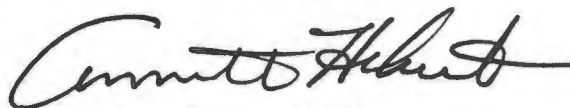
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT 1 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesel only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL12.5HTF	Cert Test 1	C13	519@2100	263	186	1752@1400	338	159	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	Cert Test 2	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	01	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	02	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	03	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	04	C13	375@2000	196.9	132.5	1575@1300	302.3	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	05	C13	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	06	C13	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	07	C13	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	08	C13	473@2100	239.1	168.9	1601@1400	308.6	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	09	C13	519@2100	262.7	185.6	1752@1400	338.2	159.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	10	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	11	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	11a	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	12	C13	416@2100	216.4	152.9	1612@1200	310.3	125.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	13	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	14	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	15	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	16	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX
JCPXL12.5HTF	17	C13	363@2000	190.1	127.9	1351@1000	268.4	90.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U/AMOX

ATTACHMENT 2 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193
JCPXL12.5HTF	18	C13	307@1850	174.5	108.5	1194@1200	233.8	94.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	19	2206	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	20	2206	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	21	2206	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	22	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	23	C13	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	24	2206	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	25	2206	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	26	2206	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	27	C13	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	28	C13	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	29	C13	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	30	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	31	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	32*	C13	425@1800	245.2	148.4	1609@1200	312.7	128.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	33*	2206	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	34*	2206	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

* New engine code

Engine Replacement Form
Plume Dispersion Energy Comparison

Date: 4/10/2026 Company Name: Summit Gold Corporation Facility Name: Summit Mine Unit No. 2a Unit Make & Model: Sullair DPQ375HAF to Atlas XA1150-CD8-T4F	OK																																					
Version: 4/25/11 Enter data only in the yellow fields.																																						
Note: This spreadsheet is only to be used for permits that have a general condition titled 'Short Term Engine Replacement', to verify whether or not the replacement engine qualifies as a "replacement engine" under this General Condition. Enter any facility notes here:																																						
Enter Plume Energy Equation Variables Here																																						
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th align="center" colspan="2">Engine</th></tr> <tr> <th align="center">Existing</th><th align="center">Replacement</th></tr> </table>	Engine		Existing	Replacement																																	
Engine																																						
Existing	Replacement																																					
Stack Height (f)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">6</td> <td align="center">10.5</td> </tr> </table>	6	10.5																																			
6	10.5																																					
Velocity (fps)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">129.8</td> <td align="center">228.82</td> </tr> </table>	129.8	228.82																																			
129.8	228.82																																					
Exhaust Temp (°F)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">930</td> <td align="center">803.1</td> </tr> </table>	930	803.1																																			
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Allowable/potential NOx Emission Rate (lb/hr)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">1.11</td> <td align="center">0.31</td> </tr> </table>	1.11	0.31																																			
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Allowable/potential CO Emission Rate (lb/hr)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">0.12</td> <td align="center">0.077</td> </tr> </table>	0.12	0.077																																			
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Calculated NOx Plume Energy	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">8113.89189</td> <td align="center">86680.8523</td> <td align="center">8113.89189189189 <</td> </tr> </table>	8113.89189	86680.8523	8113.89189189189 <																																		
8113.89189	86680.8523	8113.89189189189 <																																				
Calculated CO Plume Energy	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td align="center">75053.5</td> <td align="center">348974.86</td> <td align="center">86680.8522580645 and 75053.5 <</td> </tr> </table>	75053.5	348974.86	86680.8522580645 and 75053.5 <																																		
75053.5	348974.86	86680.8522580645 and 75053.5 <																																				
The replacement engine's stack height and flow parameters shall be at least as effective in the dispersion of air pollutants as the modeled stack height and flow parameters for the existing permitted engine. The following equation may be used to show that the replacement engine disperses pollutants as well as the existing engine. The value calculated for the replacement engine on the right side of the equation shall be equal to or greater than the value for the existing engine on the left side of the equation.																																						
Equation used to determine 'existing' and 'replacement' plume energy (do not enter data here):																																						
Plume Energy, Existing Engine 1	Must be <=	Plume Energy, Replacement Engine 2																																				
$[(g) \times (h_1) + (v_1)^2/2 + (c) \times (T_1)]/(q_1)$	Must be <=	$[(g) \times (h_2) + (v_2)^2/2 + (c) \times (T_2)]/(q_2)$																																				
$189 = (32.2 \times 6 + 129.8^2/2 + 0.28 \times 1390)/1.11$	is <= for NOx	$(32.2 \times 10.5 + 228.82^2/2 + 0.28 \times 1263.1)/0.31 =$																																				
$53.5 = (32.2 \times 6 + 129.8^2/2 + 0.28 \times 1390)/0.12$	is <= for CO	$(32.2 \times 10.5 + 228.82^2/2 + 0.28 \times 1263.1)/0.077 =$																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>g - gravitational constant</td> <td align="center">32.2</td> <td>ft/sec²</td> </tr> <tr> <td>c - specific heat of exhaust</td> <td align="center">0.28</td> <td>Btu/lb-°F</td> </tr> <tr> <td>h₁ - existing stack height, feet</td> <td align="center">6</td> <td>feet</td> </tr> <tr> <td>v₁ - exhaust velocity, existing engine, feet per second</td> <td align="center">129.8</td> <td>ft/sec</td> </tr> <tr> <td>T₁ - absolute temperature of exhaust, existing engine (K) = degree F + 460</td> <td align="center">1390</td> <td>Rankine</td> </tr> <tr> <td>q_{1NOx} - permitted allowable emission rate, existing engine, lbs/hour</td> <td align="center">1.11</td> <td>lb/hr</td> </tr> <tr> <td>q_{1CO} - permitted allowable emission rate, existing engine, lbs/hour</td> <td align="center">0.12</td> <td>lb/hr</td> </tr> <tr> <td>h₂ - replacement stack height, feet</td> <td align="center">10.5</td> <td>feet</td> </tr> <tr> <td>v₂ - exhaust velocity, replacement engine, feet per second</td> <td align="center">228.82</td> <td>ft/sec</td> </tr> <tr> <td>T₂ - absolute temperature of exhaust, replacement engine (K) = degree F + 460</td> <td align="center">1263.1</td> <td>Rankine</td> </tr> <tr> <td>q_{2NOx} - manufacturer's potential emission rate, replacement engine, lbs/hour</td> <td align="center">0.31</td> <td>lb/hr</td> </tr> <tr> <td>q_{2CO} - manufacturer's potential emission rate, replacement engine, lbs/hour</td> <td align="center">0.077</td> <td>lb/hr</td> </tr> </table>			g - gravitational constant	32.2	ft/sec ²	c - specific heat of exhaust	0.28	Btu/lb-°F	h ₁ - existing stack height, feet	6	feet	v ₁ - exhaust velocity, existing engine, feet per second	129.8	ft/sec	T ₁ - absolute temperature of exhaust, existing engine (K) = degree F + 460	1390	Rankine	q _{1NOx} - permitted allowable emission rate, existing engine, lbs/hour	1.11	lb/hr	q _{1CO} - permitted allowable emission rate, existing engine, lbs/hour	0.12	lb/hr	h ₂ - replacement stack height, feet	10.5	feet	v ₂ - exhaust velocity, replacement engine, feet per second	228.82	ft/sec	T ₂ - absolute temperature of exhaust, replacement engine (K) = degree F + 460	1263.1	Rankine	q _{2NOx} - manufacturer's potential emission rate, replacement engine, lbs/hour	0.31	lb/hr	q _{2CO} - manufacturer's potential emission rate, replacement engine, lbs/hour	0.077	lb/hr
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Unit 2a

Performance Data [CS902504]

April 06,2026

(CS902504)-Engine (CAB159662A)-CEM (PET078002M)-PETU

For Help Desk Phone Numbers [Click here](#)

Perf No: EM0274

Change Level: 03

[General](#) [Heat Rejection](#) [Sound Emissions](#) [Regulatory](#) [Altitude Derate](#) [Cross Reference](#) [Supplementary Data](#) [Perf Param Ref](#)

[View PDF](#)

SALES MODEL:	C9.3	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	2,200
MACHINE SALES MODEL:		PEAK TORQUE SPEED (RPM):	1,400
ENGINE POWER (BHP):	350	TORQUE RISE (%):	41
PEAK TORQUE (FT-LB):	1,177.9	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	INDUSTRIAL C - INTERMITTENT	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB3782 0.66 A/R
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,150.9
INJECTOR TYPE:	CR		
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	8,901		

INDUSTRY	SubIndustry	APPLICATION
INDUSTRIAL	FORESTRY	INDUSTRIAL
OIL AND GAS	WELL SERVICING	INDUSTRIAL
INDUSTRIAL	MATERIAL HANDLING	INDUSTRIAL
INDUSTRIAL	AGRICULTURE	INDUSTRIAL
INDUSTRIAL	CONSTRUCTION	INDUSTRIAL
INDUSTRIAL	GENERAL INDUSTRIAL	INDUSTRIAL
OIL AND GAS	LAND PRODUCTION	INDUSTRIAL

General Performance Data [Top](#)

Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
2,200	350	836	222	0.364	0.357	18.1	17.7
2,100	350	875	233	0.357	0.350	17.8	17.4
2,000	350	919	245	0.349	0.343	17.4	17.1
1,900	350	968	257	0.341	0.335	17.0	16.6
1,800	350	1,021	272	0.335	0.329	16.7	16.3
1,700	342	1,056	281	0.332	0.326	16.1	15.8
1,600	334	1,096	292	0.329	0.322	15.6	15.3
1,500	325	1,136	302	0.327	0.321	15.1	14.8
1,400	314	1,177	313	0.324	0.317	14.5	14.2

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
1,300	278	1,121	298	0.328	0.322	12.9	12.7
1,200	243	1,062	283	0.326	0.320	11.3	11.1
1,100	211	1,005	268	0.325	0.319	9.8	9.6
1,000	174	916	244	0.326	0.320	8.1	8.0
900	143	837	223	0.334	0.328	6.8	6.7
800	114	748	199	0.340	0.334	5.6	5.5
700	83.1	624	166	0.350	0.343	4.2	4.1
600	57.7	505	134	0.355	0.348	2.9	2.9

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,200	350	61.6	122.0	1,106.0	90.1	803.1	65	375.3
2,100	350	61.5	122.0	1,109.7	86.0	810.8	65	372.5
2,000	350	60.9	122.0	1,117.0	80.2	822.6	64	368.9
1,900	350	60.0	122.0	1,123.3	75.6	832.9	63	364.6
1,800	350	60.0	122.0	1,131.7	73.3	841.1	63	364.5
1,700	342	58.4	122.0	1,140.8	68.7	856.4	61	359.9
1,600	334	57.3	122.0	1,164.2	66.5	883.3	59	358.9
1,500	325	55.0	122.0	1,189.1	59.4	912.1	57	351.9
1,400	314	51.8	122.0	1,227.1	54.8	951.1	53	345.6
1,300	278	46.7	122.0	1,230.5	47.7	967.2	48	328.6
1,200	243	40.1	122.0	1,222.4	39.9	976.9	41	305.8
1,100	211	32.5	122.0	1,208.4	30.8	983.5	33	275.2
1,000	174	27.2	122.0	1,169.4	27.1	967.4	28	253.9
900	143	19.9	122.0	1,160.8	18.7	977.5	20	217.8
800	114	13.7	122.0	1,137.8	12.4	971.6	14	185.8
700	83.1	8.0	122.0	1,036.8	7.4	900.7	8	150.1
600	57.7	4.3	122.0	893.0	4.5	799.6	4	130.0

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,200	350	683.8	1,198.1	2,980.2	3,108.6	466.5	422.4
2,100	350	662.9	1,182.0	2,883.8	3,009.7	457.5	413.7
2,000	350	634.9	1,163.3	2,756.0	2,879.4	446.1	402.5
1,900	350	608.2	1,140.6	2,634.2	2,754.8	433.8	390.6
1,800	350	595.7	1,140.2	2,578.1	2,696.3	431.0	387.9
1,700	342	562.4	1,112.1	2,428.8	2,543.2	415.4	373.0
1,600	334	532.0	1,094.6	2,292.6	2,403.6	400.7	359.0
1,500	325	497.3	1,061.3	2,138.2	2,245.1	380.4	339.7
1,400	314	440.5	1,000.8	1,887.6	1,990.3	348.8	308.8
1,300	278	396.5	938.1	1,695.0	1,786.8	323.3	286.3
1,200	243	347.4	850.3	1,482.1	1,562.2	291.0	258.0
1,100	211	290.9	738.2	1,238.6	1,307.8	251.5	222.2
1,000	174	260.4	659.5	1,107.5	1,165.3	227.2	202.1
900	143	205.9	540.8	875.3	923.8	185.0	163.5
800	114	159.1	423.4	675.6	715.2	145.4	127.8
700	83.1	120.2	308.6	510.5	540.2	111.5	98.1
600	57.7	93.7	222.2	397.2	417.8	86.8	77.1

Heat Rejection Data [Top](#)

ENGINE SPEED	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE	HIGH HEAT VALUE
RPM	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
2,200	350	10,059	1,928	12,196	5,971	2,096	3,143	14,843	39,344	41,911
2,100	350	9,664	1,851	11,967	5,886	1,974	2,961	14,843	38,606	41,125
2,000	350	9,389	1,773	11,646	5,786	1,934	2,821	14,843	37,830	40,298

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
2,000	350	109.2	74.8	71.5	77.4	84.8	83.4	87.8	92.4	92.1	95.1	95.5
1,900	350	109.5	74.3	72.1	77.2	85.7	83.6	87.7	94.9	91.1	94.6	94.9
1,800	350	110.1	72.1	72.6	76.7	83.6	85.0	87.2	93.2	90.8	93.7	94.5
1,700	342	110.0	68.0	73.1	76.2	82.3	83.5	86.2	91.7	90.3	92.5	94.0
1,600	334	110.1	65.0	73.5	75.7	81.5	80.8	85.4	90.9	90.3	92.0	94.4
1,500	325	111.0	68.8	73.1	75.4	81.8	80.9	86.3	91.1	91.3	93.2	95.3
1,400	314	111.2	72.6	73.1	74.1	81.3	80.8	86.5	91.0	92.0	93.2	95.6
1,300	278	109.5	70.4	72.2	72.4	80.1	80.9	84.4	88.8	90.0	91.7	94.4
1,200	243	107.2	67.6	71.2	70.3	79.4	80.4	81.8	87.3	87.3	90.2	93.2
1,100	211	105.4	65.7	69.6	69.0	76.9	79.4	80.4	86.4	86.1	89.1	92.2
1,000	174	104.3	63.4	65.8	68.0	73.9	78.1	80.2	85.9	84.8	87.9	91.2
900	143	103.0	61.3	61.2	67.4	71.4	77.1	78.5	85.2	82.9	85.7	89.2

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

ENGINE SPEED	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,200	350	99.9	101.0	104.0	103.4	101.9	101.2	99.0	98.5	97.5	97.3	93.9
2,100	350	98.9	101.1	102.4	101.7	101.1	99.8	98.3	97.5	96.9	96.7	93.5
2,000	350	97.0	99.4	100.5	100.7	99.5	98.1	97.1	96.3	96.4	96.3	93.4
1,900	350	97.0	100.8	100.8	100.9	100.6	98.4	96.9	95.5	96.0	95.9	93.2
1,800	350	96.7	101.3	101.7	103.0	101.2	98.8	97.0	95.8	96.4	95.8	93.7
1,700	342	96.6	100.8	101.4	102.7	101.4	99.0	97.2	95.6	96.0	95.8	95.1
1,600	334	97.2	100.6	101.5	102.8	102.1	99.4	97.6	95.7	95.6	95.8	95.4
1,500	325	98.8	101.0	103.0	103.7	102.8	100.2	97.8	96.1	95.9	95.4	96.1
1,400	314	99.9	100.9	103.4	103.9	102.9	100.7	97.9	96.4	96.1	95.1	97.2
1,300	278	97.8	99.0	101.2	102.0	101.2	98.7	96.0	94.8	94.7	94.0	95.3
1,200	243	95.6	97.1	98.5	99.9	99.2	96.1	93.8	92.8	93.2	93.1	92.8
1,100	211	94.1	95.4	96.8	97.4	96.8	93.8	92.0	91.2	92.0	93.4	89.0
1,000	174	93.1	94.4	95.5	95.5	95.8	93.0	90.3	90.1	91.0	94.1	85.0
900	143	92.1	93.5	93.8	93.5	95.0	92.2	89.4	89.6	90.7	92.4	83.2

Emissions Data [Top](#)

Units Filter All Units 

DIESEL

RATED SPEED NOMINAL DATA: 2200 RPM

ENGINE POWER	BHP	350	263	175	87.5	35.0
PERCENT LOAD	%	100	75	50	25	10
TOTAL NOX (AS NO2)	G/HR	42	50	26	24	45
TOTAL CO	G/HR	1	1	1	1	1
TOTAL HC	G/HR	2	1	1	2	3
TOTAL CO2	KG/HR	187	138	100	64	40
PART MATTER	G/HR	0.1	0.0	0.0	0.0	0.0
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	52.5	84.4	61.7	85.5	275.0
TOTAL CO	(CORR 5% O2) MG/NM3	1.1	1.3	1.3	2.5	5.6
TOTAL HC	(CORR 5% O2) MG/NM3	2.2	2.0	2.5	5.1	14.0
PART MATTER	(CORR 5% O2) MG/NM3	0.1	0.0	0.1	0.1	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	26	41	30	42	134
TOTAL CO	(CORR 5% O2) PPM	1	1	1	2	4
TOTAL HC	(CORR 5% O2) PPM	4	4	5	10	26
TOTAL NOX (AS NO2)	G/HP-HR	0.12	0.19	0.15	0.27	1.28
TOTAL CO	G/HP-HR	0.00	0.00	0.00	0.01	0.03
TOTAL HC	G/HP-HR	0.01	0.01	0.01	0.02	0.08
PART MATTER	G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	LB/HR	0.09	0.11	0.06	0.05	0.10
TOTAL CO	LB/HR	0.00	0.00	0.00	0.00	0.00
TOTAL HC	LB/HR	0.00	0.00	0.00	0.00	0.01
TOTAL CO2	LB/HR	413	305	220	141	89
PART MATTER	LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH	%	8.0	9.8	11.6	14.4	16.0

SECONDARY SPEED NOMINAL DATA: 1800 RPM

ENGINE POWER		BHP	350	263	175	87.5	35.0
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	60	35	7	0	37
TOTAL CO		G/HR	0	0	0	0	0
TOTAL HC		G/HR	2	1	1	1	2
TOTAL CO2		KG/HR	173	128	89	54	32
PART MATTER		G/HR	0.0	0.0	0.0	0.0	0.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	79.4	62.9	17.2	0.9	295.0
TOTAL CO	(CORR 5% O2)	MG/NM3	0.0	0.0	0.1	1.3	3.7
TOTAL HC	(CORR 5% O2)	MG/NM3	1.8	1.6	1.8	4.8	11.9
PART MATTER	(CORR 5% O2)	MG/NM3	0.0	0.0	0.1	0.1	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	39	31	8	0	144
TOTAL CO	(CORR 5% O2)	PPM	0	0	0	1	3
TOTAL HC	(CORR 5% O2)	PPM	3	3	3	9	22
TOTAL NOX (AS NO2)		G/HP-HR	0.17	0.13	0.04	0.00	1.07
TOTAL CO		G/HP-HR	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.00	0.00	0.00	0.01	0.05
PART MATTER		G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.13	0.08	0.01	0.00	0.08
TOTAL CO		LB/HR	0.00	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.00	0.00	0.00	0.00	0.00
TOTAL CO2		LB/HR	382	283	197	118	71
PART MATTER		LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	6.8	8.0	9.7	13.1	16.3

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EPA TIER 4 FINAL 2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

EU STAGE IV 2014 - ----

GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 2010/26/EU, ECE REGULATION NO. 96 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSION VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
EUROPE	EU	NON-ROAD	STAGE IV	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.025

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	350	350	350	350	349	348	349	350	350	349	350
1,000	350	350	350	349	347	346	347	349	348	347	349
2,000	350	349	348	347	346	345	346	347	346	344	348
3,000	348	347	346	345	344	344	344	344	343	342	346
4,000	346	345	344	342	342	342	342	342	341	328	344
5,000	343	342	341	340	340	341	341	339	330	313	342
6,000	342	341	341	340	340	341	341	334	318	300	342
7,000	341	341	342	342	343	343	335	325	304	286	341
8,000	343	343	343	344	343	337	327	314	295	277	343

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL09.3HTF	9.3	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.02	0.12	--	0.1	0.01	--	--	--

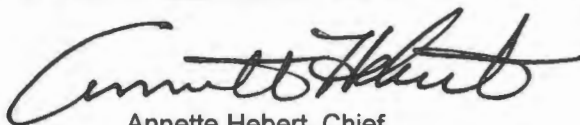
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day of September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL09.3HTF	Cert Test 1	C9.3	325@1800	192	116.3	1260@1200	243	98.1	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	1	C9.3	268@2150	138.3	100.0	881@1400	172.4	81.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	2	C9.3	299@2200	148.5	109.9	1006@1400	187.8	88.4	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	3	C9.3	325@2200	161.7	119.7	1090@1400	206.6	97.3	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	4	C9.3	349@2200	175.5	129.9	1174@1400	223.8	105.4	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	5	C9.3	388@2200	192.5	142.5	1269@1400	240.2	113.1	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	6	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	6A	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	6B	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7A	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7B	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	7C	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	8	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	8A	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	8B	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	9	C9.3	295@2000	155.9	104.9	1090@1000	211.6	71.2	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	10	C9.3	296@2200	154.3	114.2	1166@1200	219.8	88.7	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	11	C9.3	299@2200	156.5	115.8	1261@1200	238.7	96.4	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	12	C9.3	303@2050	158.7	109.4	1263@1200	240.5	97.1	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX
JCPXL09.3HTF	13	C9.3	314@1800	183.4	111.0	1154@1300	221.0	96.6	DFI,TC,ECM,CAC,EGR,PTOX OC,SCR-U,AMOX

R/c 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL09.3HTF	14	C9.3	221@2000	123.7	83.2	1022@1100	201.1	74.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	14A	C9.3	221@2000	123.7	83.2	1022@1100	201.1	74.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	15	C9.3	311@1800	181.7	110.0	1029@1400	199.3	93.9	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	15A	C9.3	311@1800	181.7	110.0	1029@1400	199.3	93.9	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	16	C9.3	325@1800	191.0	115.6	1262@1200	241.3	97.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	17	C9.3	325@1800	191.0	115.6	1262@1200	241.3	97.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	18	C9.3	221@2000	123.7	83.2	1022@1100	201.0	74.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	19	C9.3	224@2200	111.6	82.6	1103@1200	211.7	85.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	20	C9.3	325@2000	168.5	113.3	1094@1400	208.1	98.0	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	21	C9.3	311@1800	181.7	110.0	1029@1400	199.3	93.9	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	22*	C9.3	307@2050	166.5	114.8	1712@1200	241.0	97.3	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX
JCPXL09.3HTF	23*	C9.3	299@2200	156.5	115.8	1710@1200	238.7	96.4	DFI,TC,ECM,CAC,EGR,PTOX. OC,SCR-U,AMOX

* New engine code

Engine Replacement Form
Plume Dispersion Energy Comparison

Date: 4/10/2026 Company Name: Summit Gold Corporation Facility Name: Summit Mine Unit No. 3a and 3b Unit Make & Model: CAT C18 or C27 to two CAT C13																																						
Version: 4/25/11 Enter data only in the yellow fields.																																						
Note: This spreadsheet is only to be used for permits that have a general condition titled 'Short Term Engine Replacement', to verify whether or not the replacement engine qualifies as a "replacement engine" under this General Condition. Enter any facility notes here: Presently per Permit 3807M2 Condition A804B, engines 3a and 3b can not be used at simultaneously. Summit Mine will be permitting the option to run both replacement engine for Units 3a and 3b at the same time. The replacement engines are both CAT C13 engine that are Tier 4f certified. The emissions input into the calculations is for either permitted 3a or 3b, the replacement engines emissions are combined. So, if both replacement engines operated at the same time the dispersion of emission would be equivalent																																						
Enter Plume Energy Equation Variables Here																																						
	Engine																																					
	Existing Replacement																																					
Stack Height (f)	12 10.5																																					
Velocity (fps)	566.2 213.42																																					
Exhaust Temp (°F)	1277 998.8																																					
Allowable/potential NOx Emission Rate (lb/hr)	10.21 0.54																																					
Allowable/potential CO Emission Rate (lb/hr)	1.4 0.038																																					
Calculated NOx Plume Energy	15784.9148 43556.6893																																					
Calculated CO Plume Energy	115117.129 618963.479																																					
	15784.9147894221 < 43556.6892592592 and																																					
The replacement engine's stack height and flow parameters shall be at least as effective in the dispersion of air pollutants as the modeled stack height and flow parameters for the existing permitted engine. The following equation may be used to show that the replacement engine disperses pollutants as well as the existing engine. The value calculated for the replacement engine on the right side of the equation shall be equal to or greater than the value for the existing engine on the left side of the equation.																																						
Equation used to determine 'existing' and 'replacement' plume energy (do not enter data here):																																						
Plume Energy, Existing Engine 1	Must be <=	Plume Energy, Replacement Engine 2																																				
$[(g) \times (h_1) + (v_1)^2/2 + (c) \times (T_1)]/(q_1)$	Must be <=	$[(g) \times (h_2) + (v_2)^2/2 + (c) \times (T_2)]/(q_2)$																																				
1 = (32.2 x 12 + 566.2^2/2 + 0.28 x 1737)/10.21	is <= for NOx	(32.2 x 10.5 + 213.42^2/2 + 0.28 x 1458.8)/0.54 =																																				
429 = (32.2 x 12 + 566.2^2/2 + 0.28 x 1737)/1.4	is <= for CO	(32.2 x 10.5 + 213.42^2/2 + 0.28 x 1458.8)/0.038 =																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">g - gravitational constant</td> <td style="width:10%; text-align: center;">32.2</td> <td style="width:20%;">ft/sec²</td> </tr> <tr> <td>c - specific heat of exhaust</td> <td style="text-align: center;">0.28</td> <td>Btu/lb-°F</td> </tr> <tr> <td>h₁ - existing stack height, feet</td> <td style="text-align: center;">12</td> <td>feet</td> </tr> <tr> <td>v₁ - exhaust velocity, existing engine, feet per second</td> <td style="text-align: center;">566.2</td> <td>ft/sec</td> </tr> <tr> <td>T₁ - absolute temperature of exhaust, existing engine (K) = degree F + 460</td> <td style="text-align: center;">1737</td> <td>Rankine</td> </tr> <tr> <td>q_{1NOx} - permitted allowable emission rate, existing engine, lbs/hour</td> <td style="text-align: center;">10.21</td> <td>lb/hr</td> </tr> <tr> <td>q_{1CO} - permitted allowable emission rate, existing engine, lbs/hour</td> <td style="text-align: center;">1.4</td> <td>lb/hr</td> </tr> <tr> <td>h₂ - replacement stack height, feet</td> <td style="text-align: center;">10.5</td> <td>feet</td> </tr> <tr> <td>v₂ - exhaust velocity, replacement engine, feet per second</td> <td style="text-align: center;">213.42</td> <td>ft/sec</td> </tr> <tr> <td>T₂ - absolute temperature of exhaust, replacement engine (K) = degree F + 460</td> <td style="text-align: center;">1458.8</td> <td>Rankine</td> </tr> <tr> <td>q_{2NOx} - manufacturer's potential emission rate, replacement engine, lbs/hour</td> <td style="text-align: center;">0.54</td> <td>lb/hr</td> </tr> <tr> <td>q_{2CO} - manufacturer's potential emission rate, replacement engine, lbs/hour</td> <td style="text-align: center;">0.038</td> <td>lb/hr</td> </tr> </table>			g - gravitational constant	32.2	ft/sec ²	c - specific heat of exhaust	0.28	Btu/lb-°F	h ₁ - existing stack height, feet	12	feet	v ₁ - exhaust velocity, existing engine, feet per second	566.2	ft/sec	T ₁ - absolute temperature of exhaust, existing engine (K) = degree F + 460	1737	Rankine	q _{1NOx} - permitted allowable emission rate, existing engine, lbs/hour	10.21	lb/hr	q _{1CO} - permitted allowable emission rate, existing engine, lbs/hour	1.4	lb/hr	h ₂ - replacement stack height, feet	10.5	feet	v ₂ - exhaust velocity, replacement engine, feet per second	213.42	ft/sec	T ₂ - absolute temperature of exhaust, replacement engine (K) = degree F + 460	1458.8	Rankine	q _{2NOx} - manufacturer's potential emission rate, replacement engine, lbs/hour	0.54	lb/hr	q _{2CO} - manufacturer's potential emission rate, replacement engine, lbs/hour	0.038	lb/hr
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Units 3c and 3d

Eng Certification Status [NF300158]

March 03,2026

(NF300158)-Engine (CBC147135A)-CEM (BGK01739)-
Generator (X8H00109)-Genset (PET048997M)-PETU

For Help Desk Phone Numbers [Click here](#)

[Emissions Certificates Search](#)

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Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request portal
[Click here](#) to be directed to ERC's new customer request portal. ***Notice this portal is not CWS
authenticated, a one time sign up for JIRA will be required.***

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an
emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	NF300158
Generator Number	CBC14713
Genset Number	X8H00109
Sales Model	C13
Regulatory Build Date	13-APR-2018
As Shipped Data	
Engine Arrangement Number	5194400
Certification Arrangement	
Test Spec Number	4150523
Regulatory Status	EPA/CARB @ Constant Speed
Labeled Model Year	2018
EPA Family Code	JCPXL12.5HTF
EPA Emissions Level	EPA TIER 4f
As-Shipped Flash File	5175573
CORR FL Power at RPM	577 HP (430.0 KW)1800 RPM
Advertised Power	518 HP 1,800RPM
Total Displacement	12.5 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the
best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or
validity of the information and is not liable for any errors or omissions contained therein. All information
provided should be independently verified and confirmed, including by examining the emissions label
located on the engine.

[Need emission replacement label? Click here!](#)

Perf No: EM0676

Change Level: 03

[General](#)[Heat Rejection](#)[Emissions](#)[Regulatory](#)[Altitude Derate](#)[Cross Reference](#)[Perf Param Ref](#)[View PDF](#)

SALES MODEL:	C13	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	518	FAN POWER (HP):	34.9
GEN POWER WITH FAN (EKW):	340.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	PRIME	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTB4594 T256C .84 A/R 70/30
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2013
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,854.3
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (IN):	5		
MAX OPERATING ALTITUDE (FT):	3,999		

INDUSTRY
ELECTRIC POWERSubIndustry
STANDARDAPPLICATION
PACKAGED GENSETGeneral Performance Data [Top](#)

Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
374.0	110	563	325	0.352	0.349	28.0	27.7	0.530	0.525
340.0	100	515	297	0.346	0.343	25.2	24.9	0.525	0.520
306.0	90	466	269	0.344	0.341	22.6	22.4	0.524	0.519
272.0	80	418	241	0.344	0.340	20.2	20.0	0.528	0.523
255.0	75	394	227	0.344	0.341	19.1	18.9	0.531	0.526
238.0	70	370	213	0.345	0.341	18.0	17.8	0.535	0.530
204.0	60	322	186	0.347	0.344	15.8	15.6	0.548	0.543
170.0	50	275	158	0.352	0.349	13.6	13.5	0.570	0.564
136.0	40	228	132	0.361	0.357	11.6	11.5	0.605	0.600
102.0	30	182	105	0.375	0.372	9.6	9.5	0.668	0.662
85.0	25	158	91	0.387	0.383	8.6	8.5	0.720	0.713
68.0	20	134	77	0.404	0.400	7.6	7.6	0.797	0.789
34.0	10	85.3	49	0.470	0.466	5.7	5.6	1.181	1.169
GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
374.0	110	563	67.8	122.5	1,299.0	78.6	998.8	71	405.5
340.0	100	515	62.4	122.4	1,221.1	70.2	942.2	65	377.9
306.0	90	466	56.5	122.3	1,164.2	62.1	904.3	59	352.9
272.0	80	418	50.3	122.2	1,113.5	54.5	872.7	52	328.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
255.0	75	394	47.1	122.2	1,090.7	50.8	859.2	49	315.8
238.0	70	370	43.9	122.2	1,068.2	47.2	846.2	46	302.7
204.0	60	322	37.5	122.2	1,022.6	40.5	819.7	39	276.9
170.0	50	275	31.3	120.8	972.2	34.2	789.7	33	251.1
136.0	40	228	25.6	113.2	912.2	28.6	751.5	27	225.8
102.0	30	182	20.3	105.4	840.6	24.1	702.6	21	200.3
85.0	25	158	17.8	102.1	800.1	22.3	674.0	19	187.5
68.0	20	134	15.6	99.6	753.3	21.0	637.8	17	176.2
34.0	10	85.3	13.0	98.0	630.4	22.0	527.3	14	164.1

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE WET EXH VOL FLOW RATE	OUTLET WET INLET GAS FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM		LB/HR	LB/HR	FT3/MIN	FT3/MIN
374.0	110	563	871.2	1,746.3		3,788.5	3,986.8	588.7	523.4
340.0	100	515	826.5	1,638.0		3,573.7	3,752.3	574.5	513.3
306.0	90	466	776.5	1,537.5		3,338.5	3,498.7	554.2	497.1
272.0	80	418	722.2	1,438.0		3,088.0	3,231.4	530.7	477.3
255.0	75	394	692.2	1,382.9		2,952.1	3,087.3	515.5	464.2
238.0	70	370	661.6	1,326.4		2,814.0	2,941.3	499.4	450.1
204.0	60	322	600.6	1,211.7		2,541.5	2,653.3	465.7	420.6
170.0	50	275	542.7	1,097.6		2,285.2	2,382.0	431.9	391.3
136.0	40	228	493.0	989.2		2,066.9	2,149.2	401.6	365.6
102.0	30	182	451.7	881.4		1,889.6	1,957.7	372.8	341.9
85.0	25	158	434.1	827.3		1,816.0	1,877.1	358.8	330.5
68.0	20	134	423.8	779.4		1,772.9	1,827.1	349.2	323.4
34.0	10	85.3	442.0	724.0		1,850.2	1,890.4	360.6	339.5

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTER COOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
374.0	110	563	13,383	2,729	19,984	11,217	2,937	4,294	23,891	60,808	64,776
340.0	100	515	12,526	2,516	17,308	9,576	2,753	3,653	21,853	54,736	58,308
306.0	90	466	11,683	2,364	15,079	8,320	2,586	3,095	19,769	49,180	52,389
272.0	80	418	10,776	2,213	13,375	7,219	2,397	2,576	17,714	43,998	46,869
255.0	75	394	10,235	2,102	12,764	6,708	2,266	2,322	16,696	41,501	44,209
238.0	70	370	9,668	1,983	12,161	6,217	2,125	2,075	15,677	39,042	41,590
204.0	60	322	8,499	1,733	10,988	5,293	1,831	1,612	13,659	34,278	36,515
170.0	50	275	7,356	1,491	9,846	4,433	1,550	1,190	11,655	29,682	31,619
136.0	40	228	6,353	1,290	8,741	3,632	1,330	848	9,684	25,243	26,891
102.0	30	182	5,354	1,093	7,682	2,885	1,118	570	7,704	20,901	22,264
85.0	25	158	4,847	992	7,167	2,531	1,013	455	6,704	18,751	19,974
68.0	20	134	4,323	886	6,706	2,175	903	360	5,692	16,604	17,688
34.0	10	85.3	3,218	660	6,108	1,363	672	246	3,619	12,306	13,109

Emissions Data [Top](#)

Units Filter All Units ▼

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER	BHP	563	515	394	275	158	85.3
PERCENT LOAD	%	110	100	75	50	25	10
NON-ETHANE HC	(CORR 15% O2) PPM	4.737572	3.6651466	2.7610962	2.2077477	1.9159158	3.73961
TOTAL NOX (AS NO2)	G/HR	31	42	57	13	5	24
TOTAL CO	G/HR	4	2	1	1	1	1
TOTAL HC	G/HR	9	6	3	2	2	2
TOTAL CO2	KG/HR	287	258	196	140	89	58
PART MATTER	G/HR	2.8	0.6	0.4	0.3	0.3	0.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	24.8	37.7	64.2	22.3	15.3	109.9
TOTAL CO	(CORR 5% O2) MG/NM3	3.4	2.2	1.6	1.0	1.7	2.7

GENSET POWER WITH FAN		EKW	374.0	340.0	255.0	170.0	85.0	34.0
ENGINE POWER		BHP	563	515	394	275	158	85.3
PERCENT LOAD		%	110	100	75	50	25	10
TOTAL HC	(CORR 5% O2)	MG/NM3	6.1	4.4	3.2	2.8	3.6	8.5
PART MATTER	(CORR 5% O2)	MG/NM3	1.8	0.5	0.3	0.4	0.6	0.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	9.2	14.0	23.8	8.3	5.7	40.8
TOTAL CO	(CORR 15% O2)	MG/NM3	1.2	0.8	0.6	0.4	0.6	1.0
TOTAL HC	(CORR 15% O2)	MG/NM3	2.3	1.6	1.2	1.0	1.3	3.2
PART MATTER	(CORR 15% O2)	MG/NM3	0.6	0.2	0.1	0.2	0.2	0.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	12	18	31	11	7	54
TOTAL CO	(CORR 5% O2)	PPM	3	2	1	1	1	2
TOTAL HC	(CORR 5% O2)	PPM	11	8	6	5	7	16
ACROLEIN	(CORR 5% O2)	PPM	0.02	0.00	0.03	0.34	1.08	0.48
ACETALDEHYDE	(CORR 5% O2)	PPM	2.63	2.58	2.18	2.50	2.38	4.29
METHANOL	(CORR 5% O2)	PPM	0.07	0.02	0.00	0.00	0.00	0.13
NON-METHANE HC	(CORR 5% O2)	PPM	12.00	8.97	6.68	5.14	4.40	9.05
NON-ETHANE HC	(CORR 5% O2)	PPM	12.77	9.88	7.44	5.95	5.16	10.08
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	4	7	12	4	3	20
TOTAL CO	(CORR 15% O2)	PPM	1	1	0	0	1	1
TOTAL HC	(CORR 15% O2)	PPM	4	3	2	2	3	6
TOTAL NOX (AS NO2)		G/HP-HR	0.06	0.08	0.14	0.05	0.03	0.28
TOTAL CO		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL HC		G/HP-HR	0.02	0.01	0.01	0.01	0.01	0.03
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		G/KW-HR	0.07	0.11	0.19	0.07	0.04	0.37
TOTAL CO		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL HC		G/KW-HR	0.02	0.02	0.01	0.01	0.01	0.04
PART MATTER		G/KW-HR	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)		LB/HR	0.07	0.09	0.13	0.03	0.01	0.05
TOTAL CO		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.01	0.00	0.00	0.01
TOTAL CO2		LB/HR	632	569	432	310	196	129
PART MATTER		LB/HR	0.01	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	5.1	5.8	7.1	8.1	10.9	14.2

Regulatory Information [Top](#)

EPA TIER 4 FINAL

2014 - ----

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)

ALTITUDE (FT)

	50	60	70	80	90	100	110	120	130	140	NORMAL
0	518	518	518	518	516	513	513	513	495	468	518
1,000	518	518	518	517	513	512	511	504	482	455	518
2,000	518	518	516	513	512	510	506	485	460	431	516
3,000	517	515	513	510	508	506	488	461	436	409	513
4,000	513	511	509	505	499	485	461	438	414	390	510
5,000	508	507	500	492	481	460	438	417	395	371	507
6,000	502	497	487	476	460	439	420	404	386	365	500
7,000	489	478	467	453	438	424	410	395	381	364	484
8,000	468	460	448	433	422	410	395	383	369	355	468
9,000	449	439	428	416	403	390	378	368	357	346	449
10,000	428	418	407	396	383	374	365	355	346	336	431
11,000	409	400	390	380	370	361	352	344	335	325	415
12,000	391	382	372	362	352	343	333	325	318	312	401
13,000	375	365	355	345	335	327	321	313	307	301	386
14,000	363	354	344	333	326	320	313	306	300	293	375

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2018	JCPXL12.5HTF	12.5	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.05	0.26	--	0.02	0.01	--	--	--

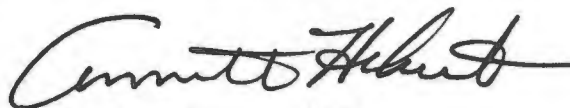
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 22 day September 2017.



Annette Hebert, Chief
 Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT 1 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesel only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193C
JCPXL12.5HTF	Cert Test 1	C13	519@2100	263	186	1752@1400	338	159	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	Cert Test 2	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	01	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	02	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	03	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	04	C13	375@2000	196.9	132.5	1575@1300	302.3	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	05	C13	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	06	C13	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	07	C13	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	08	C13	473@2100	239.1	168.9	1601@1400	308.6	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	09	C13	519@2100	262.7	185.6	1752@1400	338.2	159.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	10	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	11a	C13	425@1800	245.0	148.4	1338@1650	258.8	143.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	12	C13	416@2100	216.4	152.9	1612@1200	310.3	125.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	13	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	14	C13	527@1870	289.2	181.9	1750@1400	335.5	158.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	15	C13	479@1870	258.3	162.5	1635@1400	314.2	148.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	16	C13	421@1870	232.1	146.0	1434@1400	277.1	130.5	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	17	C13	363@2000	190.1	127.9	1351@1000	268.4	90.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

ATTACHMENT 2 OF 2

Engine Model Summary Template

U-R-001-0548

R/C 12/18/2018

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193
JCPXL12.5HTF	18	C13	307@1850	174.5	108.5	1194@1200	233.8	94.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	19	2206	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	20	2206	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	21	2206	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	22	C13	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	23	C13	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	24	2206	384@2100	192.6	136.1	1297@1400	245.7	115.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	25	2206	414@2100	207.4	146.5	1398@1400	267.5	126.0	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	26	2206	439@2100	219.2	154.9	1482@1400	280.9	132.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	27	C13	439@2100	219.2	154.8	1482@1400	280.8	132.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	28	C13	473@2100	239.0	168.8	1600@1400	308.5	145.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	29	C13	519@2100	262.6	185.5	1752@1400	338.2	159.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	30	C13	355@2050	184.4	127.2	1564@1200	301.9	121.9	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	31	C13	429@2100	229.6	162.2	1612@1200	313.0	126.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	32*	C13	425@1800	245.2	148.4	1609@1200	312.7	128.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	33*	2206	503@1500	344.7	173.9	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
JCPXL12.5HTF	34*	2206	567@1800	331.9	201.0	NA	NA	NA	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX

* New engine code

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit No.	Test Description	Test Date
NA		

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

No other relevant information is submitted with the application.

Section 22: Certification

Company Name: Summit Gold Corporation

I, Alan Linden, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 4th day of May, 2026, upon my oath or affirmation, before a notary of the State of

New Mexico

[Signature]
*Signature

5/4/26
Date

Alan Linden
Printed Name

General Manager
Title

Scribed and sworn before me on this 4th day of May, 2026.

My authorization as a notary of the State of New Mexico expires on the

2nd day of September, 2029.

Kierra Suzanne Lacey
Notary's Signature

5/4/26
Date

Kierra Suzanne Lacey
Notary's Printed Name



*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.



Air Permit Application Compliance History Disclosure Form

Pursuant to Subsection 74-2-7(S) of the New Mexico Air Quality Control Act ("AQCA"), NMSA §§ 74-2-1 to -17, the New Mexico Environment Department ("Department") may deny any permit application or revoke any permit issued pursuant to the AQCA if, within ten years immediately preceding the date of submission of the permit application, the applicant met any one of the criteria outlined below. In order for the Department to deem an air permit application administratively complete, or issue an air permit for those permits without an administrative completeness determination process, the applicant must complete this Compliance History Disclosure Form as specified in Subsection 74-2-7(P). An existing permit holder (permit issued prior to June 18, 2021) shall provide this Compliance History Disclosure Form to the Department upon request.

Permittee/Applicant Company Name		Expected Application Submittal Date
Summit Gold Corporation		May 4, 2026
Permittee/Company Contact	Phone	Email
Alan Linden	(575) 313-3273	alan.linden@summit-gold.com
Within the 10 years preceding the expected date of submittal of the application, has the permittee or applicant:		
1	Knowingly misrepresented a material fact in an application for a permit?	☐ Yes ☒ No
2	Refused to disclose information required by the provisions of the New Mexico Air Quality Control Act?	☐ Yes ☒ No
3	Been convicted of a felony related to environmental crime in any court of any state or the United States?	☐ Yes ☒ No
4	Been convicted of a crime defined by state or federal statute as involving or being in restraint of trade, price fixing, bribery, or fraud in any court of any state or the United States?	☐ Yes ☒ No
5a	Constructed or operated any facility for which a permit was sought, including the current facility, without the required air quality permit(s) under 20.2.70 NMAC, 20.2.72 NMAC, 20.2.74 NMAC, 20.2.79 NMAC, or 20.2.84 NMAC?	☐ Yes ☒ No
5b	If "No" to question 5a, go to question 6. If "Yes" to question 5a, state whether each facility that was constructed or operated without the required air quality permit met at least one of the following exceptions: a. The unpermitted facility was discovered after acquisition during a timely environmental audit that was authorized by the Department; or b. The operator of the facility estimated that the facility's emissions would not require an air permit, and the operator applied for an air permit within 30 calendar days of discovering that an air permit was required for the facility.	☐ Yes ☐ No
6	Had any permit revoked or permanently suspended for cause under the environmental laws of any state or the United States?	☐ Yes ☒ No
7	For each "yes" answer, please provide an explanation and documentation.	

May 4, 2026

New Mexico Environment Department
Air Quality Bureau
Permitting Section
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816

Dear Ms Romero

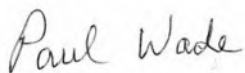
Subject: Summit Gold Corporation – NSR Significant Revision Permit 3807M2 Application for Summit Mine

Attached please find two (2) hardcopies of the 20.2.72 NMAC NSR Significant Revision Application for Permit #3807M2, Summit Gold Corporation's Summit Mine. This letter is attached to the application copy that has the original notarized signature page (Section 22) and \$500 application fee. Electronic files will be submitted to the NMED AQB via a file share program.

The significant revision application is submitted for Summit Gold Corporation's Summit Mine that consists of an underground gold and silver mine. Summit Gold Corporation is proposing replacement of all permitted engines with newer, more energy efficient, and environmentally friendly EPA Tier 4 final engines. Additionally, the maximum capacity of the haul trucks that will haul the ore off the mine site will be increased to a 60.6-ton capacity haul trucks.

Please let me know if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads "Paul Wade".

Paul Wade
Senior Associate Engineer

Cc: Alan Linden, General Manager, Summit Gold Corporation